Qk1
.G295
1912
S. 3
V.51

THE

GARDENERS' CHRONICLE

A Weekly Illustrated Journal

OF

HORTICULTURE AND ALLIED SUBJECTS.

(ESTABLISHED IN 1841.)

VOL. LI.—THIRD SERIES.

JANUARY TO JUNE, 1912.

N.O. Bot. Garden
1912

LONDON:
41, WELLINGTON STREET, COVENT GARDEN, W.C.
1912.

INDEX OF CONTENTS.

JANUARY TO JUNE, 1912.

(For Special Headings see under Books; Certificates; Law Notes; Nursery Notes; Obituary; Plant Portraits; Plants, New; Scientific Committee; Societies; and Illustrations.)

A

Aberdeen city gardeners, 338
Aberdeen florists and master gardeners, 225; and the Town Council, 173
Aberdeen market gardeners' stances, 415
Aberdeen University, agriculture at the, 378
Acacia Baileyana and Iris stylosa, 76; A. Baileyana flowering out-of-doors, 59; A. dealbata, 162
Academy, Royal, pictures at the, 331
Adams's, the late H. J., collection of Orchids, 281
Africa, fruit trade of South, 282; gardening in West, 256
Agar, Madeline (*Garden Design in Theory and Practice*), 407
Agricultural education and the Board of Agriculture, 58
Agricultural statistics, 25
Agriculture at Aberdeen University, 378; in the Transvaal, 395; North of England College of, 225; scholarships for, in Staffordshire, 262; school of, at Cambridge, 155
Albino flowers, 167
Alcohol from plants, 300
Alexandra Day, 429
Algæ in ponds, 382
Almond, the flowering of the, 139
Aloe dichotoma and A. Bainesii, 425
Alpine garden, the, 81, 98, 117, 135, 277
Alpine Pinks, the four great, 195
Amaryllis (see Hippeastrum)
America, forcing Roses in, 85; new plants in, 25; notes from, 85, 116, 165; public horticultural education in, 396; seeds and plants imported into, 354
American Association of Park Superintendents, 242
American Gooseberry mildew, 262
American Sweet Peas, 21
Ampelopsis quinquefolia berries, poisoning by, 204
Androcymbium melanthoides, 13
Androsace Henryi, 354
Anemone coronaria and Plum rust disease, 263
Anthemis Cupaniana, 117, 174
Antirrhinums as bedding plants, 91, 142
Ant plants, 156
Aphyllanthes monspeliensis, 134, 173, 208
Apiary, the (see "Bees")
Apple, abnormal flowers of, 402; a sporting, 25; bark of, destroyed, 130
Apple-culture in the Clydeside fruit farms, 225; in Ireland, 90
Apples Blenheim Pippin, 64; from Australia, 156; in grass land, 44, 76; in Ontario, 222; instruction in packing, 89; late dessert varieties of, 285, 323; Senlis, 25; the colouring of, 13, 28, 44, 59, 76, 83, 90, 124
Apricot paste, the manufacture of, in Syria, 353
Arbutus Unedo in South Scotland, 142
Archer, Mr. W. E., 319
Arches, garden, 255
Argentina, the Maize crop in, 224
Arnold Arboretum, map of, 413
Arsenic in plants, 378
Ashridge Park, Beeches at, 57
Ash tree, a famous, at Ruthin Castle, 4
Asparagus, the treatment of, 27
Athyrium filix-fœmina, 257
Attar of Roses, 253
Australia, Apples from, 156; gardening employment in, 15, 224; Potato-growing in Western, 89; proposed new botanic garden in, 378
Austria and the Royal International Horticultural Exhibition, 188
Autumn flowers in the south-west, 36
Autumn tints, planting for, 51
Avocado Pear, the, in California, 150

B

Bacterial flora of the soil, the, 378
Bagatelle, trials of Roses at, 51
Balcombe House Gardens, Sussex, archway of Pear trees at, 301
Balfour professorship of Genetics, the, 171
Barnes, Mr. G. F., 224
Barren soil, treatment of, 241
"Barr" memorial fund, the, 241
Basic slag for lawns, 96
Bateson, Professor, on Genetics, 57, 74, 89, 104, 120, 139, 337
Bath, Broom Botanical Garden, 424
Batsford, Gloucestershire, 163, 188
Beccari, Dr. O. (*Asiatic Palms—Lepidocaryeæ*), 273
Beech, weeping, in John Waterer & Son's, nursery, 114
Beeches at Ashridge Park, 56
Bees, the management of, 39, 87, 119, 201, 259, 317, 363, 411, 427
Beet, sugar, salt as a manure for, 262
Begonia Gloire de Lorraine, 47; B. luxurians, 29
Belgium, horticultural education in, 399; market gardening in, 414
Belsize Court, Hampstead, Orchids at, 253
Benevolent Institution, Gardeners' Royal, 9, 45, 56, 156, 319, 393; (annual meeting), 62
Berberis Bealei, 164
Berlin, Orchid show at, 204
Big bud, spraying for, 58, 106, 142
Bilberry, the, Vaccinium Myrtillus, 232
Birds and fruit-buds, 227, 246, 265, 285
Birds, curious nesting places of, 379, 397, 415, 431; eggs, a lecture on, 78; in fruit nets, 430; protecting crops from, 156
Birmingham, flower shows at, 263
Blickling Hall, Norfolk, 157
Board of Agriculture and Fisheries, the, 395; and agricultural education, 58; horticultural branch of the, 412, 428; returns, 74
Bog land, reclaiming, in Ireland, 141
Bonfires and rubbish heaps, 392

Books, Notices of: — Agricultural Bulletin of the Straits and Federated Malay States, 105; Annual and Biennial Garden Plants (*A. E. Speer*), 69; Annuals, Hardy and Half-hardy (*Charles H. Curtis*), 359; Asiatic Palms — Lepidocaryeæ (*Dr. Odoardo Beccari*), 273; Book about Roses (*S. Reynolds Hole*), 240; A Botanical Expedition to Newfoundland and Southern Labrador (*M. L. Fernald*), 88; Botanical Magazine, 9, 105, 187, 241, 319, 394; British Fern Gazette (*Chas. T. Druery*), 171; British Journal Photographic Almanac (*George E. Brown*), 9; Bulletin of Agricultural Statistics, 25; Carnation Year Book, 223; City Gardener (*Thomas Fairchild*), 65; Critical Review of the Genus Eucalyptus (*J. H. Maiden*), 391; Englishwoman's Year Book and Directory (*G. E. Mitton*), 9; Enumeratio Plantarum Formosanarum (*J. Matsumura* and *B. Hayata*), 8; Fleurs des champs et des bois, des haies, et des murs (*Henry Correvon*), 389; Flora of the Upper Gangetic Plain (*J. F. Duthie*), 156; Garden Design in Theory and Practice (*Madeline Agar*), 407; Gardening for the Ignorant (*Mrs. C. W. Earle* and *Miss Ethel Case*), 389; Gardening Year Book and Interleaved Diary (*George Gordon, V.M.H.*), 123; Histoire des Légumes (*Georges Gibault*), 19; Horticultural Directory, 9; Household Book of Lady Grisell Baillie (*Lady Grisell Baillie*), 356; Icones Plantarum Formosanarum nec non Contributiones ad Floram Formosanam, or Icones of the Plants of Formosa, &c. (*B. Hayata*), 394; Illustrated Encyclopædia of Gardening (*Walter P. Wright*), 19; Irises (*W. Rickatson Dykes*), 333; Journal of Genetics, 24; Journal of the R.H.S. Club (*John Fraser*), 41; Kew Guild Journal (*H. Cowley*), 140; Lawns, (*Sutton & Sons, Reading*), 123; Meteorological Instruments and Weather Forecasts, 187; Modern Culture of Sweet Peas (*Thomas Stevenson*), 223; Monograph of the Mycetozoa (*Arthur Lister*), 187; My Garden Diary (*Sutton & Sons*), 9; Natural History of Clay (*Alfred B. Searle*), 133; Orchid Review, 57, 87; Orchid World, 9, 89; Orchidaceen von Deutsch-Neu-Guinea (*Dr. Rudolf Schlechter*), 50; Perpetual Carnations (*Laurence J. Cook*), 251; Plantæ Wilsonianæ (*C. S. Sargent*), 69; Profitable Poultry-keeping, 263; Publications received, 25, 74, 105, 173, 188, 219, 243, 264, 283, 303, 320, 338, 358, 378, 414; Report on the Dune Areas of New Zealand (*J. Cockayne*), 25; Résultats de l'Expédition Scientifique Neerlandaise à la Nouvelle Guinée en 1907 et 1909 (*Dr. H. A. Lorentz*), 275; Roses (*H. R. Darlington*), 40; Roses and Rose Gardens (*Walter P. Wright*), 292; Scottish Botanical Review, 141; Small Holders' Handbook (*W. M. Elkington*), 389; Small Holder's Year Book, 9; The Complete Gardener (*H. H. Thomas*), 243; The Plums of New York (*U. P. Hedrick*), 167; The Profitable Culture of Vegetables (*Thomas Smith*), 196; Types of British Vegetation (*A. G. Tansley*), 114; Vie a la Campagne (*André le Nôtre*), 25, 264; Vine-growing in England (*H. M. Tod*), 183; Vinton's Agricultural Almanac and Diary, 9; Webster's Forester's Diary (*A. D. Webster*), 9; Who's Who Year Book, 9; Who's Who? 9; Woburn Experimental Fruit Farm Report (*Duke of Bedford* and *Spencer U. Pickering*), 17; Writers' and Artists' Year Book, 9

Books, old garden, 10
Botanic garden, proposed new Australian, 378
Botanical appointment, 429
Bowling green, dressing for a, 112
Brambles, Chinese, 123, 147, 165
Brasso-Cattleya Wellesleyæ, 135
Bread Fruit and the mutiny of the "Bounty," 302
Broccoli in a French garden, 257
Bromeliads, epiphytic, the food of, 187
Bruges Exhibition, 301
Brussels International Exhibition, awards to British jurors at the, 188
Bryntirion Gardens, Dolgelly, N. Wales, rainfall in, 246
Buddleia asiatica, 123
Bud-dropping in Peach tree, 292
Bulb-garden, the 19, 164, 181
Bulbs in the L.C.C. parks, 123
Bulgaria, botanising in, 252, 274
Burchellia capensis, 292

C

Cabbage, Finger-and-Toe disease of, cure for, 354
Calceolaria, the herbaceous, 359; C. Clibranii, 425; C. virgata, 50
Calceolarias, distinct species of shrubbery, 373; Hollyhocks and, 44
Calder, Mr. C. C., 171
California, plant diseases in, 187; the Avocado Pear in, 150
Cambridge agricultural monographs, 140
Camellia cuspidata, 262
Camellias, the propagation of, from cuttings, 326
Campbell, Dr., retirement of, 283
Canada, fish hatcheries in, 264; forest areas in, 241; population of, 243, 378; railways in, 263; street trees in, 3, 77; Tobacco growing in, 172; vegetable growing in, 140
Canadian rockeries, the, 368
Canvas as a protective substitute for glass, 96
Carbon-assimilation by plants, 263
Carbon-dioxide and nitrogen in plant-houses, 76
Carnation, Baroness de Brienen, 254; Mrs. A. F. Dutton, 244
Carnations, a conference on, 171; border, in pots, 416; in America, 116; perpetual-flowering, 133, 158, 209; perpetual-flowering, as bedding plants, 210; perpetual-flowering, in winter, 100; propagating, 422
Carson, Mr. D., 353
Case, Miss Ethel (*Gardening for the Ignorant*), 389
Castello di Poggio Gherardo, Italy, the gardens at, 315
Caterpillars on Apple trees, 370
Cattleya Dirce "Westonbirt variety," 226; C. Gudrun and Lælio-Cattleya Norma, 164; C. Maggie Raphael alba "Orchidhurst variety," 75; C. Mossiæ, 405
Cauliflowers, the culture of, 182
Caustic alkali on vines, 64
Celery, leaf-spot in, 172
Celsia cretica, 322
Cement, Portland, 172

Certificated Fruits and Vegetables: — Apple: Oatlands Seedling, 127; Pear: Mrs. Seden, 30

Certificated Plants: — Anemone pulsatilla rosea "Mrs. Van der Elst," 210; Araucaria excelsa elegantissima aurea, 306; Auricula Cleveley Gem, 307; A. Mars, 307; A. Mrs. Neville Chamberlain, 325; A. Mrs. W. H.

Parton, 307; A. "Roxborough," 266; Begonias: Golden Shower, 417; James Baird, 417; Princess Victoria Louise, *Supp.*, May 25, p. xvi.; F. W. Walker, 417; Brasso-Cattleya - Lælia "Beardwoodensis," 369; Brasso-Cattleya Cliftonii Leeman's variety, 325; B.-C. Maggie, 342; B.-C. Pocahontas albens, 175; B.-C. Rutherfordii, 110; B.-C. "The King," *Supp.*, June 1, p. xxi.; B.-C. Veitchii var. Luptonii, 369; Brasso-Lælio - Cattleya "Baron Honin," 14; Brasso-Lælia Leeanum, 175; Calanthe Baron Schröder variety albiflora, 126; Calceolaria Veitchii, *Supp.*, May 25, p. xvi.; Camellia cuspidata, 228; Carnations: Attraction, 380; C. Blick, 417; Cyclops, 417; Duchess of Devonshire, 248; Lady Alington, 249; Lady Meyer, 126; Lady Northcliffe, 193, 209, 308; Margaret Lennox, 380; Mrs. Husan Morris, 417; Queen Mary, 380; Regina, 341; Sunstar, 341; Triumph, 91, 308; Wivelsfield Wonder, 29; Wodenethe, 266; Cattleya Brenda, 126; C. Cappei, 193; C. Catiline, 30; C. Dirce magnifica, *Supp.*, June 1, p. xxi.; C. Dirce Westonbirt variety, 192; C. Lady Dillon magnificum, 110; C. "Maggie," 268; C. Maggie Raphael alba Orchidhurst variety, 30; C. Maggie Raphael variety "pulcherrima," 77; C. Mendelii The Knowle variety, 341; C. M. "Thule," 267; C. M. variety Queen Mary, *Supp.*, June 1, p. xxi.; C. Mossiæ variety Mme. Jules Hye, *Supp.*, June 1, p. xxi.; C. Osiris, 268; C. "Purity," 110; C. Schröderæ enfieldensis, 229; C. S. Glebelands, 307; C. S. variety Œnone, 268; C. S. variety luminosa, 268; C. Suzanne Hye "Gratrix's variety," 229; C. Trianæ variety Ada le Doux, 268; C. T. variety Britannia, 14; C. T. variety Iris, 268; Celmisia spectabilis argentea, *Supp.*, May 25, p. xvi.; Celsia cretica Cliveden variety, 306; Cereus amecænsis, 339; Cheiranthes mutabilis Keeley's variety, 306; Cineraria hybrida, 266; C. Pompadour (strain), 306; Corylopsis multiflora, 160; C. Veitchiana, 190; Cymbidium Parishii Sanderæ Rutherford's variety, 229; C. Pauwelsii, 229, 268; C. P. The Dell variety, 229; C. rosefieldiense, 30; C. Schlegelii, 62; C. Woodhamsianum Fowler's variety, 340; Cypripedium Actæus "Ashlandense," 31; C. A. Major, 77; C. A. variety Dunbar, 77; C. Alcibiades Gratrix's variety, 110; C. Annie Measures variety Diabolus, 369; C. Archimedes "nigrum," 175; C. "Aurora Borealis," 31; C. Bernal Bagshaw, 31; C. birkdalense, 128; C. "Black Knight," 110; C. "Carola," 193; C. "Dora Jameson," 31; C. "Draco," 128; C. "Duke of Marlborough," 62; C. Fairæ Maudiæ, 14; C. Goweri magnificum Schofield's variety, 421; C. Greyi Claytoniense, 342; C. "Hazel Vicars," 31; C. Helen II. "Westonbirt variety," 31; C. Hercules, 128; C. Hortonensis, 369; C. "Jasper," 77; C. Jucundum, 30, 77; C. Juno var. Hebencea, 14; C. Leeanum variety Frederick Arnold, 14; C. Lion, 77; C. Lucernale, 128; C. "Magog," 31; C. "Mrs. Mabel Waring," 14; C. Nora, 61; C. nitens "Beeckensis," 30; C. Nubia, 128; C. Pallas Athenæ, 14; C. Prince Albert variety Alport Derby, 229; C. Princess Wilhelmina, 110; C. Reginald Young, 14; C. Roger Sander, 229; C. Royal Sovereign, 31; C. Sanctæus Westfield variety, 30; C. caudatum "Sanderæ," 77; C. seedling variety, 77; C. Simonii variety The Mousme, 175; C. The Chairman, 229; C. Thompsonii × C. Rupert, 175; C. viridissimum, 14; Delphiniums: Colonel Crabbe, 417; Cymbeline, 417; Darius, 417; Dr. Bergman, 417; Dr. Lodwidge, 417; Drake, 417; Dusky Monarch, 380, 418; Henry Smeathan, 417; Jessica, 417; J. S. Sargent, 417; Lavanda, 417, 418; Lizzie Van Veen, 417; Lovely, 417; Mme. E. Geny, 417; Mrs. James Kelway, 417; Mr. J. S. Brunton, 417; Royal Standard, 417; Smoke of War, 417; Tagalie, 417; Dendrobium chessingtonense, 193; D. Cybelle, 193; D. Dalhousianum luteum, *Supp.*, June 1, p. xxi.; D. Goldei, 381; D. Golden King superbum, 161; D. nobile variety Leeana, 229; D. n. Thwaites's variety, 193; D. Othello West Point variety, 175; Deutzia longifolia, 306; D. Veitchii, *Supp.*, May 25, p. xvi; Echium trunctatum, 306; Elæocarpus cyaneus, 380; Eremurus Lemon Queen, 417; E. Tubergenii, *Supp.*, May 25, p. xvi; Freesia "Le Phare," 266; F. Tubergenii "Gem," 342; F. T. Robinetta, 342; Gladioli: Cardinal, 418; Innocence, 418; Queen Mary, 418; Rosina, 380; Hippeastrums: Musigny, 190; Pink Perfect, 193; Rose du Barri, 190; Ruby Queen, 193; Hydrangea Sargentiana, *Supp.*, May 25, p. xvi.; Iris squalens variety Nibelungen, *Supp.*, May 25, p. xvi; I. variegata variety Ossian, *Supp.*, May 25, p. xvi; Lælia purpurata Schröderæ, *Supp.*, June 1, p. xxi; Lælio-Cattleya amabilis, 62, 175; L.-C. Aphrodite Cowan's variety, 381; L.-C. Apollo, 340; L.-C. Baroness Emma, 418; L.-C. Bella alba, 30; L.-C. Bella alba variety Leeana, 229; L.-C. Bertram, 268; L.-C. Frederick Boyle, Veitch's variety, 229; L.-C. × Ganymede, Southfields variety, 418; L.-C. Gladiator, *Supp.*, June 1, p. xxi; L.-C. Lustre variety Buddha, *Supp.*, June 1, p. xxi; L.-C. Lustre variety Lavingo, *Supp.*, June 1, p. xxi; L.-C. MacBeaniana, 229; L.-C. Martinettii, 421; L.-C. Mrs. W. Hopkins, 30; L.-C. Myrrha grandis, 77; L.-C. Orama, 229; L.-C. Trimyra, 229; L.-C. Ulysses, *Supp.*, June 1, p. xxi; L.-C. Ulysses alba, *Supp.*, June 1, p. xxi; Lastrea patens variety Mayi, *Supp.*, May 25, p. xvi; Lavatera Olbia, 417, 418; Leptospermum scoparium variety Boscawenii, *Supp.*, May 25, p. xvi; L. s. variety Nichollii, *Supp.*, May 25, p. xv; Lewisia Howellii, 306; Lilium davuricum variety luteum, *Supp.*, May 25, p. xvi; L. myriophyllum, *Supp.*, May 25, p. xvi; Lithospermum Frœbellii, 418; Lycaste variety Susan, 229; Miltonia Bleuana "Rising Sun," 418; M. Hyeana variety Vogelzang, *Supp.*, June 1, p. xxi; M. Hypatia, 421; M. Jules Hye de Crom, *Supp.*, June 1, p. xxi; M. radiola, 421; M. vexillaria Snowflake, 380; Narcissi: Albert Vis, 342; Bedouin, 342; Campernel rugulosus maximus, 342; Colossus, 342; Crœsus, 229; Deepdale, 308; Flame, 308; fl. pl. Glacier, 342; Golden Lion, 342; Great Warley, 342; Helios, 191; Holbein, 342; Isis, 342; Killiecrankie, 229; Laurens Koslar, 342; March Glory, 342; Mount Erebus, 342; Mrs. Ernest H. Krelage, 267; Pedestal, 229; Plenipo, 342; polyanthus No. 67, 342; Robespierre, 191; Rubalite, 191; St. Bavo, 342; Seville, 267; Silver Spangle, 267; Solo, 342; South Pole, 342; Sunrise, 342; Thackeray, 342; Trafalgar, 308; Tresserve, 342; and Vulcans, 342; Odontioda Bradshawiæ Lady Colman, *Supp.*, June 1. p. xxi.; O.B. Rawdon variety, 341; O. Chantecleer, *Supp.*, June 1, p. xxi.; O. Charlesworthii Ward's variety, 229; O. Cooksoniæ Fowler's variety, 418; O. Cooksonii, 175; O. C. Cobb's variety, 229; O. eboraicum, 193; O. Diana Ashworth's variety 325; O. Hyeanum variety Willie, 325; O. Keighleyense Ward's variety, 175; O. Mrs. F. M. Ogilvie, *Supp.*, June 1, p. xxi.; O. Queen Mary, *Supp.*, June 1, p. xxi; O. St. Alban, 418; O. Schröderi variety Leeana, 229; O. splendens, 229; O. Æsopus 31; Odontoglossum Adrianæ variety Vulcan, 128; O. amabile Ashworth's variety "Nubian," 175; O. a. Duke of Portland, *Supp.*, June 1, p. xxi.; O. a. Princess May, *Supp.*, June 1, p. xxi.; O. a. variety Monarch, 229; O. a. variety Wardii, 342; O. ardentissimum variety Carmen, *Supp.*, June 1, p. xxi.; O. a. variety Norman, 110; O. a. variety Plumptonense, 268; O. Cobbiæ, 229; O. Confidence, 175; O. crispum "Anami," 31; O. c. "Euterpe," 128; O. c. variety Eric, 110; O. c. variety Ethel, 229; O. c. variety George, 325; O. c. James McNab, *Supp.*, June 1, p. xxi.; O. c. Leeana Ashlands variety, 325; O. c. variety Madouxiana, 268; O. c. Perfect Gem, 342; O. c. Queen of the Morn, 30; O. c. variety Blanche, 14; O. c. "Saga," 267; O. c. "Samuel Gratrix," 192; O. c. xanthotes "Golden Gem," 31; O. c. x. "Gratrixæ," 77; O. c. x. "Lady of the Snow," 325; O. c. x. variety Perfecta, 77; O. "Delhi," 77; O. × Eric, 77; O. eximium variety exquisitum, *Supp.*, June 1, p. xxi.; O. e. King George V., *Supp.*, June 1, p. xxi.; O. e. Plumpton Hall variety, 14; O. e. "Rutherfordianum," 342; O. e. variety The Premier, 325; O. e. variety xanthotes, 325; O. × George V., 110; O. "Harmac," 110; O. Her Majesty, *Supp.*, June 1, p. xxi.; O. Hilda, 342; O. × His Majesty, 229; O. illustrissimum, 175; O. "In Memoriam King Edward," 193; O. Jasper, 128, 161; O. Lambeauianum Holford's variety, 175; O. L. Princess Mary, 380; O. Luci-Masereel, 110; O. majesticum variety James Whitton, *Supp.*, June 1, p. xxi.; O. "Memoria Lily Neumann," 92; O. Merlin, 92; O. Milky Way, 77; O. Miranda, 110; O. orphanum, 128; O. percultum variety "purpurescens," 128; O. Prince Edward, Ward's variety, 110; O. Prince of Wales, 268; O. Promereus "variety Delhi," 229; O. Rossii variety Immaculatum, 229; O. Ruby King, 14; O. Telemachus, 268; O. Thais Glebe variety, 380; O. The Moor, 325; O. triumphans Ward's variety, 193; O. Uro-Skinneri Burford variety, 307; O. Vulcan, 126; O. Wilkeanum variety Jasper, 128; O. Wilkeanum var. plumptonense, 369; O. Zulu, 175; Oxalis enneaphylla variety rosea, *Supp.*, May 25, p. xvi.; Papaver orientalis variety Edna Perry, *Supp.*, May 25, p. xvi.; P. o. "Perry's White," *Supp.*, May 25, p. xvi.; Pelargonium Ambrosea, 228; P. Champion, 380; Petunia Brown's Purple (strain), 339; Philadelphus Bouquet Blanc, 417; P. Voie Lactée, 417; Phyllocactus Coopermannii, 339; Polypodium Vidgenii, *Supp.*, May 25, p. xvi.; Primula Juliæ, 228; P. Knuthiana, 191; P. Mrs. James Douglas, 228; P. Warleyensis, 228; Prunus Pissardii Moseri fl. pl., 190; Pseudotsuga (Abies) Douglasii "Fletcheriana," 190; Pteris Parkeri, 160; Pyrethrum Queen Mary, *Supp.*, May 25, p. xvi.; Rhododendron "Cornubia," 160; R. indicum "Blushing Bride," 160; Ribes laurifolium, 126; Rodgersia tabularis, 418; Roses: Effective, 417; Mrs. E. Alord, 228; Mrs. C. Reed, 228; Pink Pearl, 417; Rose Queen, 191; Saxifraga "Comet," 306; S. "Mrs. J. T. Tottenham," 306; Silene Hookeri, 380; Sophro-Cattleya Saxa "Low's variety," 77; S.-C. Wellesleyi Lee's variety, 110; Sophro - Cattleya - Lælia "Sandhage," 325; Sophro-Lælio-Cattleya Marathon variety Salome, 175; Sweet Peas: Brunette, 421; *Supp.*, May 25, p. xvi.; Decorator, 421; Dobbie's Lavender George Herbert, 380; Dobbie's Scarlet, 421; Lavender George Herbert, 421; May Campbell, 380; Melba, *Supp.*, May 25, p. xvi.; Mrs. Cuthbertson, *Supp.*, May 25, p. xvi.; Thomas Stevenson, 380, 421; Tropæolum albiflorum, 339; Tulips: Grenadier, 306; Velvet King, 306; Viburnum Davidii, 228; Viola Craven Gem, 341; Wahlenbergia gentianoides, 380; vincæflora, 418; Zygocolax Charlesworthii Cobb's variety, 62; Zygopetalum Armstrongæ, *Supp.*, June 1, p. xxi; Zygopetalum Mackayi "Charlesworthii," 62, 175

Ceylon Agricultural Department, 281
Chalk-loving plants, 367
Channel Islands directory, 89
Charlock, spraying to destroy, 157
Chelsea, historical horticulture of, 327
Chelsea Hospital, 327, 353
Chelsea physic garden, 328; plan of, 329; renovation of the, 366
Chesterfield, new public park for, 263
Children and gardening, 141; in the royal parks, 281
China, Rhododendrons in, 291; the flora of, 25
Chinese species of Rubus, new, 147, 165; Rosa, 123, 204
Chrysanthemum Golden King, 234; C. King of the Plumes, 24, 227
Cinerarias, the seeding of, 96, 124
Citrons in Devon and Cornwall, 338
Cladosporium fulvum (Tomato-leaf rust), 140
Clarke, Thaddeus, 80
Clarkia elegans, 323, 338
Cleistogamic flowers, 105
Clematis Jouiniana, 34; C. Henry Wood, a fine plant of, 415
Clianthus Dampieri, the grafting of, 356; C. puniceus magnificus, 294
Climbers for a north wall, 80
Clydeside fruit farms, Apple-culture in the, 225
Cobæa scandens variety "Deutscher Ruhm," 74
Cockayne, J. (*Report on the Dune Areas of New Zealand*), 25
Cocoons on Japanese trees, 212
Cœlogyne speciosa alba, 254
Coldest spot on earth, the, 140
Cole, Mr. Silas, testimonial to, 123
Coleus thyrsoideus, 412
Colonial note, 292
Colour in Apples, 13, 28, 44, 59, 76, 83, 90, 124
Colour of Primrose, the development of, 264
Concert, "Geo. Monro," 73, 204

Cones, abnormal development of, on young Larch trees, 285
Conference, on legislation in connection with plant diseases and pests, 408; on Orchids, forthcoming, 300
Conifers, at Dropmore, damage to, 245, 264; excluded from America, 429; raising from seeds, 158
Cook, Laurence J. (*Perpetual Carnations*), 251
Coorg, the flora of, 243
Copper sulphate for pond weeds, 243
Corn crops, condition of the, 303, 378
Cornus florida variety rubra, 372; C. Nuttallii, 331
Cornwall, damage by frost in, 320
Correvon, Henry (*Fleurs des champs et des bois, des haies et des murs*), 389
Cotton breeding, 24
Cow manure for Roses and Potatos, 112
Cox, Mr. Tom, long service of, 353
Cranberry, the, 232
Crassula, M. Fritzer, 130
Creatinine, a beneficent compound in soils, 187
Crickets in Cucumber houses, 290
Crocuses at Hampton Court, 173
Crops, prospects of the, 414
Cross, Sir Alexander, 412
Crozier, Mr. J. D., 10, 26
Cucumber canker, 155
Cucumbers, carriage rates for, 377
Culture of Mushrooms in boxes, 361
Currant bud-mite, spraying to destroy, 58, 106, 124, 142, 173
Curtis, Charles H. (*Annuals, Hardy and Half-Hardy*), 359
Cyaniding plant-houses, 101
Cypripedium spectabile, 18
Cypripediums at Oakwood gardens, Crayford, 44
Cytisus Dallimorei, 198

D

Daffodils, prizes for, 224
Dahlias, a conference on, 176
Dahlias, Collarette, 189, 296
Dairy-research, 154
Dalhousie Castle Gardens, 397
Daphne indica, 245, 285
Darlington, H. R. (*Roses*), 40
Delhi, gardening at, 366
Dendrobium Golden Ray superbum, 164; D. Primulinum giganteum, 254; D. spurium, 423
Deutzia longifolia, 409
Development grant, forestry and the, 55
Devon, North, weather in, 323
Dianthus alpinus, 195; D. barbatus, rust disease of, 44; D. callizonus, 195, 227; D. glacialis, 195; D. neglectus, 195
Dimorphotheca aurantiaca, 52
Dinner, abandonment of proposed gardeners' 123; complimentary, to Cumberland landscape gardeners, 187
Diplosis pyrivora (Pear midge), 356
Disas, 312
Disease resistance of plants, 412
Diseases, Californian plant, 187
Dracæna Victoria flowering, 80
Dropmore, damage to Conifers at, 245, 264
Drought and tree-growth, the, 58
Duthie, J. F. (*Flora of the Upper Gangetic Plain*), 156
Dykes, W. Rickatson (*Irises*), 333

E

Earle, Mrs. C. W. (*Gardening for the Ignorant*), 389
Echium candicans, 368
Edinburgh, an experimental garden for, 10; Botanic Garden, the rock-garden at, 277; Botanic Garden and the Edinburgh Corporation, 173; Chrysanthemum show, 142; distress committee and market gardening, 42; forestry in, 58; Fruit and Flower traders and the Shops Act, 188; Princes Street Gardens, proposed alterations to, 142; public golf links, 75; Spring Show, receipts at the, 262; University, forestry at, 10
Education, a gardener's, 376, 398, 416, 430
Egypt, chemical fertilisers in, 222
Electricity and plant culture, 8, 90
Elkington, W. M. (*The Small Holder's Handbook*), 389
Elms, British, 199, 216, 234
Elsholtzia Stauntonii, 21
Elwes, Mr. H. J., visit to Formosa, 105
Equisetum arvense, horses poisoned by, 301
Eremurus, the culture of, 64
Eschscholtzia caespitosa, 275
Estates, the break-up of, 74
Ether used in forcing, 359
Eucalyptus, the genus, 391
Eucharis grandiflora, 141
Evershot, Dorset, Orchids from, 313
Evolution of Primula obconica, 186
Ewing, Mr. James, 429
Exhibiting, hints on, 311, 328; flowers in South Africa, 372
Exhibition, Royal International Horticultural, 14, 42, 66, 85, 88, 105, 139, 154, 172, 188, 206, 242, 282, 302, 303, 304, 318, 320, 330, 336, 337, 343, 348, 349, 352, 357, 379, 396, 397, 398, 408, 413; report of the, *Supp.*, May 25, June 1, 8
Exhibitions, arrangement of flowers at, 416
Exportation of plants, the Board of Agriculture certificates for the, 89

F

Fagus pendula, a specimen of, 114
Fairchild lecture, the, 378
Fairchild's *City Gardener*, 65
Fairy rings, the cause of, 263
Farmers, French, weather guides for, 74
"Farrer" cup, 304, 318
Fernald, M. L. (*A Botanical Expedition to Newfoundland and Southern Labrador*), 88
Fernery, the, 257
Fern, the Lady, 257
Fertiliser, chemical, in Egypt, 222; sulphur as a, 392; the value of limestone as a, 143
Ficus repens fruiting, 416
Fielder, Mr. C. R., appointed inspector of gardens, 322
Fig trees in pots, 326
Fiji Islands, plants of the, 107
"Finger and toe" disease, 354
Fir, Douglas, a new species of, 396
Fish hatcheries in Canada, 264
Flax fibre, new method of treating, 303
Flora of Gazaland, notes on the economic, 283, 296, 321, 332; of Hong Kong, the, 202; of Newfoundland and Southern Labrador, 88; of New Guinea, 275
Florists' flowers, 12, 21, 100, 117, 133, 234, 296, 315, 359
Florists' grievances, 173
Flower-garden, the management of, 6, 23, 38, 54, 71, 86, 103, 118, 137, 152, 168, 184, 201, 220, 238, 258, 278, 298, 316, 334, 350, 362, 374, 390, 411, 426
Flower-pot with perforated dome for drainage, 265, 320
Flowers, autumn, in the south-west, 36; cleistogamic, 105; exhibiting, 416; in season, 24, 123, 156, 171, 204, 281, 393, 429; in south-western Scotland, 284; purple, with white varieties, 167; the mode of exhibiting, in South Africa, 372; the preservation of cut, 205
Fodder plant, a new, 172, 207
Forcing Strawberries, 208, 226, 245, 250, 284, 304, 338, 367; by etherisation, 359
Foreign correspondence, 66, 132, 150, 167, 257
Forest and ornamental trees in 1911, 138
Forest areas in Canada, 241
Forest, a submerged, 263; trees, exotic, 277, 323, 338, 367; trees, manuring, 395
Forestry, 158, 277; advisory committee on, 134; and the Development Grant, 55; at Cambridge, 396; at Edinburgh University, 10; information for landowners, 303; in Edinburgh, 58; in Scotland, 263; notes, 134; report of Mr. Burden's visit to America, 187
Formosa, illustration of the plants of, 394; Mr. Elwes's visit to, 105; new Rose from, 263; the flora of, 8
Forrest, Mr. George, sails for China, 105
Forsythias, 283
Frames, cold, the protection of plants in, 90
France, Mushroom growing in, 241
"Fream" medal, the, 396
French flower garden, notes from a, 37
French garden, Broccoli in a, 257
"French" gardening, 55; instruction in, 23, 102, 152, 185
French International Horticultural Congress, 257
Friend or foe! 276
Fritillaria imperialis alba, 310
Frost, and the fruit crops, 265, 285, 304, 320, 322
Fruit associations in Ontario, co-operative, 354
Fruit buds and the birds, 227, 246, 265, 285
Fruit crops, the, 323, 337, 415; and frost, 265, 285, 304, 322; in Ireland 322
Fruit garden, the market, 3, 83, 148, 218, 294, 383
Fruit-growing in Tasmania, 353; research in, 271
Fruit trade of South Africa, 58, 282
Fruit trees, a winter wash for, 130; in grass land, 17, 44, 60, 76, 106; protecting from hares, 24; spraying, in summer, 290; training young standard, 28
Fruits, observations and experiments in the pollination of, 245; the artificial ripening of, 156
Fruits under glass, the culture of, 7, 23, 39, 55, 70, 87, 103, 118, 136, 153, 168, 185, 200, 220, 238, 258, 279, 298, 317, 335, 350, 362, 374, 391, 410, 426
Fuel, trees for, 159
Fumigation with cyanide, 101
Fungi, parasitic, the losses caused by, 123; the nature of, 183, 198, 215; causing phyllody, 264

G

Galanthus Elwesii poculiformis, 33
Galls, new work on, 366
Games in the L.C.C. parks, 105, 124
Garden cities, a lecture on, 108, 127
Gardeners, and the Insurance Act, 415, 430; certificated, 60; the education of, 376, 398, 416, 430; wages of jobbing, 173
Gardeners' Royal Benevolent Institution, 9, 45, 56, 62, 319, 392, 432; (Worcester Auxiliary), 42, 429
Gardening conditions in Australia, 224; in India, 82
Gardening school, 42, 187, 246
Garden produce of 200 years ago, 356
Garden tools, notes on the history of, 371
Gazaland, notes on the economic flora of, 283, 296, 321, 332
Geffrye's garden, London, 302
Genetics, Balfour professorship of, 171; Professor Bateson on, 57, 74, 89, 104, 120, 139, 337
Germany, horticultural education in, 398; Potato importations into, 204
Gibault, Georges, *Histoire des Legumes*, 19; honour for, 25
Ginsing, 212
Gladioli, high prices for, 181
Glasshouses for market purposes, 146; for Tomato growing, 178
Glebelands, South Woodford, Orchids at, 237
Golf links, the deterioration of, 186
Gooseberry mildew, American, 262
Gordon, George (*Gardening Year Book*), 123
Grafting, Clianthus Dampieri on Colutea, 356; Potatos used instead of wax in, 123
Gramme and Samphire, 212
Grape Black Frankenthal, 48
Grass land, fruit trees in, 17, 44, 60, 76, 106; the manuring of, 263
Grass, the use of lawn sands on, 182
Greenhouse, plants for a, 16, 32
Grey, Lady, and the gardens at Rideaux Hall, Canada, 123
Grieve, Mr. James, 262

H

Habenaria conopsea alba, 68, 90, 107, 167
Hafod, Cardiganshire, 214
Halesia tetraptera, 73
Hales, Mr. William, 318
Hales, Stephen, memorial to, 73
Hampton Court, Crocuses at, 173
Hampton, Mr. Alfred J., presentation to, 262
Hardy flower border, 5, 44
Hardy fruit garden, operations in the, 6, 23, 39, 54, 70, 87, 102, 118, 136, 153, 168, 184, 200, 221, 238, 258, 278, 299, 317, 334, 351, 362, 374, 391, 426
Hares, protecting fruit trees from, 24
Hayata, B. (*Illustrations of the Plants of Formosa*), 394; and J. Matsumura (*Enumeratio Plantarum Formosanarum*), 8
Haystacks, the temperature of, 396
Hay, when to cut, 396
Heating installation at the Bank of England, 413
Hedrick, U. P. (*The Plums of New York*), 167
Helianthi, a new fodder plant, 172, 207
Helianthus lenticularis, a red variety of, 353; H. macrophyllus, a new fodder plant, 172
Heliophila scandens, 42
Helleborus angustifolius, 5
Hengrave Hall, Suffolk, 5
Herbaceous border, the, 52
Herbaceous flowers at the York Show, 429
Herring boxes for seedlings, 32
Hibiscus hybrids, 57
Hints on exhibiting, 328
Hippeastrum Hathor, 292, 322
Hippeastrums in Jamaica, 224; potting, 130; white-flowered, 322
Hoe, a handy, *Supp.*, June 8, p. xlii.
Hole, S. Reynolds (*A Book About Roses*), 240
Holland House show, the, 413
Hollyhock rust, the, 280
Hollyhocks and Calceolarias, 44
Holyrood Palace Gardens, 413
Holyrood park-keepers, 378
Hong Kong, the flora of, 202
Hooker, Sir Joseph, bust of, 187; estate of, 204; last published work of, 9; library of, 319; the life of, 11, 26, 43
Horses poisoned by Equisetum arvense, 301
Horticultural branch of the Board of Agriculture, 412, 428
Horticultural produce in U.S.A., the importation of, 354
Horticulture, need for a national institute of, 72, 90, 428; State department for, 412

RANUNCULUS LYALLII; FLOWERS WHITE.

Printed by Temple Press Ltd., London, E.C.

Hoya bella, 368
Hughes, Mr. Thomas, golden wedding of, 319
Humus, 373
Hyacinth, a proliferous, 142; H. Paul Kruger, 181
Hybrid trees and shrubs, 414
Hydrangeas, blue-flowered, 422
Hymenanthera crassifolia, 142

I

Ideal Homes Exhibition, 282
Imperial College of Science and Technology, 301
Implements, garden, notes on the history of, 371
India, gardening in, 82
Insects, collecting and preserving, 289; stings, remedy for, 353
Institute of horticulture, need for a national, 72, 90, 428
Insurance Act, the, 73; and commercial travellers, 415; and gardeners, 415, 430; and the Scottish fruit trade, 188
International Exhibition, Bruges, 301; New York, 337
International Horticultural Exhibition, Chelsea, 14, 42, 85, 88, 139, 154, 172, 188, 206, 242, 282, 303, 320, 330, 336, 352, 379, 396, 397; and the R.H.S., 431; Austrian visitors to, 188; boy scouts and soldiers at the, 304; certificates at, 318; conferences at the, 336, 398, 408; Continental visitors to, 105; Dutch view of the, 413; French students to visit the, 66; judges' luncheon at the, 357; list of functions at the, 336; list of jurors at the, 343; Orchids at the, 348, 349; railway facilities for reaching the, 337; report of the, *Supp.*, May 25, June 1, 8; some of the functions at the, *Supp.*, June 1, p. xxxii.; the gardener and the, 379; the large tent, 302; visit of the King and Queen, 357; "who's who" of the, *Supp.*, May 25, p. ii.
International Horticultural Exhibition of 1866, reminiscences of the, 347; Orchids at the, 348
Ireland, the fruit crops in, 322; notes from, 90, 141, 157, 173, 205, 414; sale of trees in, by the Department of Agriculture, 222, 225, 246, 322; the season in, 157
Irises, notes on, 274
Iris hybrids, some new, 274
Iris stylosa, 60, 76; I. Susiana, 19; I. tuberosa, 227, 257
Irrigation, overhead, 264
Italian garden, an, 315
Italy, Poplar trees grown for woodpulp in, 242

J

Jamaica, Hippeastrums in, 224
Jamesia americana, 367
Japanese trees, cocoons on, 212
Johnstone, Mr. John, 378

K

Kainit and Pear trees, 125
Kew gardens, conditions of employment at, 64; earlier opening of, 281; theft from, 319; visitors to during 1911, 155
Kew gardeners social evening, 41
Kew Guild dinner, 366
Kilburn Grange acquired for a public park, 24
Kirkmaiden Manse, flowers at, 208
Kitchen garden, the management of, 6, 22, 38, 55, 70, 87, 103, 119, 136, 153, 160, 185, 200, 221, 239, 259, 279, 299, 317, 335, 350, 362, 375, 390, 410, 427

L

Label, the Saughton, 27
Lælia superbiens, hybrids of, 151
Lælio-Cattleya Aphrodite "Lord Faber," 405; L.-C. Helius, 333; L.-C. MacBeaniana, 237; L.-C. Norma, 164
Laird, Mr. Robert, the late, 10
Lambert, Mr. John, 89
Lambourne, Mr. John, 241
Land purchase, State-aided, 69
Landscape gardeners, complimentary dinner to, 187
Land under cultivation in Great Britain, the area of, 88
Larch, abnormal development of cones on, 285
Larch sawfly, the large, 205
Larkspurs and Antirrhinums as bedding plants, 142

Law Notes: — Action against a horticultural society, 63; Failure of a "French" gardener, 249; of a market gardener, 269; of a nurseryman, 346; Gooseberry-mildew Act, prosecution under the, 401; Shop Hours Act, prosecution under the, 433; Thefts from Nurseries, 15
Lawn sands, 182
Lawn, the renovation of, 178
Lawns, basic slag for, 96
Leaf-curl of Peach trees, 139
Leaf-spot of Celery, 172
Leaks in pipes, simple method of repairing, 263
Lecanora esculenta (Manna), 366
Lemon curing, 396
Leonardslee, Rhododendrons at, 361
Leptospermum bullatum, 100, 142; L. scoparium, 142; L. s. Nichollii, 397
Lettuce Petite Noire, 151
Lewisia Howellii, 349
Lewis, Mr. Thomas, 188
Lightning, trees destroyed by, 257
Lilies and sunshine, 131, 159
Lilies, Oriental and Californian, 164
Lilium longiflorum as a pot plant, 43; L. sulphureum, 19; L. sulphureum and L. Fortunei, 77
Lily season in Scotland, prospects of the, 406
Limestone as a fertiliser, 76, 143
Lime-sulphur as a summer wash, 384
Linnean medal, award of the, 281
Lister, Arthur (*A Monograph of the Mycetozoa*), 187
Literature, old garden, 10
L.C.C. parks, bulbs in the, 123; committee of the, 172, 188; employees, 104, 140, 204, 213; gardeners, and the R.H.S. examination, 262; games in the, 105
London parks department, changes in the, 241
London's open spaces, 10, 24, 204
Longevity of seeds, 205
Lonicera fragrantissima and L. Standishii, 142
Lorentz, Dr. H. A. (*The Flora of New Guinea*), 275
Lyne, Mr. R. N., 281

M

M'Gregor, Mr. Malcolm, 142
M'Hattie, Mr. John W., awarded the Neill prize, 394, 413
M'Kinnon, Mr. John, fatal accident to, 42
Madresfield Court gardens and the Gardeners' Royal Benevolent Institution, 319
Magnolia salicifolia, 222, 245, 285
Magnolias in Ireland, 205
Maiden, J. H. (*Critical Review of the Genus Eucalyptus*), 391
Maize crop in Argentina, 224
Malayan and Papuan Orchids, 302
Malcolm, Mr. John, awarded the "Fream" medal, 396
"Mallow Marvels," 57
Manchester, horticulture in, 170, 189, 207, 226, 246, 264
Manna plant, the, 366
Manure, limestone as a, 76
Manures, artificial, for Potatos, 112; phosphatic, 74; the effect of, on tobacco, 262
Manuring forest trees, 395; of grassland, 263
Marasmius oreades causing Fairy-rings, 263
Market fruit garden, the, 3, 83, 148, 218, 294, 383
Market gardening, 15; and the Edinburgh Distress Committee, 42; in Belgium, 414; on the Murieston Estate, Edinburgh, 107
Market prices, 430
Matthiola, origin of the cultivated, 205
Medal of the North of England Horticultural Society, 224; of the International Exhibition, 337
Medinella magnifica, 396
Megaclinium leucorrhachis, 405
Melons, Cantaloupe, 370
Meteorological forecasts, 187
Mildew, American Gooseberry, 262
Millipedes, 276
Missouri botanical garden, 283
Monographs, Cambridge agricultural, 140
"Monro" concert, the, 204
Monstera deliciosa, 48
Monterey Pine, the, 13
Moræa sinensis, 37
Moraine gardening, 251, 323, 338
Movement in plants, 49, 75
Murieston estate, Edinburgh, market-gardening on the, 107
Mushroom-growing in France, 241
Mushrooms, a disease of, 212; the culture of, in boxes, 361
Mutiny of the "Bounty," the, and the Bread Fruit tree, 302
Mycetozoa, monograph of the, 187
Myrica Gale, root nodules of, 262
Myrtus communis, seedlings of, 338

N

Nannorrhops Ritchieana, 66, 132
Narcissus Crœsus, 337; N. Mrs. Ernest H. Krelage, 294; N. Œnone, 294; for forcing, 181
National Institute of Horticulture, need for a, 70, 90, 428
"Neill" prize, the, 394, 413
Nematus Ericksonii, the large Larch sawfly, 205
Nepenthes, new species of, 353
Nesting-places, 379, 397, 415, 431
Newfoundland, a botanical expedition to, 88
Newstead, Professor R., 155
New York international flower show, 1913, 337
New Zealand, notes from, 98; the sand dunes of, 25
Nicotine as a spray fluid, 219
Nicotine extract from home-grown Tobacco, 260
Nitrogen and carbon-dioxide in plant houses, 76
Nitrogen in rain-water, 141
Nova Scotia, state aid in, 263
Novelties of 1911, 1, 20
Nursery, fire at a, 58

Nursery Notes: — Bull & Sons, William, Chelsea, 332; Sander & Sons, St. Albans, 254; Sutton & Sons, Reading, 115
Nut flowering in December, 14

O

Oak, a curious, 26; a sleeping, 25
Oakbrook, Hammersmith, Pineapples at, 59
Oakwood gardens, Crayford, Cypripediums at, 44
Oat and Wheat crops, the, 141

Obituary: — Adams, Herbert J., 162; Baillie, William, 32; Barry, William, 208; Beaton, John, 310; Binot, Pedro Maria, 15; Birch, George, 46; Blacklock, James, 269; Bowler, John, 63; Box, James, 325; Brooker, Henry, 46; Brown, A. R., 32; Bruant, Georges, 342; Burton, F. M., 358; Carleton, William, 46; Childs, Thomas, 15; Davidson, A., 310; Deacon, John, 46; Deal, William, 15; Denning, C., 46; Dennison, Robert, 207; Doig, J., 32; Durand, M. Théophile, 46; Easter, John, 310; Ellison, C. C., 193; Farquharson, Mrs., 358; Fenn, Robert, 208; Fyfe, W., 434; Galvin, Thomas, 96; Garaway, W. A., 145; Gow, William, 231; Grahame, Archibald, 32; Hampton, George, 178; Hay, Lawrence, 414; Haycraft, John, 433; Hillier, W. H., 433; Holmes, Joseph, 401; Inch, Robert, 15; Inglefield, G. A., 96; Innes, Robert, 310; Jennings, William John, 414; Jones, T., 310, 322; Keating, John, 342; Lawlor, Michael H., 269; Lister, Lord, 111; Lyall, John B., 269; McKay, James, 193; McKenna, Patrick, 269; M'Kinnon, John, 42; M'Lean, Alexander, 325; Mathias, Hayward, 128; Maw, George, 111; Molden, Thomas, 111; Morrison, William, 325; Mortensen, M. L., 111; Muir, Thomas, 145; Murphy, Michael, 63; Newrock, Charles, 325; Ogg, Peter, 310; Pentland, Francis, 231; Piper, George Wren, 269; Purves, Thomas, 63; Ranger, Hugh, 381; Riddell, Andrew, 15; Robson, J. M., 96; Rowan, M., 32; Ryan, Martin E., 310; Seabrook, F. W., 342; Shingler, William, 381; Sim, Thomas, 145; Smith, Charles, 358; Smith, Jonathan, 285; Strasburger, Prof. Eduard, 414; Swift, Thomas, 111; Thomson, William, 208; Uzzell, Mrs., 46; Watson, William, 46; Wilkinson, Mrs. Thomas, 15; Wood, Elijah A., 433
O'Brien, Constance (*The Guild of the Garden Lovers*), 407
Odontoglossum crispum "Samuel Gratrix," 197; O. hybrids, 313; O. jasper, 197; O. Memoria Lily Neumann, 99; O. Vulcan Crawshayanum, 164
Oncidium anthocrene, 135
Ontario, Apple-growing in, 222; co-operative fruit associations in, 354; employment in, 80; the Tomato industry in, 242
Orange, a hardy, 171
Oranges, seedling, 64
Orchid conference, R.H.S., 300
Orchid houses, management of the, 7, 22, 39, 54, 71, 86, 102, 118, 137, 152, 168, 184, 201, 221, 238, 258, 279, 298, 316, 334, 351, 363, 374, 390, 411, 427
Orchid notes and gleanings, 35, 50, 135, 164, 197, 237, 253, 312, 405, 423
Orchid show at Berlin, 204
Orchids, a sale of, 356; at Belsize Court, Hampstead, 253; at Broadlands, 35; at Glebelands, South Woodford, 237; at the International Horticultural Exhibition, 206; at Westfield, Woking, 67; from Evershot, Dorset, 313; in 1866 and 1912, 349; new, in 1911, 1; of New Guinea, 50; new Malayan and Papuan, 302
Orphan fund, Royal Gardeners', 154; festival dinner, 281, 341; annual meeting, 109
Ostrowskia magnifica, 396

P

Paisley, new public park at, 10
Palm, Afghan Mountain, 66, 132
Papaw in Queensland, the, 156

Parasites, flowering plants as, 73
Parasitic fungi causing phyllody, 264; the losses caused by, 123; the nature of, 183, 198, 215
Paris spring show, 9
Park presented to Chesterfield, 263; new, at Paisley, 10
Park Superintendents, American Association of, 242
Parks, children in the royal, 281; cost of the royal, 223; games in public, 124; school classes in the London, 241; the L.C.C., 104, 105, 172, 188, 204, 241, 353; the management of public, 137, 299; the teaching of school children in the L.C.C., 10; the valuation of public, in Scotland, 10
Pasteur, Louis, memorial to, 73
Pastures, the renovation of, 25
Paulownia imperialis, 431
Payne, Mr. C. Harman, 58
Peach tree, bud-dropping in, 292
Pear Avocado, in California, 150
Pear midge, the, 356
Pear tree, a prolific, 199
Pear trees, at Balcombe House Gardens, 301; and kainit, 125
Peas and Beans, thrips on, 397
Peas, culinary, high prices for 123; green, preserving, 382
Perkins, Dr. R. C. L., awarded the Linnean Medal, 281
Pests, plant, the vacuum cleaner as a destroyer of, 74
Philadelphus microphyllus in Scotland, 225
Phloxes, herbaceous, 233, 285
Phosphate nutrition of plants, the, 140
Phosphatic manures, 74
Phyllody caused by a fungus, 264
Pickering, Spencer U., and the Duke of Bedford (*Thirteenth Report of the Woburn Experimental Fruit Farm*, 17
Pictures at the Royal Academy, 331; at the Royal Institute Galleries, 27
Pigeon manure as a fertiliser, 346
Pigments, plant and animal, 172
Pineapples at Oakbrook, 59
Pinguicula gypsicola, 58
Pinks, the four great Alpine, 195
Pinus radiata, 13
Pipes, a simple method of repairing leaks in, 263
Plant and animal pigments, 172
Plant collecting, perils in, 262
Plant culture, electricity and, 90
Plant diseases and pests, legislation in connection with, a conference on, 408
Plant label, the Saughton, 27
Plant-names, pronunciation of, 77
Plant notes, 42, 292
Plant novelties of 1911, 20

Plant Portraits: — Agave protuberans, 241; Begonia dichroa, 9; Berberis Wilsonæ, 9; Brachychiton acerifolius, 394; Brunfelsia undulata, 187; Calceolaria cana, 10; C. Forgetii, 319; Campanula arvatica, 241; Cereus Silvestrii, 187; Corokia cotoneaster, 187; Crassula Barklyi, 105; Daphne retusa, 241; Davidia involucrata variety Vilmoriniana, 319; Disa lugens, 9; Dombeya calantha, 187; Elliottia racemosa, 9; Hypocalymma robustum, 319; Iris chrysographes, 319; Ixora lutea, 394; Leptospermum scoparium variety Nichollii, 105; Lycium pallidum, 394; Magnolia Kobus, 241; Olearia chathamica, 105; Perovskia atriplicifolia, 394; Rupicola Sprengelioides, 394; Saxifraga lingulata, 319; Schomburgkia Lueddemanii, 241; Stanhopia peruviana, 105; Syringa Julianæ, 187; Stranvæsia undulata, 105
Plants, and the production of alcohol, 300; carbon-assimilation by, 263; conditions regulating the exportation of, 89; disease resistance of, 412; for a cold greenhouse, 32; for a dry border, 159; for growing under trees, 204, 257; movement in, 49; new, in U.S.A., 25; parasites amongst flowering, 73; toxic excreta of, 124; the cultivation of, under glass, 7, 22, 38, 54, 70, 80, 86, 102, 119, 136, 152, 160, 184, 200, 220, 239, 258, 278, 298, 316, 335, 351, 363, 375, 391, 410, 426

Plants, New or Noteworthy:— Calceolaria virgata, 50; Cotoneaster amœna, 2; C. Harroviana, 3; Cotyledon racemosa, 344; Cupressus formosensis, 132; Epidendrum Stallforthianum, 114; Iris tenuissima, 18; Lælio-Cattleya Mossemiliana, 18; Lilium Brownii leucanthum, 404; L. myriophyllum, 272; L. Sargentiæ, 385; Mesembryanthemum decorum, 403; Nannorrhops Ritchieana, 66; Rehmannias, hybrid, 218; Rhododendron adenopodum, 252; R. Delavayi album, 252; R. Fargesii, 252; Ulmus Plotii, 35
Plasmodiophora brassicæ, cure for, 354
Plum, Count Althann's Gage, 189
Plum rust (Puccinia Pruni) on Anemone, 263
Poisoning with Virginian Creeper berries, 204
Poisons in the soil, 154
Pollination of hardy fruits 245
Polygonum Baldschuanicum, 431
Pond weeds destroyed by copper sulphate, 242, 382
Pope, Mr. Samuel, 155
Poplar, wood-pulp from, 242
Portland cement, the uses of, 172
Potash, the world's supply of, 120
Potassium in plants, 157
Potato and floral sterility, 13, 28; growing, grant for experiments in, 142; in Western Australia, 89
Potatos, artificial manures for, 112; cow manure for, 112; drying, in Germany, 224; importation of, into Germany, 204; select varieties of, 134; used instead of grafting wax, 123; wart-disease of, the present distribution of, 104
Pottery, visit to a, 206
Pragnell, Sir George, 412
Prain, Sir David, 412
Preservation of cut flowers, the, 205
Primrose, colour of, 264
Primula amœna, 98; P. a. (acaulis rubra), 33; P. Forrestii in China, 240; P. Juliæ, 293; P. Knuthiana, 366; P. obconica, the evolution of, 186; P. pinnatifida in China, 320; P. rosea, seeding of, 246, 265, 323; P. secundiflora, 281; P. uniflora, 407; P. vincæflora and P. Wattii, 286
Pronunciation of plant names, the, 77
Pruning fruit trees in summer, 219; Roses, 196
Pseudotsuga sinensis, 396
Puccinia malvacearum (Hollyhock rust), 280; P. pruni on Anemone coronaria, 263
Purdom, Mr. W., 188, 262

Q

Queensland, the Papaw in, 156
Quercus rubra, a dormant tree of, 25

R

Railway grievances, 244
Railways in Canada, 263
Rainfall in N. Wales, 246; in 1911, the, 58
Rain-water, nitrogen in, 141
Ranunculus, the, 117; R. asiaticus, 281; R. Lyallii, 428
Rat-catching, a theory of, 28, 44, 59
Rattans and Rotangs, the, 273
Red spider on vines, 256, 304
Rehmannia angulata, 246
Rehmannias, hybrid, 218
Rhaphiolepis japonica, 431
Rhododendron Broughtonii aureum, 53; R. Falconeri, 367; R. Vaseyi, 313; R. Victorianum, 406; R. Yodogawa, 241
Rhododendrons, at Leonardslee, 361; at the Botanic Gardens, Regent's Park, 377; in China, 291; sheep poisoned by, 112
Rhubarb damaged in transit, 105
Rideau Hall, Ottawa, 123
Rock-garden at Edinburgh, 277
Rock-gardens, the development in, since 1866, 355
Rosa, new Chinese species of, 123; R. gigantea, 314; the, as a flowering shrub, 324, 340, 369
Rosary, the, 5, 25, 34, 50, 68, 99, 116, 151, 196, 214, 236, 293, 360, 387
Rose, a new, from Formosa, 263
Rose garden, work in the, 5, 99, 151, 214, 293, 360
Roses: Caroline Testout and its sports, 236; Frau Karl Druschki, some seedling varieties of, 34; Irish Elegance, 123; Mme. Hector Leuilliot, 59, 245; The Orleans, 214; William Allen Richardson, 26, 44
Roses, American forcing, 85; Chinese, 204; cow manure for, 112; fragrant, 25; introduced in 1909, 116; new, of the N.R.S. catalogue, 50, 68, 99, 116; random thoughts on pruning, 197; some early, 423; trials of, at Bagatelle, 51
Rothamsted experiment station, 157
R.H.S. and the International Horticultural Exhibition, the, 431; Daffodil show, 139; examination and the L.C.C. gardeners, 262; examination of public parks employés, 155; Gardens Club, 396
Rubber pest, a, 157
Rubbish heaps and bonfires, 392
Rubus, Chinese species of, 123, 147, 165
Russia, importation of cut flowers in, 263
Ruthin Castle, Ash tree at, 4

S

St. Fagan's Castle, Cardiff, 179
Sale of nursery stock by the Irish Department of Agriculture, 222, 225, 246, 322
Salt as a manure for Sugar Beet, 262
Sand dunes of New Zealand, 25
Sander, Mr. F., 9
Sanguinaria canadensis, 284
Sankey & Son's pottery, 206
Sargent, C. S. (*Plantæ Wilsonianæ*), 69
Sarracenias out-of-doors, 198
Saussurea gossypiphora and S. leucoma, 85
Saw-fly, the large Larch, 205
Saxifraga, a hybrid, 367; S. × kewensis, 247; S. lantoscana and S. cochlearis, 174; S. Probynii, 379
Scabious, the culture of, 12
Schizocodon soldanelloides, 348
Schlecter, Dr. Rudolf (*Die Orchidaceen von Deutsch-Neu-Guinea*, 50
School classes in the London parks, 241; popularity of, 223
School gardening, 42
School-gardens, number of, 187, 246
Science, Imperial College of, 301; horticultural, 364

Scientific Committee:—Acorns with two or three radicles, 45; Afzelia cuanzensis, fruits of, 400; Amygdalus × præcox, 175; Arsenic in drainage water, 323; Artocarpus, fruit of, 323; Aster likiangensis, 400; Athyrium with bulbiferous sori, 208; Beans, beetles in, 208; Botanical certificates, awards of, 400; Cœlogyne venusta, 143; Camellia Tuckiana, 208; Carpentaria californica attacked with Cladosporium herbarum, 286; Catasetum Randii, 108; Cattleya, an abnormal, 108; Chrysophlyctis endobiotica, 108; Cladosporium herbarum attacking Carpentaria, 286; Clivia miniata with foliose bract, 247; Cypripedium, a malformed, 45; Daphne odora, 45; Disa sagittalis, 174; Draba rupestris, 247; Dracæna Goldieana, 45; Elæagnus sp. fruiting, 247; Fumigation with hydrocyanic acid gas, 143; Galanthus Elwesii variety poculiformis, 93; Galls on Oak, 174; Gooseberry, racemose form, 286; Grapes killed by fog, 174; Hyacinth, a bicoloured, 286; a double, 175; Hippeastrum Forgetii, 108; Hydrocyanic acid gas, fumigation with, 143; Irises, uncommon, 324; Jack-fruit, the, 323; Lilium candidum affected with Uromyces, 286; Malformed Narcissus, 175; Malformed Orchids, 208; Nandina domestica, fruits of, 93; Narcissus, a malformed, 175, 247; N. Calanthinus, hybrids of, 175, 208; seedlings of, 174; sporting of, 247; Oak, galls on, 174; Odontioda "Carmen," 400; O. "Firminii," 45; Oncoba Routledgei, 143; Orange, a new hardy, 143; "Navel," 45; with yellow stripe, 323; Orchid, a hybrid, 368; O. mascula, albino form of, 323; Orchids, malformed, 208; Tasmanian, 286; Osyris alba parasitic on vine roots, 208; Petrea volubilis, dried inflorescence of, 286, 368; Potato canker, Chrysophlyctis endobiotica, 108; Primrose, a double-flowered, 324; Primula Knuthiana, 175; Primulas, rare, 368; Pyronia ×, 143; Ranunculus Ficaria, abnormal flowers of, 286; Raspberry canes attacked with Hendersonia rubi, 93; Ruscus aculeatus, variation in, 92; Saxifraga majuscula, 400; Saxifragas, hybrid, 323; Scelochilus variegatus, 45; Schomburgkia Lueddemanii, 247; Scilla hispanica with long bracts, 323; Senecio Lyallii, 400; Snowdrops, drawings of, 208; Stachys palustris, 286; Sweet Peas, variation in, 400; with leafy tendrils, 400; Tulip, "Parrot," a new break in, 324; diseased, 143, 174; with displaced perianth segment, 323; with fimbriated edges, 368; Vine roots, Osyris alba parasitic on, 208; Violets, with branched peduncles, 143; Wallflowers, rogue, 286
Scotland, early flowers in, 227; flowers in south-west, 284; forestry in, 263; notes from, 10, 26, 42, 58, 75, 107, 142, 158, 173, 188, 225, 244, 322, 338, 378, 397, 415; Lily season in, 406
Scottish fruit trade and the Insurance Act, 188; manse garden, in a, 208; prison allotments, 322
Searle, Alfred B. (*The Natural History of Clay*), 133
Seeds, the longevity of, 205
Senecio glastifolius var. Twickel, 393
Septoria petroselini on Celery, 172
Sewage sickness in soil, 170
Shade, plants for, 204, 257
Shadwell, new park at, 10, 204
Sheep poisoned by Rhododendron, 112
Shirley Horticultural Society, failure of the, 187, 227
Shops Act and the Edinburgh fruit and flower traders, 188
Shrubs, hardy, to flower during July, August, and September, 112; hybrid, 414; seaside, in Ireland, 157, 205

Silver-leaf disease, 243
Singleton, Mr. Robert, 301
Small holdings, 58; committee on cheaper buildings for, 105
Smith, Mr. W. W., 171
Smith, Thomas (*The Profitable Culture of Vegetables*), 196
Snowdrop tree, the, 73
Snow in the Midlands, 44

SOCIETIES:—Aberdeen Chrys., 338; Aberdeen Warehouse Hort., 281; American Association of Park Superintendents, 242; Ancient Society of York Florists, 127; Association of Economic Biologists, 244; Barnsley Paxton, 129; Bath and West of England Agricultural, 370; Bath Gardeners', 79, 128, 211, 288, 401; Baughurst and Tadley Gardeners', 79; Biochemical Club, 319; Birmingham Botanical and Hort., 421; Birmingham Hort., 110; Blackburn and District Hort., 14; Bournemouth Hort., 109; Bournemouth Spring Flower Show, 210; Brighton Hort., 78; Brighton, Hove and Sussex Hort., 208; British Gardeners' Association, 42, 75, 78, 154, 192; (Annual Meeting), 370; (London Branch), 46; Bristol and District Gardeners', 129, 269, 310; Bury Hort., 95; Canterbury Rose, 211; Chelmsford and District Gardeners', 128; Chesterfield Chrys., 140; Chester Paxton, 128; Clevedon and District Hort., 421; Colchester Rose, 429; Cornwall Daffodil and Spring-flower, 268; Coventry Chrys., 14; Croydon and District Hort., 79, 128, 211, 269, 288; Debating, 46, 79, 128, 211, 269, 288, 310, 345, 401, 421; Devon and Exeter Gardeners', 128; Devon Daffodil and Spring-flower, 288; Doncaster Gardeners', 128; Dresden Botanical and Hort., 105; Durham, Northumberland and Newcastle Incorporated Botanical and Hort., 162; Edinburgh Market Gardeners', 45; Essex Agri., 413; Ghent Hort., 127; Glasgow and West of Scotland Hort., 107; Glasgow Fruit Trade Benevolent, 78; Haarlem Bulb Growers', 342; Hants. Spring Flower, 286; Hasiemere District Chrys., 78; Herefordshire Fruit Growers and Horticulturists, 108; Herefordshire Fruit, Root, Grain, and Chrys., 108; Herefordshire Spring Flower, 286; Hort. Club, 42, 78, 210, 324, 340, 368, 432 (Annual Meet. and Dinner), 144; Irish Forestry, 173; Irish Rose and Floral, 414; Kent Commercial Fruit Show, 110; Kilmarnock Hort., 129; Lee, Blackheath and Lewisham Hort., 128; Leeds Gardeners' Friendly Benefit, 127; Leeds Professional Gardeners', 77; Lincolnshire Daffodil, 325; Linnean, 15, 78, 123, 161, 210, 325, 337, 400; Liverpool Hort., 78, 89, 230; Manchester and North of England Orchid, 14, 31, 77, 110, 128, 175, 193, 229, 268, 325, 342, 369; Manchester Botanical, 162; Midland Daffodil, 307; Nat. Auricula and Primula (Midland Section), 324; (Southern Section), 307; Nat. Chrys., 45, 128, 155, 429; (Annual Meeting), 94; Nat. Dahlia, 140, 176; Nat. Gladiolus, 369; Nat. Hardy Plant, 210; Nat. Horticultural of France, 242; Nat. Rose, 337; Nat. Sweet Pea, 30; N. of England Horticultural, 63, 193, 341; N. of Scotland Hort. and Arboricultural, 247, 288; Nursery and Seed Trade, 309, 348; Nurserymen, Market Gardeners' and General Hailstorm Insurance, 247; Oxford and District Gardeners', 79; Perpetual-flowering Carnation, 209, 340; Reading and District Rose and Sweet Pea, 15; Reading Gardeners', 46, 79, 129, 211, 129, 269, 288; Richmond Hort., 432; Royal, 155; Royal Caledonian Hort., 45, 262, 248; Royal Hort., 29, 45, 60, 91, 125, 143, 159, 174, 189, 208, 227, 247, 265, 286, 305, 323, 339, 368, 379, 400, 416; (Annual Meeting), 107, 124; Royal Hort. of Ireland, 15, 157, 249, 286; Royal Institution, 340; Royal Meteorological, 77, 230, 286, 301, 381, 429; Royal Nat. Tulip, 342; Royal Scottish Arboricultural, 110, 247; Royal Society of Edinburgh, 230; St. German's Hort., 262; Sandy Hort., 95; Scottish Hort., 63, 108, 127, 143, 144, 175, 244, 247, 341, 400; Shropshire Hort., 309; Société Française d'Horticulture de Londres, 42, 231; Southampton and District Gardeners', 310; Southampton Royal Hort., 77, 155; Southern Counties Agri,. 401; Stirling and Dis. Gardeners', 128, 269, 433; Stirling Chrys., 45; Surveyors' Institution, 14, 155; Torquay District Gardeners', 230; Ulster Hort., 63; United Hort. Benefit and Provident, 155, 175, 268, 421; Vienna Royal Hort., 171; Wargrave and District Gardeners', 79, 211, 288; Watford Hort., 288; Western New York Hort., 302; Weybridge and District Hort., 79, 129; Wolverhampton Hort., 129; Women's Agri. and Hort. International Union, 39, 242; Yorkshire Gala, 419, 429
Soil, barren, treatment of, 241; constituent, a beneficent, 187; fertility, some factors of, 150; method of sterilising, 130, 146; poisons in the, 154; sewage sickness in, 170; the bacterial flora of the, 378; the partial sterilisation of glasshouse, 97, 113
Solanum jasminoides, 142, 158, 173; S. tuberosum, 124
South Africa, fruit trade of, 58, 282; mode of exhibiting flowers in, 372
South-Eastern Agricultural College, Wye, grants to, 204
Soya Bean in Scotland, 173
Speer, A. E. (*Annual and Biennial Garden Plants*), 69
Spraying, compulsory, 140; for big-bud, 58, 106, 124, 142, 173; fruit trees, 84, 290
Spring flowers in the south-west, 386
Standard fruit trees, training, 28
Starling, the, as friend or foe, 413
State-aided land purchase, 69
Stereum purpureum causing silver-leaf disease, 243
Sterilisation, partial, of greenhouse soils, 97, 113; methods of, 130
Stevenson, Thomas (*The Modern Culture of Sweet Peas*), 223
Stocks, the origin of cultivated, 205
Stove plants, a select list of, 16
Strawberries, etherisation and the forcing of, 359; failure of forced, 208, 226, 245, 250, 284, 304, 338, 367; record, 397, 416, 430; the causes determining the yield of, 10
Strawberry leaf-spot, 219
Streak disease of Sweet Pea, 52, 84, 124
Street trees in Canada, 3, 77
Strobilanthes Dyerianus, 68; S. Kunthianus and varieties, 41
Sulphur as a fertiliser, 392; for use with copper-containing spray fluids, 140
Sunflower, the red-flowered, 353
Sunshine, Lilies and, 159
Superphosphates, the world's consumption of, 42
Sweet Peas, a lecture on, 143; American novelties in, 21; culture of, in Scotland, 158; disease of, 36, 52, 84, 124; early, 304; for the garden, 90; in America, 116; in Ireland, 141; Mrs. Routzahn, sport of, 27; novelties at the R.H.S. show, 315; Senator Spencer, 60; sport in, 14, 27; streak disease of, 101
Sweet William, rust disease of, 44

T

TANSLEY, A. G. (*Types of British Vegetation*), 114
Tar, road, effect of, on trees, 223
Tasmania, fruit-growing in, 353
Thomas, H. H. (*The Complete Gardener*), 243
Thrips on Peas and Beans, 397
Thyra wood, 130
Tobacco, home-grown, and nicotine extraction, 260; the culture of, in Canada, 172; the effect of manures on, 262
Tod, H. M. (*Vine Growing in England*), 183
Tomato, a giant, 430; industry in Ontario, the, 242; leaf rust of, 140
Tomatos, glasshouses for, 178; the outdoor cultivation of, 403
Tools, garden, notes on the history of, 371
Tough, Mr. William, 338
Town gardening, 318; a lecture on, 108, 127
Toxic excretions of plants, 124
Transvaal, agriculture in the, 395
Tree-growth, the drought and, 58
Trees, and road tar, 223; and shrubs, 11, 51, 164, 283, 331, 372; exotic forest, 277; forest and ornamental, in 1911, 138, 159; for fuel, 159; hybrid, 414; sale of, in Ireland by the Department of Agriculture, 222, 225, 246, 322; street, in Canada, 3, 77; treatment of decay in, 64; what to plant under, 204, 257
Trelease, Dr., retirement of, 165
Tulipa Kaufmanniana, 217
Tulip, the, 234
Tulips, branched, 382
Turnip, the, 213

U

UDAIPUR, the gardens of, 222
Ulmus Plotii, 35

V

VACUUM cleaner as a destroyer of plant pests, the, 74
Vegetable crops in Canada, 140; in Ireland, 205
Vegetables, 134, 182
Veitch, Sir Harry J., 366
Vienna Horticultural Society, 171
Vines, red-spider on, 256, 304; repotting, 48; the culture of, in the colonies, a lecture on, 319; the making and planting of borders for, 326; treatment of young, 146
Violas, a trial of, 226, 260
Violets, British, a monograph of, 171
Virginian creeper berries, poisoning with, 204
Vitex Agnus-castus, 52

W

WAHLENBERGIA lobelioides and W. gracilis, 326
Wallace, Dr. Alfred Russell, 413
Wallflowers, rogue, 285
Wandsworth Common, 394
Ward, Mr. William, 57
Wart disease of Potatos, the present distribution of, 104
Wash, winter, for fruit trees, 130
Water gardening, 16
Watering, an automatic system of, 10
Waverley Market, Edinburgh, the heating of, 10
Weather guides for French farmers, 74
Weather in 1911, 41, 58; in North Devon, 323
Weathers, Mr. J., 42
Weeds, a lecture on, 210
West Africa, gardening in, 256
West Indies, notes from, 224
Western Australia, Potato-growing in, 89
Wheat crop, the, 141, 205
Williams, Mr. Richard, 429
Wilson, Mr. E. H., on the flora of China, 25: honour for, 104
Wines, Cape, 394
Winter, the mild, 29
Wisley, trial of Violas at, 226, 260
Woodlice in glasshouses, 346
Wye College, grants to, 204

Y

YEW hedge, treatment of a, 270
Yucca, a hybrid, 167; with abnormal, horn-like growths, 45; Y. gloriosa in Upper Hall Gardens, Ledbury, 139; Y. Whipplei, 106, 167

Z

ZACHARIAS, the late Professor, 74
Zoological Gardens, Regent's Park, floral decorations at the, 302
Zygopetalum Mackayi "Charlesworthii," 83

SUPPLEMENTARY ILLUSTRATIONS.

BEECH, THE "QUEEN," AT ASHRIDGE PARK, BERKHAMSTED (January 27)
BLICKLING HALL, NORFOLK, THE "EAST" GARDEN AT (March 9)
COLEUS THYRSOIDEUS (COLOURED PLATE) (June 22)
HALESIA TETRAPTERA (February 3)
HENGRAVE HALL, SUFFOLK, VIEWS OF (January 6)
NARCISSUS CRŒSUS (COLOURED PLATE) (May 18)
PORTRAITS OF THE DIRECTORS, INTERNATIONAL HORTICULTURAL EXHIBITION (May 25)
PRIMULA FORRESTII GROWING IN ITS CHINESE HABITAT (April 13)
PRIMULA KNUTHIANA (COLOURED PLATE) (June 1)
PRIMULA SECUNDIFLORA GROWING WILD IN CHINA (April 27)
PRIMULA VINCÆFLORA AND P. PINNATIFIDA GROWING WILD IN CHINA (May 11)
RANUNCULUS LYALLII (June 29)
RHODODENDRON FOREST ON THE SUNG-KWEI PASS, CHINA (May 4)
ST. FAGAN'S CASTLE, CARDIFF (March 23)
SAUSSUREA LEUCOMA GROWING WILD IN CHINA (February 10)
STROBILANTHES KUNTHIANUS GROWING WILD ON THE NILGIRI MOUNTAINS, SOUTHERN INDIA (January 20)
YUCCA GLORIOSA AT UPPER HALL GARDENS, LEDBURY (March 2)
YUCCA WHIPPLEI FLOWERING IN ALDWICK MANOR GARDENS, SUSSEX (February 17)

(For List of General Illustrations in the text see next page.)

LIST OF ILLUSTRATIONS.

A

Acacia Baileyana, 59
Achillea Kellereri, 252
Alocasia Micholitziana, a pot plant of, *Supp.*, May 25, p. xvi.
Aloe Bainesii, 425; A. dichotoma, 424
Androcymbium melanthoides, 13
Androsace Henryi, 354
Anthemis cupaniana, 117
Archways, 255
Ash tree at Ruthin Castle, 4

B

"Barr" memorial cup, the, 266
Beckett, Mr. Edwin, portrait of, 6
Beech, a weeping, 115; with gnarled trunk, 57
Beekeeping, method of fixing comb in a frame, 259
Begonia luxurians, 28
Blickling Hall, Norfolk, 156, 157
Box for packing bouquets, *Supp.*, June 8, p. xlii.
Brambles, new Chinese species of, 147, 148, 149, 166, 167
Brasso-Cattleya Digbyano - Mossiæ "Westonbirt variety," *Supp.*, May 25, p. vii.; B.-C. Wellesleyæ, 135
Bulb planters, *Supp.*, June 8, p. xlii.
Bulgaria, view of the Vitosha Mountain, 253; wild flowers in, 253
Bull & Sons' nursery, 332

C

Calceolaria Veitchii, *Supp.*, June 1, p. xxii.; C. virgata, 50
Camellia cuspidata, a flowering spray of, 261
Carnations Baroness de Brienen, 254; Mrs. A. F. Dutton, 244
Cattleya Brenda, 155; C. Dirce Westonbirt variety, 226; C. Maggie Raphael alba Orchidhurst variety, 75
Ceratolobus Forgetiana, a plant of, *Supp.*, May 25, p. xv.
"Chase" continuous cloche, the, *Supp.*, June 8, p. xl.
Chelsea Physic Garden, Haynes's plan of, 329
Cherry Governor Wood, *Supp.*, June 1, p. xxviii.
Chinese plants shown by Hon. Vicary Gibbs, *Supp.*, June 1, p. xxvi.
Chrysanthemum leaf miner, 290
Chrysanthemums rooted in sterilised and unsterilised soils, 97
Citrus japonica fructu ellipticus, *Supp.*, June 1, p. xxxi.
Clematis Jouiniana, 34; C. Mrs. Henry Wood, a well-flowered plant of, 415
Collier, Mr. J., portrait of, 7
Cotoneaster amoena, 2
Cox, Mr. Tom, portrait of, 353
Crisp, Sir Frank, portrait of, 144
Cup, offered by Mr. Farrer for Alpines, 304; presented to Mr. William Crump, 42; the "Barr" Memorial, 266
Cups presented at the International Horticultural Exhibition, 282; by French Hort. Society, 343; by Horticultural Club, 124; by King George, 320; by Lady Colman, 283; by Messrs. Bull & Sons, 14; by Messrs. George Bunyard & Co., 189; by Messrs. James Veitch & Sons, Ltd., 283; by Messrs. R. Wallace & Co., 283; by Sir Jeremiah Colman, 282; by Messrs. Sutton & Sons, 243; by the *Daily Mail*, 344; by the Fruiterers' Company, 343; by the *Gardeners' Chronicle*, Ltd., 303; by the R.H.S. of Ireland, 139; by the Yokohama Nursery Co., 89; by Mr. J. Gurney Fowler, 282; by Mr. W. Duncan Tucker, 320; by Mrs. H. D. Greene, 321; County, East Suffolk, 321; Glasgow, 206; Herefordshire and Monmouthshire, 206; Lancashire, 303; Leicestershire and Rutland, 172; Somersetshire, 303; Warwickshire, 243; Western Counties of Scotland, 188; Yorkshire, 344
Cupressus formosensis, C. obtusa, and C. pisifera, foliage, seeds and cone scales of, 132
Cypripedium spectabile, 18
Cytisus Dallimorei, 198

D

Dahlias: Diadem, 296; Holyrood, 297
Deacon, Mr. John, portrait of the late, 46
Dendrobium Apollo albens, *Supp.*, May 25, p. viii
Deutzia longifolia, a flowering shoot of, 409; D. Veitchii, *Supp.*, June 1, p. xix
Diploma of the International Horticultural Exhibition, 242
Disa sagittalis, 312
Durand, M. Théophile, portrait of the late, 46

E

Echium candicans, 368
Elæocarpus cyaneus, 393
Elliottia racemosa, 11
Elm, Plot's, foliage of, 234; map showing distribution of the small-leaved, in England, 216
Elsholtzia Stauntonii, 21
Epidendrum Stallforthianum, inflorescence of, 114
Eschscholtzia cæspitosa, 275
Eucharis grandiflora, 141

F

Fagus pendula, 115
"Farrer" cup for rock-plants, 304
Ferns, Messrs. May's group of, *Supp.*, June 8, p. xlvi.
Fountain in Sajjan Niwas Gardens, Udaipur, India, 82
Fruit-cleaner and grader, the "Becker," *Supp.*, June 8, p. xlii.
Fruit exhibited by H.M. the King, *Supp.*, June 1, p. xxvii.
Fruit-tray, Messrs. Glover's, *Supp.*, June 8, p. xlii.
Fruit trees exhibited by Mr. Leopold de Rothschild, *Supp.*, June 1, p. xxix.
Fyfe, W., portrait of the late, 434

G

"Gardeners' Chronicle" cup, the, 303
Geranium macrorrhizum in Bulgaria, 253
Gow, W., portrait of the late, 231

H

Habenaria conopsea alba, 68
Hafod, Cardiganshire, 214, 215
Hampton, George, portrait of the late, 178
Harriss, Mr. E., portrait of, 7
Henslow, Mr. T. G., portrait of, *Supp.*, May 25, p. iv.
Holland, exhibits from, at the International Exhibition, *Supp.*, June 8, p. xxxvii.
Horticultural Club cup, 206

I

India, view in the Sajjan Niwas gardens at Udaipur, 82
Inglefield, Mr. G. A., portrait of the late, 90
International Horticultural Exhibition, medal of the, 337; plan of the, 331
Iris "Nibelungen," *Supp.*, June 1, p. xx; I. Susiana in a border out-of-doors, 20
Italian well-head, an old, *Supp.*, June 8, p. xli

J

Jennings, William John, portrait of the late, 414
Jordan, Mr. F., portrait of, 6

K

King George V and Queen Mary at the International Exhibition, *Supp.*, June 1, p. xxiv.

L

Lælia anceps "G. D. Owen," 67
Lælio-Cattleya Aphrodite "Lord Faber, 405; L.-C. Canhamiana, *Supp.*, May 25, p. vi; L.-C. Gladiator, *Supp.*, May 25, p. ix.; L.-C. Helius, 333; L.-C. Lustre "Lavingo," 373; L.-C. "MacBeaniana," 237; L.-C. Salome, *Supp.*, May 25, p. x
Lastrea patens variety Mayi, 386
Leptospermum bullatum, 100
Lettuces in frames and cloches, 151
Lewisia Howellii, 349
Lilium davuricum variety luteum, *Supp.*, June 1, p. xxi; L. longiflorum, a pot plant of, 43; L. myriophyllum (Wilson), 273; L. myriophyllum, a flowering bulb of, 272; L. sulphureum, 19
Llewelyn, Sir John T. D., 144

M

McHattie, Mr. J., portrait of, 394
Magnolia salicifolia, 223
Map, of the London underground railways, 330; showing the distribution of the small-leaved Elm in England, 216
Medal, of the International Horticultural Exhibition, 337; of the N. of England Hort. Society, 224
Melittis melissophyllum growing wild in Bulgaria, 253
Millipedes, 276
Miltonia Jules Hye de Crom, *Supp.*, June 1, p. xxv; M. vexillaria "Snowflake," 400
Moræa sinensis, 37

N

Nannorrhops Ritchieana, 66
Narcissus Mrs. E. H. Krelage, 294; N. Œnone, 295

O

Oak tree, a curious, 26
Odontioda Cooksoniæ Fowler's variety, 418; O. Queen Mary, *Supp.*, June 1, p. xxv.
Odontoglossum crispum Saga, 267; O. c. "Samuel Gratrix," 197; O. Jasper, 196; O. Memoria Lily Neumann, 99; O. Merlin, 92; O. Uro-Skinneri Burford variety, 307
Onosma tauricum, 274
Orange, a hardy, *Supp.*, June 1, p. xxxi.; Japanese, 171
Orchids, exhibited by Sir George Holford at the International Exhibition, *Supp.*, June 1, p. xviii.; at a Berlin show, 203
Oxalis enneaphylla variety rosea, *Supp.*, June 1, p. xxv.

P

Paulownia imperialis, 430, 431
Pears: Mrs. Seden, 35; Souvenir du Congrès, 199
Petrea volubilis, 287
Philadelphus microphyllus, 225
Plot's Elm, foliage of, 234
Plum, Early Transparent Gage, *Supp.*, June 1, p. xxx.
Plymouth, Earl, portrait of, 192
Polypodium Vidgenii, 387
Potatos, tuber-bearing species of, *Supp.*, June 8, p. xlvii.
Primula Juliæ, 293; P. uniflora, 407; P. Wattii, 286

R

Railways, map of the London underground, 330
Rehmannia kewensis, 218
Rhododendron Aucklandii in Sir Edmund Loder's Garden, Leonardslee, 361; R. Broughtonii aureum, a bed of, 53; R. chartophyllum in its Chinese habitat, 291; R. Loderi, 360; R. Vaseyi, 313; R. Victorianum, 406
Rosa gigantea, 314
Rose garden arranged by Mr. R. C. Notcutt at the Chelsea Show, *Supp.*, June 8, p. xxxvi.
Roses: Irish Elegance, 121; Mme. Edouard Herriot, *Supp.*, June 8, p. xxxv.
Rubus, a white-stemmed, 147; R. bambusarum, a fruiting spray of, 148; R. biflorus variety quinqueflorus, 149; R. chroösepalus, 166; R. corchorifolius, 149; R. coreanus, 149; R. Lambertianus, 166; R. lasiostylus, 167; R. omeiensis, 149; R. Parkeri, 166; R. Playfairii, 165, 166; R. Swinhoii, 166; R. thibetanus, 149
Ruthin Castle, Ash tree at, 4

S

St. Fagan's Castle, views at, 179, 180, 181, 182
Sajjan Niwas gardens, Udaipur, India, view in the, 82
Sanguinaria canadensis growing in Cambridge botanic garden, 284
Saussurea gossypiphora in its Chinese habitat, 85
Saxifraga cochlearis growing on rocks near Tenda, 174; S. hybrida (S. cochlearis × lantoscana), 367; S. × kewensis, 247; S. rotundifolia in Bulgaria, 253
Schizocodon soldanelloides, 348
Solanums, tuber-bearing, *Supp.*, June 8, p. xlvii.
Specimen indoor plants, a collection of, *Supp.*, June 8, p. xlviii.
Sterilisers for soil, the Harrow and Gridiron, 146
Stevenson, Mr. Thomas, portrait of, 7
Strawberry King George V., *Supp.*, June 1, p. xxviii.
Strawberry leaf-spot disease, 219
Street trees in Winnipeg, 3
Sweet Peas: Dobbie's True Lavender, *Supp.*, June 8, p. xxxviii.; Melba, *Supp.*, June 1, p. xxiii.

T

Tent, framework of the large, at the International Exhibition, 302
Thomas, Mr. Owen, portrait of, *Supp.*, May 25, p. iv.
Tomatos grown in partially-sterilised soil, 98, 113
Trees, street, in Winnipeg, 3
Tulipa Kaufmanniana, 217
Tutcher, Mr. W. J., portrait of, 202

U

Ulmus campestris variety viminalis (Loudon), foliage of, 236; U. Plotii (Druce), foliage of, 235; U. sativa, map showing the distribution in England of the small-leaved variety of, 216

V

Veitch, Sir Harry J., portrait of, 365
Vitex Agnus-castus on a west wall, 52

W

Wade, Mr., cup presented to, 42
Weston, Mr. J. G., portrait of, 6
Winnipeg, street trees in, 3
Wright, Mr. S. T., portrait of, *Supp.*, May 25, p. iv.

Y

Yucca Whipplei, flowers of, 106

Z

Zygopetalum Mackayi Charlesworthii, 83

FIRST

EXHIBITION SUPPLEMENT

THE ROYAL INTERNATIONAL HORTICULTURAL EXHIBITION, 1912.

Black and White Reproduction of the Coloured Exhibition Poster. Designed and printed by Johnson, Riddle & Co., Ltd., 32, Southwark Bridge Road, London, S.E.

The "Who's Who" of the Exhibition.

OUR PORTRAIT SUPPLEMENT.

HIS GRACE THE DUKE OF PORTLAND, K.G. (President).

The President of the Royal International Horticultural Exhibition of 1912 is best known to our readers as the owner of Welbeck Abbey, an English seat which possesses a garden that may be classed with the largest and most important in the British Isles. His Grace is not only a liberal patron of gardening, but evinces practical interest in the gardening charities, and presided in 1900 at the annual festival dinner of the Gardeners' Royal Benevolent Institution.

With the Duchess of Portland, his Grace received the foreign guests and other visitors to the Exhibition, at his London residence in Grosvenor Square, on Tuesday evening (May 21), when from 500 to 600 ladies and gentlemen attended. During the period of the show the Duke of Portland has been good enough to place his time and services entirely at the disposal of the Exhibition.

J. GURNEY FOWLER (Chairman of the Board of Directors).

It would be difficult indeed to find anyone better fitted than Mr. Gurney Fowler for the office of Chairman of a great undertaking such as the International Show.

He has been for a long time a member of the Council of the Royal Horticultural Society, and is at present Hon. Treasurer of the Society, as well as Chairman of the Orchid Committee. In all that he undertakes Mr. Gurney Fowler displays the excellent business methods which, doubtless, he has acquired as head of the firm of Price, Waterhouse and Co., and many of our readers are familiar with the businesslike financial statements contributed by the Hon. Treasurer at the annual meetings of the Royal Horticultural Society. His chief recreation, during a busy life, has always been horticulture, and Mr. Gurney Fowler is at the present time the possessor of a very fine collection of Orchids which was recently the subject of an article in our pages, in the course of which reference was made also to Mr. Fowler's excellent collection of Selaginellas.

He is a keen golfer and motorist, a liberal supporter of the gardening charities, and an active participator in the local affairs of his neighbourhood of South Woodford. During the many months of anxious preparation for the great Show, the extraordinary optimism of the Chairman has never once failed him for a moment; and his enthusiasm has often inspired his colleagues at moments when some were apt to become doubtful or faint-hearted.

NICHOLAS F. BARNES (Director, and Member of the Show and Site Committee).

After serving for a time as foreman at Floors Castle, and at the Royal Gardens, Sandringham, Mr. Barnes was appointed gardener to the Duke of Westminster, at Eaton Hall, Chester, in 1892, and he has remained there ever since. His management of the gardens has produced the most successful results, and his exhibits of fruits, flowers, and vegetables at the principal shows have secured many awards. He exhibits with uncommon success in the class for decorated tables for dessert, e.g., at the Shrewsbury meetings.

EDWIN BECKETT, V.M.H. (Director, and Member of the Schedule and Advisory Committees).

Mr. Beckett was for 23 years gardener to the late Lord Aldenham, at Aldenham House, Elstree, and he now serves the Hon. Vicary Gibbs in the same capacity. Mr. Beckett has shown great skill in laying out the gardens at Aldenham, in which the rock-bound lake and natural gardens have a charmingly distinct character. In matters of fruit and vegetable culture Mr. Beckett is an authority. He has been awarded 28 gold medals, besides a number of cups and other prizes. He was one of the first to insist on the importance of artistic display in the exhibiting of vegetables, and has done much to improve conditions in this direction.

He is the author of a first-rate work on the culture of vegetables.

W. A. BILNEY, J.P. (Solicitor).

A member of the Council of the Royal Horticultural Society, and honorary solicitor to the Gardeners' Royal Benevolent Institution, Mr. Bilney is deservedly well known in horticultural circles. Many of our readers were acquainted with the garden at his former place of residence—Fir Grange, Weybridge—which was extremely beautiful, and had been made under his personal supervision. He is now living at Ronneby, Weybridge, and still takes an active interest in horticulture, though his new garden is smaller than the old one.

Mr. Bilney was originally appointed a director of the International Exhibition, but resigned in order to act as the Directors' solicitor, in which capacity he has rendered valuable services.

E. A. BOWLES, M.A. (Director).

Mr. Bowles is a member of the Committee of the Royal Horticultural Society, Chairman of the Narcissus and Tulip Committee, and Vice-chairman of the Scientific Committee. In this latter capacity he usually officiates in place of the chairman. His knowledge of garden plants is exceptional.

The gardens of his residence, Myddelton House, Waltham Cross, are extremely interesting, being especially rich in the rare hardy plants, bulbs, and rock plants.

Mr. Bowles is a trustee of the Lindley Library, and his wide knowledge is of the utmost value in this connection.

SIR JEREMIAH COLMAN, Bart., J.P., D.L., V.M.H. (Director and Honorary Treasurer).

Those who attended the preliminary meeting of horticulturists held last year at the Mansion House in connection with the arrangements for the International Exhibition, at which the Lord Mayor (Sir T. Vezey Strong) presided, will long remember Sir Jeremiah Colman's lucid and vigorous speech, which did so much to increase the enthusiasm of the promoters of the scheme. Since that time he has spared no efforts to ensure success. He is a keen horticulturist, and the beauty of the gardens at Gatton Park is well known. He is also a successful Orchid raiser, his collection of Orchids being one of the best in the country.

He is a good friend of the gardening charities, and will preside at the 73rd annual festival of the Gardeners' Royal Benevolent Institution on June 25 next.

W. CUTHBERTSON, J.P. (Director).

Mr. Cuthbertson, of the firm of Dobbie & Co., Edinburgh, is a keen enthusiast on the subject of florists' flowers, especially Sweet Peas, Aquilegias, Dahlias, and Marigolds. He devotes much time and thought to the subject of the improvement of strains.

Mr. Cuthbertson is a member of the Scientific and Floral Committees of the Royal Horticultural Society, and contrives to be present at most of the principal horticultural gatherings, notwithstanding the long railway journey from Edinburgh.

C. R. FIELDER (Director, and Member of the Schedule Committee).

Mr. Fielder was formerly gardener to Mrs. Burns, of North Mymms Park, Hatfield. Here he began to make a name for himself, being extremely successful with Hippeastrums; he was, in fact, the first to raise a good white specimen of the modern type.

On leaving North Mymms, in 1911, Mr. Fielder was appointed gardener to Miss Willmott, at Warley Place, Essex.

He is a Director of the International Exhibition, as well as a member of the Schedule Committee; he is also a member of the Floral Committee of the Royal Horticultural Society, one of the examiners for the Public Parks Examinations, and inspector of gardens for the Royal Horticultural Society.

JOHN GREEN (Director, and Member of Show and Site Committee).

Mr. Green is well known as the head of the horticultural department of Hobbies, Ltd., and a director of the firm. At his nurseries at Dereham, in Norfolk, Mr. Green has been particularly successful with Dahlias, Roses, Chrysanthemums, Sweet Peas, and many other plants. He is a member of the Floral Committee of the Royal Horticultural Society, Hon. Treasurer of the National Dahlia Society and of the National Chrysanthemum Society, and a member of the Horticultural Trade Association.

HUBERT J. GREENWOOD, J.P., L.C.C. (Director).

Mr. Greenwood, being a member of the London County Council, has been able to assist the International Directorate in matters pertaining to building, lighting, and draining, and such operations as have to be sanctioned by the local and other authorities.

FREDERICK JANSON HANBURY (Director, and Member of the Finance Committee).

Mr. Hanbury is a director of the well-known firm, Allen and Hanbury's, Ltd., and was formerly an examiner of the Pharmaceutical Society. He has contributed several papers to the *Journal of Botany*, principally on the subject of the botany of north Britain, notably the British Hieracia, of which he has discovered and described many new species.

He is the editor of the *London Catalogue of British Plants*; and, in collaboration with his friend, the Rev. E. S. Marshall, has published the *Flora of Kent*. He has a collection of dried British plants, which contains some 70,000 sheets, and he has also a large and complete collection of British Lepidoptera.

Mr. Hanbury is a member of the Orchid Committee of the Royal Horticultural Society, and has a fine collection of Orchids at his residence, Brockhurst, East Grinstead. The late Sir Thomas Hanbury, K.C.V.O., who presented the Wisley gardens to the Royal Horticultural Society, was Mr. Hanbury's cousin.

JAMES HUDSON, V.M.H. (Director, Honorary Secretary of Schedule Committee, and Member of Spacing Committee).

Mr. Hudson's name has become familiar to all in any way connected with the horticultural world, by reason of his long services and successful career as gardener to Leopold de Rothschild, at Gunnersbury House. Mr. Hudson was one of the first to receive the Victoria Medal of Honour. He is a member of the Council of the Royal Horticultural Society.

A. G. JACKMAN (Director, and Member of the Show and Site Committee).

Mr. Jackman is the senior partner in the firm of George Jackman and Son, Woking, one of the oldest nurseries in Great Britain. The firm is chiefly celebrated for many fine introductions of Clematis, Roses, and hardy ornamental trees and shrubs. Mr. Jackman is an enthusiastic horticulturist, and a skilled landscape gardener.

ANDREW KINGSMILL ((Director, and Member of Finance Committee).

During the course of an active City life, gardening has always been Mr. Kingsmill's favourite hobby, and since his retirement his beautiful gardens at the Holt, Harrow Weald, have become famous. Experts from all parts of the country are attracted to the splendid display of Narcissus and other bulbs which is always to be seen in the spring. Mr. Kingsmill is a member of the Narcissus Committee of the Royal Horticultural Society, and is a keen judge of the merits of these popular flowers.

A. MACKELLAR, V.M.H. (Director, and Member of the Show and Site Committee).

Mr. Mackellar was for some years gardener at Floors Castle, and was appointed subsequently to the direction of the Royal Gardens at Sandringham. He remodelled the Sandringham Gardens, and, under his supervision, new plant and fruit houses were built. On the accession of King Edward, Mr. Mackellar was transferred to Windsor Castle Gardens, and there, since his appointment, wonderful improvements, which testify eloquently to his skill, have been effected in every branch of gardening. Mr. Mackellar is a member of the Fruit and Vegetable Committee of the Royal Horticultural Society.

HENRY B. MAY, V.M.H. (Director, and Member of the Show and Site, Spacing, and Advisory Committees).

Mr. May is a member of the Council of the Royal Horticultural Society, and joint-Chairman of the Floral Committee. He is Chairman of the Executive Committee of the Royal Gardeners' Orphan Fund, which position he has held for the past 13 years.

He is the senior partner in the firm of H. B. May & Sons, Dyson's Lane, Upper Edmonton, so famous for their unrivalled collection of British and exotic Ferns and miscellaneous decorative plants. Few of those who were concerned in the organizing of the International Exhibition have done more work than Mr. May, whose position as Chairman of the Show and Site Committee has necessitated repeated visits to the Chelsea grounds.

C. G. A. NIX (Director).

Mr. Nix is a very clever amateur gardener, and his fine gardens at Tilgate Forest Lodge, Crawley, show a high standard of excellence in fruit culture. He is Vice-chairman of the Fruit and Vegetable Committee of the Royal Horticultural Society. Mr. Nix has especially interested himself, in connection with the Exhibition, in making known the objects of the Show to all the gardeners' societies throughout the kingdom, a work the importance of which all will appreciate.

GEORGE PAUL, J.P., V.M.H. (Director, and Member of Schedule and Show and Site Committees).

Mr. Paul is the head of the firm of Paul & Son, the Old Nurseries, Cheshunt. He is Vice-chairman of the Floral Committee of the Royal Horticultural Society, and has upwards of 60 years' experience in horticulture. He is an enthusiastic specialist in Roses, trees and shrubs.

Mr. Paul has taken part in all the great exhibitions of his time, and few people are so well fitted as he to give advice on the subject of the arrangements for an International Show.

C. HARMAN PAYNE (Director, Honorary Foreign Press Secretary, and Member of the Show and Site Committee).

For nearly a quarter of a century Mr. Payne has acted as foreign corresponding secretary for the National Chrysanthemum Society. He is a contributor to English, French, American and Belgian horticultural journals, and a well-known figure at the French shows.

Mr. Payne is an Officier du Mérite Agricole.

R. HOOPER PEARSON (Director, Hon. General Press Secretary, and Member of Advisory Committee).

Mr. Pearson is managing editor of the *Gardeners' Chronicle*. He is also the editor of the series of books known as *Present-Day Gardening*; Honorary Secretary of the Horticultural Club; and a member of the Floral and Scientific Committees of the Royal Horticultural Society.

He has officiated as judge at horticultural shows in Germany, Holland, France, and Belgium.

T. A. H. RIVERS (Director, and Member of the Show and Site Committee).

Mr. Rivers, of the firm of Thos. Rivers & Sons, Sawbridgeworth, has long been well known in the world of horticulture. His firm makes a speciality of fruit trees, Roses, Vines, Figs, Oranges, and orchard-house trees.

Sir ALBERT KAYE ROLLIT, LL.D., D.C.L., Litt.D. (Director and Member of Advisory Committee and Show and Site Committee).

Sir Albert Rollit is a member of the Council of the Royal Horticultural Society, and President of the National Chrysanthemum Society. He is a member of the French Academy, and "Officier de la Légion d'honneur." He is also a Knight of the Order of St. John, Knight-Commander of the Crown of Italy and of Leopold of Belgium, and Elder Brother of Trinity House.

Besides being a Director of the Exhibition, Sir Albert Rollit has been Chairman of the Reception Committee.

He was formerly President of the Botanic Gardens, Hull, where he is said to have opened the first Chrysanthemum show held in this country.

N. N. SHERWOOD, V.M.H. (Director and Member of Finance Committee).

Mr. Sherwood is the principal partner in the firm of Messrs. Hurst & Son, seedsmen, Houndsditch, London, and it is largely to his efforts that the world-wide reputation of the firm is due.

He is a Trustee of the Gardeners' Royal Benevolent Institution, and this, in common with the other gardening charities, has been substantially benefited by his liberal and sympathetic help. In 1911 Mr. Sherwood presided at the annual festival dinner of the Royal Gardeners' Orphan Fund, when the donations amounted to a greater sum than on any previous occasion.

ARTHUR W. SUTTON, V.M.H. (Director).

Mr. Arthur Sutton is a partner in the firm of Sutton & Sons, Reading. He has always taken a personal interest in the trials of vegetables and flowers, and has made important experiments in the breeding of plants. The results of his experimental work have been published in the *Journal* of the Royal Horticultural Society, the *Proceedings* of the Linnean Society, and other journals. In particular Mr. Sutton has done valuable work in tracing the wild types of garden plants. Mr. Sutton is amongst the best friends of the gardening charities.

ARTHUR TURNER (Director and Member of the Schedule Committee.)

Mr. Turner is a member of the Floral Committee of the Royal Horticultural Society, and is principal of Mr. Chas. Turner's Royal Nurseries, at Slough, in Buckinghamshire.

Trained from his early years in a large nursery, he has had life-long experience in the cultivation of plants, and especially of Roses, Pelargoniums, Auriculas, Carnations, and other florists' flowers.

HARRY J. VEITCH, V.M.H. (Director, Chairman of Schedule Committee, and Member of Advisory and Show and Site Committees).

Mr. Veitch is the managing director of the firm of Messrs. James Veitch & Sons, Ltd. He has been for many years a member of the Council of the Royal Horticultural Society, and is also Vice-chairman of the Orchid Committee.

The Gardeners' Royal Benevolent Institution, of which he is Chairman and Treasurer, owes more to his untiring efforts than to those of any other of its supporters. It is not easy to summarise the enormous amount of work he has done for horticulture; and although he has received the Ordre de Léopold and many other distinctions, his devotion to the cause of horticulture deserves acknowledgment by yet higher honours.

Mr. Veitch has thrown himself, heart and soul, into the preparations for the International Exhibition. He is a Director, member of the Advisory Committee, Chairman of the Committee responsible for drawing up the Schedule and selecting the Judges, &c.

ROBERT W. WALLACE (Director and Member of Show and Site Committee).

Mr. Wallace is the proprietor of the nurseries of Messrs. R. Wallace & Co., at

MR. S. T. WRIGHT.
(Superintendent of Arrangements.)

Kilnfield Gardens, Colchester. He is a specialist in hardy bulbous plants, rock-gardens, Alpine and water plants, and bog plants. He is a member of the Floral Committee of the Royal Horticultural Society, and is a Councillor of his own town.

EDWARD WHITE (Hon. Managing Director).

At the first meeting for the promotion of the International Exhibition Mr. Edward White accepted the position of Honorary Secretary, and he continued to discharge the arduous duties of that office until August, 1911, by which time the necessary work had become so engrossing that further assistance was essential. Mr. White thereupon was appointed Honorary Managing Director, and he was given the assistance of Mr. Geoffrey Henslow, who was appointed Organising Secretary. Mr. White's honorary efforts on behalf of the exhibition have been exceedingly onerous. A member of the firm of landscape gardeners, Messrs. Milner, Son & White, Mr. White was called upon to design the flower garden in the great marquee, and in many other matters his expert knowledge of ornamental gardening has been of great service to the Directors. Mr. White is both a landscape gardener and an artist, and has two pictures in the Academy this season.

GEORGE J. INGRAM (Financial Secretary).

Mr. Ingram is widely known as the valued and hard-working Secretary of the Gardeners' Royal Benevolent Institution. The success of that Institution provides ample proof of his fitness for the post of Financial Secretary of the International Exhibition.

SAMUEL T. WRIGHT.

Mr. Wright is well known as the Superintendent of the Wisley Gardens and of

MR. T. GEOFFREY HENSLOW, M.A.
(Organising Secretary.)

the Royal Horticultural Society's shows and meetings. By an arrangement between the Directors of the Royal International Exhibition and the Royal Horticultural Society Council Mr. Wright was enabled to take over the management of the ground at Chelsea soon after May 1. He is assisted by four or five head gardeners, who look after the various tents

MR. OWEN THOMAS, V.M.H.

and see that the plants are cared for as much as circumstances allow.

T. GEOFFREY W. HENSLOW M.A. (Organising Secretary).

Mr. Henslow was appointed to the onerous post of Organising Secretary in August, 1911, on his leaving the Festival of Empire Exhibition at the Crystal Palace. Besides discharging the duties pertaining to this office, it has to be recorded that the Souvenir Catalogue of the Exhibition was compiled exclusively by Mr. Henslow. Fifty tons of paper were used to print the fifty thousand copies published.

OWEN THOMAS, V.M.H.

Mr. Owen Thomas is best known from the fact that he was gardener to the late Queen Victoria, at Windsor Castle. He is assisting the International Exhibition as a member of the Show and Spacing Committee.

THE EXHIBITION.

AN *international* exhibition of horticultural produce that will do justice to all concerned is an impossibility. It has been tried over and over again, with the invariable result that the home country has always been an easy first and the rest nowhere. The present exhibition at Chelsea is no exception. Those of us who know the capabilities of horticultural producers in France, Belgium, and Holland recognise that, excellent as are many of their exhibits, they do by no means full justice to the admirable skill of the Continental growers. Circumstance renders this result inevitable. Difficulties of transport, incompatibilities of season, not to mention commercial considerations, are obstacles that cannot be surmounted. Precisely the same thing has happened when England has attempted to take part in international exhibitons elsewhere.

Nevertheless, and despite the heavy handicap which distance imposes on foreign exhibitors, we are convinced that the interests of the world's horticulture cannot be better served than by the holding of occasional international shows. They serve to mark the progress of horticulture and help to define the special characteristics of the various nations of the world.

Apart from their historical and political aspects which make international exhibitions a necessity, it may be conceded that the nations may learn more with respect to their several horticultural gifts by each holding its own exhibition and inviting foreigners thereto.

Of the exhibits of our foreign guests at the international show, we may say, without disparagement to the others, that the Dutch display is the best of the three. As an exhibition of what can be done in "England," for we can scarcely consider that either Scotland or Ireland is fairly represented by the few exhibits from them, we have no reason to feel dissatisfied with the Chelsea display.

The weather has not been kind to us. With the best intentions on the part of our most reliable growers, it has not been possible to control causes and effects, so as to present on a given date the best that we can do. The Orchid growers appear to have experienced least trouble in this respect; but we know that in every other department without exception conditions have been unfavourable to the growers. The greater credit, therefore, to those who have contrived to make the exhibition what it is, namely, a magnificent effort under the circumstances. Orchids, Roses, Carnations, Hippeastrums, stove plants, and, of course, Ferns are superbly represented—there can be no two opinions as to the merits of these exhibits. Nor need we feel dissatisfied with the displays of such plants as Gloxinias, Begonias, and Rhododendrons. Indeed, among those who admire the splendid specimens of Gloxinias, Calceolarias, and other tender plants exhibited in Messrs. Sutton's most imposing group, none except the practical gardener can realise what anxious care must have been bestowed upon these plants during the trying weeks which preceded the exhibition. Rhododendrons, as judged from the fine exhibits in the main tent, notably the mass shown by Messrs. John Waterer & Sons, appear to have withstood the distracting climatic conditions better than most plants, nor is there any sign of anything but perfection in Messrs. Veitch's superb collection of fine stove plants.

The great feature of the exhibition is the display of Orchids. The Orchid conference held at South Kensington a quarter of a century ago was considered at the time to be a great achievement, and those who saw it are able to gauge

the progress made in the cultivation, and particularly the improvement, by breeding with these plants. Sir George Holford's collection is astonishing enough to-day, a generation ago it would have been considered a miracle, and we may justly feel proud of what has been achieved in this particular field by the cultivator's effort. The improvement is due to the cultivator and the breeder and not to the introduction of plants from their native homes. Westonbirt stands alone in what may be termed the manufacture of Orchids. The same influences can be seen in the collections of other amateurs, and those of the great trade growers. To the latter Orchid fanciers owe much; we may justly feel proud of what the leaders among them have accomplished. Pioneers in the collecting and cultivation of Orchids, they were also pioneers in the breeding of them; in this as in other departments of horticulture they deserve our gratitude. A very large number of the best of the Orchids now to be seen at Chelsea have been bred artificially, and bearing in mind that within the memory of not very old men it was considered to be impossible to breed Orchids, what has been accomplished must take rank with the very highest of horticultural achievements.

Roses are being enormously improved by the introduction of what is known as the Rambler section, and the charm of this exhibition is very largely indebted to the Ramblers. A specimen Rose used to be a large, stiffly-trained bush, with the flowers carefully tied an equal distance apart, suggesting Almonds in a pudding. How very different are the graceful, airy examples that may be seen in the great tent at Chelsea to-day.

But among the many fine exhibits of Roses—exhibits which are at once a testimony to the beauty of the flower and the ability of the growers to do it justice—the magnificently-cultivated blooms of Mr. G. MOUNT & SON stand out pre-eminent, and are worthy the cup offered by Sir Jeremiah Colman for the second best exhibit in the Show. Of new Roses the most notable is the superb example exhibited by Mr. J. PERNET DUCHER, for which the *Daily Mail* cup is recommended. Nor may we omit reference to the use of the Rose combined with Lilac, which resulted in such a charming decorative effect in the Dutch tent.

Carnations have also come on with a rush. The progress made with them in the last 20 years or so has been astonishing. It is difficult to believe that the glorious flowers of the modern collection of perpetual-flowering Carnations are direct descendants of the modest Dianthus caryophyllus, naturalised on old walls in some parts of this country. Equally remarkable is the fact that while the progenitor is a hardy plant, its most modern descendants can only be successfully cultivated under glass with artificial heat. The next most striking development is that made with hippeastrums. Here, again, Sir GEORGE HOLFORD is in the very van of progress. The Hippeastrum possesses great capabilities, and we look forward with confidence to its becoming universally popular. Rhododendrons are now typically British garden shrubs. There must be something in the English climate peculiarly suited to these plants, and it is a real blessing that the crossing of several species has provided us with a race of plant which for all-round usefulness rivals the Rose itself.

Another striking development is to be seen in the popularity of herbaceous and Alpine plants. Formerly they were grown in borders more or less sheltered. Now, however, it has become the general practice to build what are known as rock-gardens for the accommodation of the smaller herbaceous plants, so that a construction of soil and pieces of stone, with small plants set among them, forms a part of every well-ordered garden. It is pleasant to record the fact that the best rock-garden exhibits in the Exhibition won the admiration of their Majesties and also the unstinted praise of foreign horticulturists. If we were pointing morals instead of making a general survey of the Exhibition, we should digress to say that it would be safe to prophesy that rock-gardening will become simplified and rendered yet more artistic in the immediate future; but Mr. Farrer has expressed in these columns already the hopeful views of not a few horticulturists in this branch of gardening, and therefore we need not enlarge further on the subject here beyond saying that Messrs. R. WALLACE & Co., the winners of Queen Alexandra's cup, show in the treatment of the space allotted to them admirable taste and skill, and that Messrs. CARTER'S Japanese garden proves most fascinating to all who are amateurs of that genre of garden architecture.

Compared with Continental exhibitions, ours is strong in some features and weak in others. The 6-inch pot is our general limitation. Plants are small; indeed, the individual plant is not the first consideration, the aim being to grow a large quantity of portable size and arrange them decoratively. The old style was to grow a plant into a large specimen, well-balanced and freely-flowered. We do not appear to have any use for such specimens nowadays, nor is there left much of the collector's spirit which influenced men to fill their gardens with a multitude of different things. Much of latter-day garden is decoration, which is quite different from the old style. However, we have much to be thankful for; gardening is universally popular because it has been made easy and cheap. Sir George Holford's exhibition group now at Chelsea is valued at a fabulous sum, but one can buy for £5 100 Orchids that will make a nice display if managed with a little intelligence.

We cannot conclude this general review without expressing, on behalf of British horticulturists, the pleasure that we feel in welcoming so many distinguished horticulturists from abroad. We know that we have had the advantage of position over them, but we recognise with deep appreciation and gratitude the magnanimity which led them to bestow such unstinted praise on our exhibition. One of the most distinguished, M. de Vilmorin, remarked with characteristic grace that the show was without rival, and added pleasantly that we had gone abroad to learn with good effect, had grasped the lesson we had travelled forth to master, and could vie with the French themselves in the arrangement of an exhibition. Warm praise indeed, and though perhaps a little high, we accept it, if only for the charming courtesy with which it was given.

FIG. 1.—GROUP OF CHOICE STOVE PLANTS EXHIBITED BY MESSRS. JAMES VEITCH AND SONS.

ORCHIDS.

The exhibits of Orchids constitute the finest display of these plants ever gathered together. The large tent (No. 1) in which they are staged is specially provided with a hot-water system, driven by two boilers. The outstanding group is contributed by Lieut.-Col. Sir GEORGE L. HOLFORD, K.C.V.O., whose gardener, Mr. Alexander, has arranged the collection with consumate skill, and it has received the highest award —the King's Cup. The area furnished by this exhibitor is 1,100 square feet, the group occupying one end of the tent. The Orchids are shown in bold relief by imposing drapery of olive-green colour, the effect being heightened by lofty Palms. High up at the back are grouped numerous fine plants of Oncidium Marshallianum, with about 50 spikes of bright-yellow flowers, around these being arranged grand specimens of Lælio-Cattleya, including amongst the most prominent varieties, Canhamiana alba, Rex, "Rosslyn variety," and Wallaertianum. ing the expanded and fringed lip of their parent, but immeasurably more ornate. Some 20 forms of Brasso-Cattleya and Brasso-Lælia are included, the varieties of the old favourites B.-C. Digbyano-Mossiæ and especially Queen Alexandra being still unsurpassed. A new Brasso-Cattleya, named "The King," is a noble and distinct flower, whilst plants of B.-C. Digbyano-Mossiæ "Westonbirt variety," the finest of all the deep, rose-coloured forms, have each 14 or 16 flowers. Lælio-Cattleyas furnish bright colour of various tints, the most striking being L.-C. Bedouin (L. purpurata × L.-C. Hyeana), one of the specimens bearing 23 flowers; L.-C. Goldcrest (one of the finest of yellow hybrids), L.-C. Lustre (the new varieties, Budda and Lavengro, being very showy), L.-C. Golden Glory (the best plant bearing three spikes and 23 flowers), L.-C. Britannia "Westonbirt variety" (L.-C. Canhamiana × C. Warscewiczii), a gorgeous flower, finer in colour than Canhamiana, and a large number of other hybrid Lælio-Cattleyas and Sophro-Lælio-Cattleya Marathon Vesuvius being very showy. Effectively arranged to show their large, white flowers to advantage were many plants of Phalænopsis amabilis Rimestadtiana, with 50 spikes, the scarlet Renanthera Imschootiana, and a brilliant array of Masdevallias, with Vanda teres gigantea.

Messrs. SANDER & SONS, St. Albans and Bruges, have, on one side of the central stage, and occupying some 700 square feet, probably the finest group they ever staged. The collection includes old and new kinds blended harmoniously, the older Orchids being represented by fine specimens of Aërides expansum and other Aërides, Vandas, including the white V. Denisoniana and showy plants of V. teres. The newer ones are represented by a brilliant display of showy hybrids, Odontoglossums being specially good, and including types varied, rich in colour and good in form. The central design comprises a white Phalænopsis Rimestadtiana arranged with the spikes appearing between the

FIG. 2.—LÆLIO-CATTLEYA CANHAMIANA EXHIBITED BY LIEUT.-COL. SIR GEORGE HOLFORD, K.C.V.O.

The sides at the back are furnished with finely-flowered Cymbidiums and some noble specimens of Dendrobiums, the latter being masses of bloom; the showiest include D. nobile virginale, D. n. nobilius, D. n. Harefield Hall, D. n. elegans, D. Apollo grandiflorum, D. Wardianum album, the beautiful D. Ophir, carrying 60 flowers, D. Dalhousianum luteum, three fine plants, carrying 200 flowers and buds, D. infundibulum, with more than 50 fine white flowers, the bearded, yellow D. Brymerianum, and a very handsome collection of hybrids. A great feature in the group is the magnificent specimens of large-flowered Cattleyas, some of the plants bearing from 20 to 50 flowers. Among them we noted 25 distinct varieties of Cattleya Mossiæ Marmion, A. Dimmock, compacta, and the white Wageneri Aigrette, all new and choice varieties; whilst forms of C. M. Reineckiana are noticeable for their showy labellums, which contrast with the clear-white sepals and petals. Brassavola Digbyana is arranged with a host of its charming descendants, all fragrant, and show- Cattleyas, the white C. Dusseldorfei Undine being very effective. Among the species are the finely-coloured C. Skinneri "Temple's variety," with 52 flowers, and the white C. S. alba, with about 80 blooms. A specimen of Cypripedium callosum Sanderæ has from 15 to 16 flowers, and there are other good Cypripediums. A superb collection of Cymbidiums includes the wonderful C. Parishii Sanderæ; forms and hybrids of C. insigne, including the pretty Westonbirt hybrid C. Alexanderi; some noble specimens of Lælia purpurata; a charming lot of Miltonias, of which M. vexillaria "Westonbirt variety" has 33 fine flowers, and a specimen of the unique M. Memoria Baron Schröder having 12 large blooms. Odontiodas furnish brilliant colouring throughout the group, and there is a superb collection of forms of Odontoglossum crispum, the varieties Madonna and Mrs. Lindsay being specially attractive. In all, there are about 300 spikes of these fine forms of O. crispum, and a very large and varied lot of hybrids. Mention may also be made of richly-coloured Sophronitis crosses, long plume-like fronds of Polypodium Knightii, in front of which are massed many fine forms of Miltonia vexillaria and M. Bleuana, some of which are new. In the depressions, at either side, are Phalænopsis Rimestadtiana arranged with scarlet Renanthera Imschootiana, the same brilliant colour appearing beneath the elevated designs of Vanda teres, Aërides, Cyrtopodium punctatum, and other plants at the ends. The whole is connected in an undulated outline with showy Cattleyas, Lælio-Cattleyas, patches of Odontoglossum crispum, showy hybrid Odontoglossums and brilliant Odontiodas, many of which are new, O. Sanderæ sanguinea being of the darkest red-flowered Odontiodas, whilst Roger Sander and O. Lælia Sander are both fine novelties. Among new Lælio-Cattleyas, L.-C. Aphrodite Lord Faber is one of the most beautiful and richly-coloured of Lælio-Cattleyas, its petals being of a glowing crimson purple, the front of the lip deep violet-crimson, and the tube light with red lines. A new strain of Odontonia was represented by several very pretty

and distinct novelties; some new forms of Miltonia vexillaria were worthy exhibits; M. Bleuana Queen Mary, a splendid, large white flower with pink mask; M. Bleuana Northfleet, a novelty with rosy flush from the centre; Cattleya Suzanne Hye var. Mont Blanc, a charming large white variety; Odontoglossum amabile Venus, a white flower with very dark spotting; O. amabile Duke of Portland, large and richly coloured; O. eximium King George, a showy novelty, and white forms of Lælio-Cattleya Boylei are all especially attractive.

Messrs. CHARLESWORTH & Co., Haywards Heath, on the other side of the central stage to that occupied by Messrs. SANDER, have a marvellous group with 78 feet frontage, and about 700 square feet area, in the middle being a prominent cone of Phalænopsis Rimestadtiana, its numerous, graceful white sprays being arranged with brilliant scarlet and deep red Odontiodas. Nearly all the known varieties are represented, but the deep blood-red O. Charlesworthii appears still the best. Right and left in less prominent frontage, patches of the bright yellow Oncidium Marshallianum appear at the back with showy Lælio-Cattleyas in front; these are flanked by elevated designs of beautiful forms of Miltonia vexillaria, arranged with white Odontoglossum crispum, Miltonia Bleuana, and other plants. The continuation of the group at the back is of fine Cymbidiums, with Lælio-Cattleyas and Cattleyas, whilst at the ends are beautifully-blotched Odontoglossums, hybrid Phaius and scarlet Renantheras. In such a wealth of beauty and novelty it is difficult to make a selection, but among the Odontiodas O. Queen Mary (O. Vuylstekeæ × O. eximium) and O. Chanticleer are specially fine, and among the Odontoglossums O. Her Majesty, O. Princess Mary (a form of O. eximium), O. ardentissimum Pintadeau, and O. Maillardianum stand out as prominent novelties. O. crispum White Star and O. c. Joan are also worthy representatives of this favourite species, which in the profusion of finely-blotched forms shown have never been better represented. Among the Cypripediums C. bellatulum Black Prince represents the finest dark form; Lælio-Cattleya Ulysses (L.-C. Fascinator × C. Mossiæ Reineckiana) is a great beauty, and among the very fine show of forms of Miltonia vexillaria which give a fine effect to the group M. v. Consistance stands out prominently. Want of space renders it impossible to refer further to this magnificent group, which is so skilfully arranged that the special classes of Orchids, grouped and massed together, show each section distinctly. Thus the white of the white Cattleyas, Phalænopsis and Odontoglossum crispum; the scarlet of the Odontiodas and Renanthera Imschootiana, the blush and rose tints of the Miltonia vexillaria and other distinct classes are made the most of. (Monsieur Lambeau's Gold Medal.)

Continuing the side of the middle staging, Messrs. STUART LOW & Co., Bush Hill Park, have staged a pretty and effective group of fine Cattleyas, Lælias, Odontoglossums, and other showy Orchids.

On the side facing Sir GEORGE L. HOLFORD'S group J. GURNEY FOWLER, Esq., Glebelands, South Woodford, has, in a collection of beautiful Selaginellas, splendid plants of Odontoglossums, and Odontiodas. Standing out well, the beautiful Odontoglossum crispum Solum, with its large white flowers and almost entirely blackish-purple labellum, attracts attention; other fine forms of O. crispum are also displayed, two blotched varieties being specially attractive. Among hybrids the violet-tinted O. illustre Europe, O. illustrissimum and forms of O. amabile are conspicuous objects, whilst mingling with the large white Phalænopsis Rimestadtiana are bright scarlet Odontiodas. At the back are many good Cymbidiums and other Orchids.

Continuing on the same side is Mr. SIDNEY FLORY'S, Tracy's Nursery, Twickenham, exhibit of fine Odontoglossums, Odontiodas, Phalænopsis Rimestadtiana, good Cattleya Schroderæ, C. Mossiæ and C. Mendelii, the last including two clear white forms. Miltonia vexillaria and some pretty Masdevallias, including O'Brieniana, Calura, melanoxantha, and gemmata, are also displayed. Certain of the white forms of Odontoglossum crispum are very finely flowered, and these are arranged well with bright Odontiodas and hybrid Odontoglossums.

LEOPOLD DE ROTHSCHILD, Esq., Gunnersbury Park (gr. Mr. Reynolds), has a magnificent exhibit of Vanda teres, the various finely-grown specimens bearing together over 700 spikes of large gold and rose flowers. The display is one of the most merited in the show, as the plants are difficult to cultivate; notwithstanding the flowers are perfect examples. The plants are beautifully arranged with white Odontoglossum crispum and light green foliage, the whole making a charming display.

Fifty remarkably fine hybrid Orchids are shown by M. LAMBEAU, Brussels, the most prominent plants being Miltonia Blueana var. maxima, M. Soyiana splendida, M. vexillaria Sanderiana, with a distinct brown-rayed disc on the lip; Odontioda Bradshawiæ Vogelzang, with large, rosy-purple markings and rose suffusion of the sepals and petals; and Odontioda Ajax, a fine, solid, red flower, with white margin on the lip. Several very fine Odontoglossums are also included, and the secondary hybrid Odontioda Coronation, which received the R.H.S. Certificate at the last Temple Show. The plant is carrying a raceme of 20 flowers.

M. CHAS. MARON, Brunoy, France, has contributed a remarkable series of hybrid Cattleyas, Brasso-Cattleyas, and allied genera.

M. GRIER, Amiens, France, exhibits a small but interesting group of seedling Odontoglossums and Odontiodas.

FIG. 3.—BRASSO-CATTLEYA DIGBYANO-MOSSIÆ "WESTONBIRT VARIETY."

M. DIETRICH, Brussels, contributes a choice group of Miltonias, Cattleyas, Odontiodas, and Odontoglossums, among the last-named being a very dark variety O. × Cam. Lemounier, with fine brown spottings and blotches on the sepals and petals, and O. × Maeterlinck, the reddish-brown sepals and petals being beautifully marbled with white.

M. A. A. PEETERS, Brussels, has a fine group of well-grown plants of Renanthera Imschootiana and hybrid Miltonias, all seedlings, showing the influence of M. vexillaria Memoria G. D. Owen, one of the parents, thus showing a remarkable variation. The plants are nearly all small specimens, flowering for the first time, and are of much promise.

COMPETITIVE CLASSES.

ORCHID PLANTS IN FLOWER.

In the class for a varied group of hybrids, arranged in a space not exceeding 200 square feet, Messrs. ARMSTRONG & BROWN, Tunbridge Wells, present a fine exhibit. The outstanding feature in this group are the many fine forms of Lælio-Cattleya Fascinator, and other Lælio-Cattleyas, all finely-grown and flowered. Good

specimens of L.-C. Canhamiana alba and Rex are represented by both the lightest and darkest types; L.-C. callistoglossa ignescens is a brilliant flower; two fine specimens of L.-C. Hyeana; some splendid plants of L.-C. Aphrodite; and many others of the yellow and reddish hybrids are included in the collection. Hybrid Cymbidiums in variety occupy the back, with graceful sprays of Odontoglossum Thompsonianum and other O. Edwardii crosses; a bright lot of Odontiodas, and a general selection of other good subjects. (Baron Bruno Schröder's Cup.) 2nd, Messrs. J. CYPHER & SONS.

In the class for 100 Orchids, in not fewer than 25 species and varieties, Messrs. ARMSTRONG stage, in the adjoining space, a charming collection, in which we noted Cattleya Skinneri alba, with seven spikes; the beautiful and rare Miltonia vexillaria Memoria G. D. Owen; fine specimens of Phalænopsis Rimestadtiana; some splendid examples of Cattleya Mendelii and C. Mossiæ; showy Masdevallias; masses of the pure-white Cypripedium niveum; fine Odontoglossum crispum and O. polyxanthum.

In the same class Messrs. J. CYPHER & SONS, Cheltenham, have a splendid show, the higher positions of the group having

For a collection of 50 Orchids, in not fewer than 25 species, varieties, or hybrids, Mr. DIXON has arranged an effective group of finely-flowered species and hybrids, among which may be noted good Odontoglossums, including O. hastilabium, some elegant Oncidium phymatochilum, good Cypripedium bellatulum and other Cypripediums, the clear-white Cattleya Dusseldorfei Undine, a brightly-coloured Brasso-Cattleya Digbyano-Warneri, Cœlogyne pandurata, and Dendrobium thyrsiflorum.

In the class for a varied group of Orchids, open to amateurs, for a group occupying 500 square feet, the 1st prize is awarded for a noble group staged by FERGUS MENTEITH OGILVIE, Esq., The Shrubbery, Oxford (gr. Mr. Balmforth), the design being carefully worked out. At the higher parts are well-flowered Cymbidiums, Odontoglossum crispum, with graceful sprays of the slender Epidendrums and other elegant plants. The lower central part is occupied by a broad expanse of the deep-yellow Dendrobium Chessingtonense "Veitch's variety," and a batch of the emerald-green and white Cypripedium callosum Sanderæ, other batches of the same being arranged on either side. Lælio-Cattleya Canhamiana is represented

FIG. 4.—DENDROBIUM APOLLO ALBENS, SHOWN BY LIEUT.-COL. SIR GEORGE HOLFORD, K.C.V.O.

remarkably fine forms of Lælia purpurata, Cattleya Mossiæ, and C. Mendelii. Beside these are golden sprays of Oncidium Marshallianum and other graceful Oncidiums, and, in the body of the group, a fine example of Cattleya Skinneri alba. The collection also embraces a showy batch of Dendrobiums, including D. Dalhousianum, D. Dearei, D. thyrsiflorum, and D. infundibulum. At one end of the collection is a fine example of the true Vanda teres gigantea, and, in front, some showy Masdevallias, Cypripedium callosum Sanderæ, and other Cypripediums, the elegant Oncidium pulchellum, O. Krameri, Maxillaria Sanderiana, and Cœlogyne pandurata.

The exhibit of Messrs. J. CYPHER & SONS, Cheltenham, in the class for a group of Orchids, occupying a space not exceeding 200 square feet, includes a fine show of good Lælio-Cattleya Fascinator, L.-C. Hyeana, L.-C. Wellsiana, L.-C. cinnabrosa, L.-C. General Baden Powell, and other Lælio-Cattleyas; Cattleya Dietrichiana and other hybrid Cattleyas; some pretty Cypripediums, various Brasso-Cattleyas and Brasso-Lælias, the whole being arranged in a clever manner.

by about 60 spikes of the finer varieties, and these have as companions well-grown plants of L.-C. Aphrodite. Four plants of the handsome Brasso-Lælio-Cattleya Veitchii are among the finest in the group, but besides these there are numerous plants of the clear-white Cattleya Dusseldorfei Undine effectively displayed. More than 300 fine forms of Odontoglossum crispum are embraced in the collection, O. c. Sorato and O. c. Mrs. H. E. Miller being grand white forms. Among forms of O. ardentissimum, the variety Carmen is especially good. O. Ossulstonii "The Shrubbery variety" is also very fine; whilst there are also good plants of O. illustrissimum, O. percultum, O. amabile, and other Odontoglossums. The forms of Cattleya Mossiæ are both varied and good, C. Mossiæ Victoria being of a delicate blush tint. Fine examples of C. Mendelii are also plentifully displayed, C. M. Pearl McBean having prettily-decorated flowers resembling those of C. Trianæ Backhousianum. Brasso-Cattleyas in quantity and other showy things make up a fine display.

Arranged on the centre stage a splendid group is shown by Sir JEREMIAH COLMAN, Bart., V.M.H., Gatton Park, Surrey (gr. Mr. Collier), a most effective feature being the prominent designs of Odontoglossum crispum, chiefly of the white type, arranged with scarlet Odontiodas, most of which were raised at Gatton Park. Very elegant also are the graceful sprays of the claret and pink Odontoglossum Thompsonianum and O. Clytie. Of the Odontiodas, O. Vuylstekeæ Lady Colman, O. Gattonense, and the Gatton form of O. Papilio are specially beautiful. The Odontoglossums include choice forms of O. crispum, such as Rosy Queen, Margery Tyrrel, Giles, Pride of Gatton, Mary Colman, with others equally as fine. Amongst hybrids, forms of O. ardentissimum percultum, the fine Queen of Gatton, and Othello are outstanding plants, and they are arranged well, with finely-grown plants of Miltonia vexillaria, M. Bleuana, showy Lælio-Cattleyas, Lælia purpurata, and Cattleyas, of which there is a profusion of good sorts. A representative display of Masdevallias provides brilliant colouring and curious form, M. Veitchii grandiflora, M. coccinea, M. Pourbaixii, and forms of M. chimæra being the more brilliant, whilst the curious flowers are represented by M. O'Brieniana, M. ventricularia, M. Calura, and M. Macrura. An interesting collection of Bulbophyllums, Restrepias, the showy Catasetum Cliftonii, and many other plants of special interest botanically may also be noted. The 2nd prize is awarded this collection.

In the nurserymen's class for a group, arranged in a space of 500 square feet, Messrs. MANSELL & HATCHER, of Rawdon, Yorks., are awarded the 2nd prize. The design is of three raised conical groups, composed of good hybrid Cattleyas and Lælio-Cattleyas. Here, as in other groups, L.-C. Fascinator are specially fine. At the back, sprays of Oncidium Marshalliana and Cymbidiums droop over. The elevated portions are connected by less-prominently-displayed arrangements of white Phalænopsis and bright-red Renanthera Imschootiana, and with these are arranged a good selection of Brasso-Cattleyas, specially fine Odontoglossums, many beautiful Cattleyas and Lælias, at the ends being well-flowered Vanda teres. The hybrid Odontoglossums include a handsome Odontoglossum Dora, and, with the Odontiodas, a charming new hybrid, O. Cleopatra, a very bright flower, the segments being white at the base, spotted with deep chocolate-red, the margins rosy-lilac. Choice Cypripediums and various other fine Orchids are also displayed.

STOVE PLANTS.

Messrs. J. CYPHER & SONS have arranged a really beautiful group of flowering and foliage plants in Class 5, which requires a space of 400 square feet to be filled. The arrangement of this 1st prize group may almost be styled as that of studied neglect. The formal, artificial method of recent years has been departed from in favour of a much more graceful style. Tall, healthy species of Kentia, the fine-leaved, arching plumes of Cocos Weddeliana, Codiæums, with beautifully-coloured leaves, rise over various species of Kalanchoe, Crassula, Erica, and a few yellow-spathed Richardias. This combination, put together with the skill and finish which always characterise Messrs. CYPHERS' groups, makes a pleasing picture.

In the nurserymen's class for 12 stove and greenhouse plants, Messrs. CYPHER & SONS have set up a batch of exceedingly fine flowering plants, which have deservedly received the 1st prize. The best plants are Erica depressa, E. ventricosa magnifica, and Franciscea eximea.

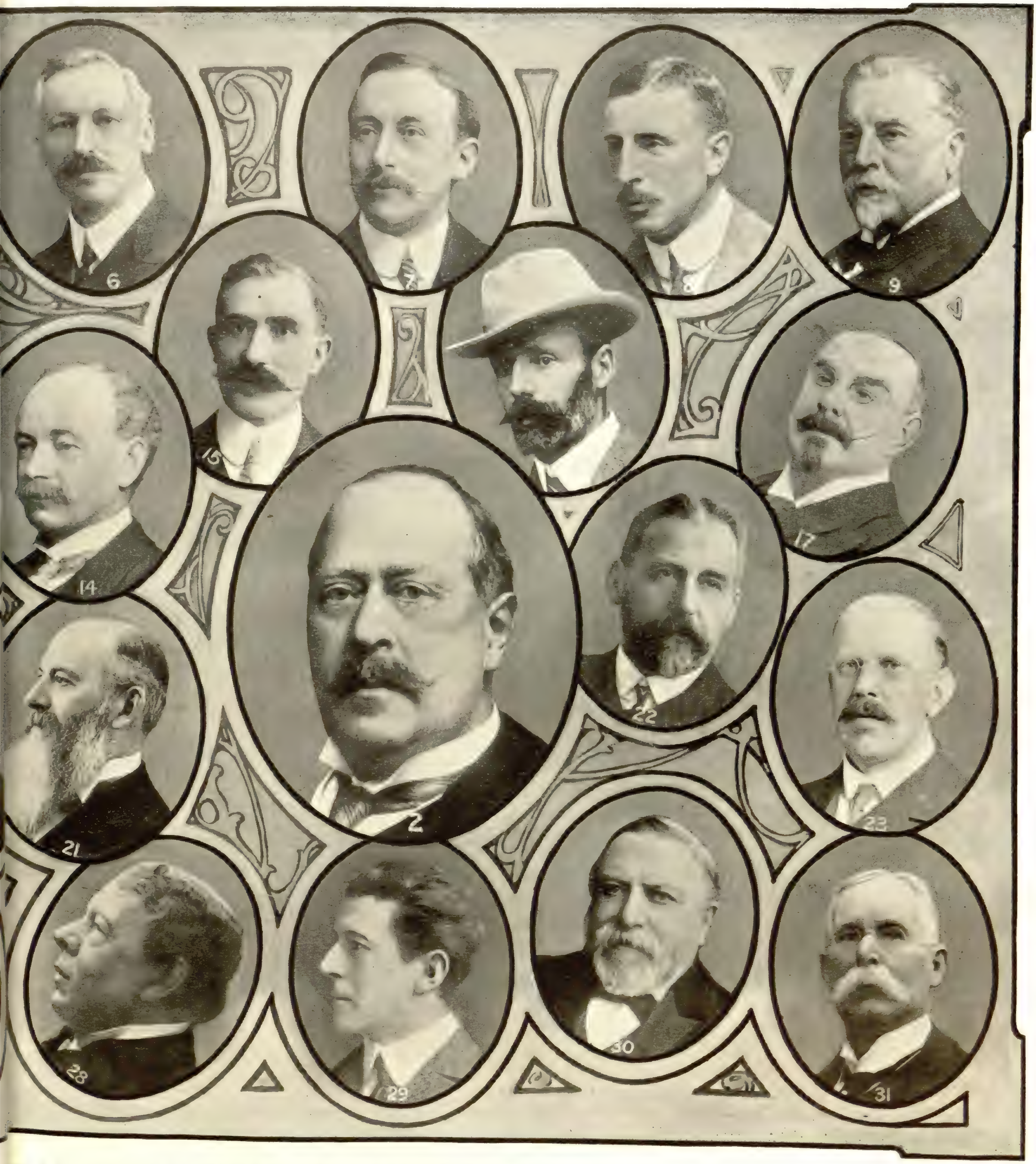
The 1st prize for stove plants in flower, arranged on a space of 200 square feet, is awarded to Messrs. J. CYPHER & SONS, Cheltenham. This exhibit is largely composed of such trained specimen plants at Stephanotis floribunda, varieties of Bougainvillea, Ixoras Williamsii, bearing many good heads of flower, and Anthurium Scherzerianum, with numbers of highly-coloured spathes.

The 12 stove and greenhouse foliage plants, excluding Begonias and Caladiums, which won the 1st prize for Lady TATE, Park Hill, Streatham Common, S.W., includes a charming specimen Phœnix Roebelinii, a very good Cycas revoluta, and several varieties of Codiæum.

The 1st prize for six stove or greenhouse plants is awarded to Mr. W. A. MANDA, South Grange, New York, U.S.A. Bougainvillea Harrisii, with variegated leaves, and Heliconia illustris striata are the most interesting plants.

THE DIRECTORS OF THE ROYAL INTER

(1) The Duke of Portland (*President*). (2) J. Gurney Fowler (*Chairman*). (3) R. W. Wallace. (4) Herbert J. Greenwood
(11) A. W. Sutton. (12) C. Harman Payne. (13) H. B. May. (14) Sir Jeremiah Colman, Bt. (15) R. Hoop
(21) Harry James Veitch. (22) Edwin Beckett. (23) W. Cuthbertson. (24) John Green. (25) James Hudson.



NAL HORTICULTURAL EXHIBITION, 1912.

R. Fielder. (6) N. F. Barnes. (7) A. G. Jackman. (8) Charles G. A. Nix. (9) N. N. Sherwood. (10) G. J. Ingram.
(16) T. A. H. Rivers. (17) Sir Albert K. Rollit. (18) W. A. Bilney. (19) Arthur Turner. (20) Edward White.
Hanbury. (27) A. MacKellar. (28) Rev. W. Wilks. (29) E. A. Bowles. (30) George Paul. (31) A. Kingsmill.

Printed by Temple Press Ltd., London, E.C.

HIPPEASTRUMS.—This class, which allows a space not exceeding 200 square feet, is responsible for a magnificent display of these gorgeous flowers. Of the four exhibits, that from Lieut.-Col. Sir G. L. HOLFORD, Westonbirt, Tetbury, Gloucestershire, is distinctly the best. It is no exaggeration to say that this is the finest display of Hippeastrums ever seen. The wealth of colour baffles description. The white varieties (Ursula, Elsie, White Wings, &c.) are chaste and fresh. The dark-red varieties (Shylock, Black Knight, Robin Hood, &c.) possess a wealth of rich colouring, whilst the varieties with flesh-rose shades on the striped blooms are very numerous as well as beautiful. Some of these splendid examples of the hybridist's and grower's skill have flowers 7 to 8 inches across. 2nd, Messrs. ROBT. KER & SONS, Aigburth Nursery, Liverpool. Although this collection has to be content with 2nd place, it is a very fine one. The blooms are of good size and shape, and have delightfully delicate colouring. The varieties King George, Magnificent, Rosa, and Cromwell are especially noteworthy. 3rd, Mr. J. A. KENRICK, Berrow Court, Birmingham.

Lieut.-Col. Sir G. L. HOLFORD is the only competitor in the class for 24 Hippeastrums, and he is awarded the 1st prize. It is difficult to imagine any exhibitor staging a finer lot of plants than these. As in the larger class, the white varieties (Pavlova and Elsie) are almost perfect. Chelsea Pensioner (a topical and appropriate name for a splendid bright-red variety), Goblin, Daphne, and Chameleon are the pick of this superb set of plants.

Messrs. ROBT. KER & SONS, Aigburth Nursery, Liverpool, have been awarded the 1st prize in the nurserymen's class for 43 Hippeastrums. Amongst the sterling varieties exhibited we noted Andromache, The Warrior, and Salmon King as being especially good. Messrs. KER & SONS have also displayed a non-competitive exhibit of Hippeastrums.

ANTHURIUMS.—The 100 square feet of Anthuriums in spathe which won the 1st prize for the SCHOOL OF HORTICULTURE, Firenze, Italy, contains many interesting hybrids, all of them much after the Andreanum type. There are a number of varieties with brightly-coloured spathes, and in others the spathes have markings strongly suggestive of Caladium leaves.

MARANTAS.—Mr. L. R. RUSSELL, Richmond Nurseries, Surrey, is awarded the 1st prize for 12 Marantas. These are all species or varieties of the genus Maranta, the other genera of this class of plant are not represented. Of those shown, M. Sanderiana and M. Makoyana are good specimens.

CALADIUMS.—The 1st prize collection of Caladiums, set up by Messrs. J. PEED & SONS, Roupell Park Nurseries, Norwood, contains many splendid examples of cultural skill. The variety Silver Queen has immense leaves, the whiteness of which is relieved by a very faint margin of green. The crumpled, almost transparent leaves of the variety King George are very beautiful. Other fine varieties are John Luther, Duke of Teck, Rufus (with brilliant leaves), John Peed and Mr. C. J. Pierpont Morgan.

DRACÆNAS AND CORDYLINES.—The 1st prize (Messrs. FISHER, SON & SIBRAY) collection was disappointing. All the plants shown (varieties of C. australis) were splendid specimens, but the stove species were conspicuous by their absence.

CODIÆUMS.—We did not think that 200 square feet filled with Codiæums (Crotons) alone would have made such an effective display. Colour was naturally to be expected, and the long, twisted leaves of C. Warrenii give grace and lightness in addition to high colour. Where all the plants are so good as in this 1st prize collection from Messrs. FISHER, SON & SIBRAY, Handsworth, Sheffield, it is difficult to select individual varieties for mention, but C. Sunbeam, which has brilliant leaves, must be named.

GLOXINIAS.—Messrs. J. PEED & SONS, Roupell Park Nurseries, Norwood, have won the 1st prize in the class for 150 square feet of Gloxinias and allied plants. This display is composed solely of a good strain of Gloxinias.

NON-COMPETITIVE EXHIBITS.

Messrs. JAMES VEITCH & SONS, Chelsea, London, have arranged a magnificent collection of stove and greenhouse plants. We expect to see superb plants from Messrs. VEITCH, and on this occasion they have surpassed all previous efforts. This huge collection is in the form of an ellipse, and has a frontage of 215 feet. Splendid Palms and Tree Ferns are placed along the centre, whilst the body of the group contains many varieties of Caladium with immense delicately-beautiful leaves tastefully interspersed with specimen Marantas, Davallias, Dieffenbachias, and large greenhouse Ferns—Davallias, Nephrolepis, and Gleichenias. Splendidly-coloured tall pillar-like Codiæums relieve the face of the group, and, in conjunction with bold masses of Kalanchoe flammea, the vivid scarlet flower-spikes of Tillandsia zebrina major, or the many large spathes of Anthurium Scherzerianum, and the quaint, bird-like flowers of Clianthus Dampieri give a gorgeous tropical appearance to this splendid exhibit. Along the front special prominence is given to batches of such rare or beautiful plants as Bertolonia Mme. A. Bleu, B. Mme. Edward Pyneart, with their leaves of marvellous colouring; Anœctochilus petiola, which has Orchid-like flower spikes rising from the leaves with yellow lattice work; Leea amabilis splendens, and Asparagus Sprengeri variegata, which has leaves of startling silvery whiteness. The Nepenthes, with immense dangling pitchers, are raised high on Asparagus-covered stands, and besides the species already mentioned flowering plants are represented by brilliant Cannas and Medinilla magnifica. The President's Cup is awarded this fine exhibit.

FIG. 5.—LÆLIO-CATTLEYA GLADIATOR IN LIEUT.-COL. SIR GEORGE HOLFORD'S COLLECTION.

Messrs. WM. CUTBUSH & SON, Highgate, London, have displayed a large mound of Rhododendron Pink Pearl, flanked by specimen Codiæums, Dracænas, &c., at one end, whilst at the other this firm show a large number of splendid Carnations in pots; the varieties Baldwin, Lady Coventry, King Arthur, and Goldfinch are characterised by large, fresh blooms. The new variety Queen Mary attracted the attention of the Queen, who paused on her visit of inspection to admire its beauty.

M. BOUDRAY DRAPS, Costdeen Kerke, Belgium, exhibit a large number of plants in tubs of Aspidistra lurida variegata, which bore numerous, well-variegated leaves.

M. FIRMIN DE SMET, Ghent, Belgium, exhibit Tillandsias in flower.

A fine plant of Puya chilensis, which has been grown out-of-doors in the Abbey Gardens, Scilly Isles, is shown bearing a tall, stout spike of its interesting greenish-yellow flowers.

In the class for two Cycads, Mr. W. A. MANDA, South Orange, New York, U.S.A., obtained the 1st prize with two good specimens of Encephalartos pungens glauca and Macrozamia Denissonii, and he has also been placed 1st for two Kentia Palms, showing K. Fosteriana and K. Belmoreana of considerable size and capital form.

Mr. CHARLES TURNER, Slough, has won 1st honours in the class for two large specimens of Kentia Fosteriana in the class for two stove and greenhouse plants.

FERNS, BRITISH AND EXOTIC.

Undoubtedly one of the most striking features in the Exhibition is the exhibit of British and exotic Ferns shown by Messrs. H. B. MAY & SONS, of Edmonton.

One section is mainly devoted to British Ferns and their varieties, a speciality of the firm, among which we notice many choice forms of the Lady Fern, particularly of the finely-cut and tasselled "superbum" section Aspidium filix-fœmina Pritchardii, cristatum, grandiceps, congestum, acrocladon, Victorine, perserratum, gemmatum, with ball-like crest on all terminals, and many others. The Lastreas, or Male Ferns, are represented by five specimens of L. filix-fœmina polydactyla, Wills, and by cristata, the king of the tribe, while L. montana, so rarely exhibited, is shown as a pretty crispate variety. Pretty forms of the Hard Fern, or Blechnum spicant, are associated with a very large number of Hartstongues, frilled and fringed and branched and tasselled. Undoubtedly the prettiest of all is the "crispum," or frilled section, of which several distinct forms are shown. The Shield Ferns or Polystichums are also well represented, a fine specimen of recent introduction, P. aculeatum gracillimum, Druery, which, occupies a prominent position, in association with a fine range of its specific relatives, the plumose varieties of P. angulare, which rank among the more charming Ferns extant. Nearly all the British species are shown: Osmunda regalis, plain and tasselled; Asplenium fontanum, now probably extinct as a wild species though maintained in cultivation; P. aquilina, in its weird shape of P. a. glomerata, where all the fronds tie themselves up into knots.

In the exotic section, Messrs. MAY display genera, species, and varieties running into hundreds, with few duplicates, save the smaller growths used as filling for the specimens proper. Probably the more striking features are the diverse forms assumed by the genus Polypodium, ranging from the magnificent pendulous forms of P. Knightæ, a deeper cut, almost lace-like improvement on the normal P. Vidgenii, from which it is a wild sport on the lines of the Welsh Polypods, as compared with our P. vulgare, but even more ornate, apart from the length of its 7 or 8 feet fronds. P. glaucum Mayii presents a parallel sport on broader lines from P. glaucum, while P. g. crispum is very similar, but perhaps of a more markedly glaucous tint. Still in the same family we see as contrasts Tree Fern stumps clothed with the comparatively tiny fronds of P. piloselloides and P. vaccinifolium but an inch or two long. Different again are the quaint forms of P. irioides ramo-cristatum and Niphobolus (Polypodium) lingua corymbifera, closely resembling a ramo-cristate Hartstongue. In the Adiantum or Maidenhairs we are confronted with a huge specimen of the new A. Farleyense gloriosum, a hardier rival of Farleyense itself, and hence more easily shown. Nestling at the feet of it we see Adiantum cuneatum micropinnulum, with very minute divisions cheek by jowl, so to speak, with A. macrophyllum albo-striatum with very large divisions irregularly streaked with white, but beautifully rosy-pink when young. Many other varieties of Adiantum are interspersed as foils to other types of frondage.

Messrs. HILL & SONS, Edmonton, exhibit a group occupying a space of 100 square feet with an interesting and well-grown collection of exotics, embracing fine specimens of Dicksonia (Cibotium) Baronetcy and other Tree Ferns. Asplenium nidus, the Bird's Nest Fern, Microlepia polyphylla, Davallia epiphyta, Polypodium giganteum, P. quercifolium, Davallia fijiensis robusta, Adiantum Farleyense gloriosum and others, all the specimens being very large. There are also several Gleichenia species, a speciality of this firm. Gymnogramma argyrophylla, a silver Fern, P. Knightæ, Crytomium falcatum Rochfordii, and a bold, undulate, hard-growing form of Nephrolepis, N. exaltata Rooseveltii. These, with a large, well-grown specimen of Platycerium grande, formed the bulk of the group.

Mr. MCINTOSH, Havering Park, Romford, has a good group of exotics, the chief feature of which is an extraordinary fine specimen of Microlepia hirta cristata, the finest we have seen, as the crowning of a well-arranged collection, which obtained the 1st prize in the amateurs' class for a collection of stove and greenhouse Ferns.

Mr. AMOS PERRY, Enfield, presents a good collection of hardy Ferns, mainly British, and representing a number of the choicest forms in cultivation. A most interesting feature of this exhibit is a number of pans and small pots showing the development of the Fern from the spore to the established plant, together with explanatory notes.

COMPETITIVE CLASSES.

Mr. W. A. MANDA, South Orange, New York, U.S.A., is awarded the 1st prize in the class for six stove and greenhouse Ferns, distinct, introduced into commerce since January, 1905, and also the 2nd prize for 12 stove and greenhouse Ferns, distinct. Mr. MANDA's exhibits are conspicuous for a number of very fine specimens of a new plumose variety of P. aureum, which has originated under cultivation, and is very similar in form to Messrs. May's and Rochford's plumose varieties of the closely-allied species of P. glaucum. It is, however, distinct, and decidedly an acquisition, being of bold, robust habit, requiring only cool culture, and forming, in large pans or even on Tree Fern stumps, extremely handsome specimens, with fronds 5 feet long or more.

Mr. G. E. CHAPMAN is the winner of the 1st prize in the class for a group of Exotic Ferns.

The date of the exhibition is several weeks too early for the full development of fine specimens of British Ferns unless slightly forced. In these circumstances, it is not surprising to find that there is only one competitor, Mr. W. B. CRANFIELD, Enfield Chase, who exhibits in Classes 97, 103, 104, 105, 106, 108 and 110. The specimens shown represent not only the choicest of British Fern varieties, but in absolute perfection. The plants include the following gems:—Scolopendriums vulgare var, crispum, splendens, robustum, sagittatum, muricatum, fimbriatum, sagittata, and grandiceps; Aspidium filix-fœmina plumosum superbum, plumosum Drueryi and others of that section; and a number of the finest Lastreas. The 1st prize is awarded Mr. CRANFIELD for each entry. A 2nd prize went to Lady TATE for a group of 12 hardy Ferns, and a 3rd prize for a collection shown by Messrs. ARTINDALE & SONS, Sheffield.

FIG. 6.—LÆLIO-CATTLEYA SALOME IN THE WESTONBIRT COLLECTION.

GREENHOUSE PLANTS.

COMPETITIVE CLASSES.

There is only one competitor, M. L. PÈRE VAN HOUTTE, Ghent, in the class for a collection of Azalea indica arranged in a space of 200 square feet, who has 55 plants, mostly in 8-inch and 10-inch pots, well flowered for the time of year. Amongst the whites are Niobe (semi-double), Mdlle Fernande de Puynode, alba odoratissima plena, Souvenir du Comte de Flandre, and Roi des Blancs. The finest crimsons include Flambeau, Vuylstekeana, Remembrance of Stephenson Clarke, President A. d'Haene, and President Roosevelt. The others consist of flaked and speckled varieties. (2nd prize.)

Messrs. BLACKMORE & LANGDON, Twerton Hill Nursery, Bath, obtain the 1st prize of a Gold Medal for a space of 60 square feet filled with tuberous-rooted Begonias. The magnificence of the flowers which are massive without being grossly heavy, and of fine, delicate colours, is remarkable. The beautiful soft salmon-pink Princess Victoria Louise, which obtained an Award of Merit, is exquisite. Some of the best whites

include Mrs. J. Thornton, Empress Marie, and Mrs. Peter Blair, the latter faintly tinged with pink. 2nd, Messrs. T. S. Ware, Feltham. This group contains many exquisite examples, including King George V (orange-scarlet), Lady Cromer (pink, shading to white), Countess Cadogan (orange-apricot), Mrs. W. L. Ainslie and Fred C. Bland (both fine yellows), Patrick Ainslie (very deep crimson), H. R. Whitelaw (scarlet), and many others.

Messrs. Stuart Low & Co., Bush Hill Park, Enfield, are awarded the 1st prize of a Silver-gilt Medal for an exhibit of Gerberas occupying 50 square feet. The display embraces a fine lot of plants, in which the deeper-red colours are predominant. There are also specimens of white, yellow, pink, and orange varieties.

Messrs. Stuart Low & Co. are also awarded the 1st prize for a collection of greenhouse plants, arranged in a space of 200 square feet.

Messrs. Seagrove & Co., Lane End Nurseries, Gledless, Sheffield, are placed 2nd for a small group of ivy-leaved Pelargoniums, the varieties including Chingford Rose (pink), Millfield Gem (pale pink), J. T. Hamilton (scarlet), &c.

The Hon. Vicary Gibbs, Aldenham House, Elstree (gr. Mr. Beckett), is awarded the 1st prize, a silver cup, in the class for 150 square feet of scented and Cape Pelargoniums. The varieties include capitatum, radula, quercifolium, Blandfordianum, umbellatum, filicifolium, the curious square-stemmed tetragonum, and numerous varieties.

For a group of Zonal Pelargoniums (variegated excluded), Mr. Philip Ladds, Swanley, secures the 1st prize, a Silver Cup, for 100 square feet of plants. The varieties include White Queen, Paul Crampel, Champion (pink), Salmon Paul Crampel, Jacqueri (crimson), and others.

Mr. W. H. Page, Tangley Nurseries, Hampton, is awarded the 2nd prize for conical mounds of His Majesty (a brilliant scarlet-crimson variety), Fiscal Reformer (salmon-scarlet), Winter Cheer, Lady Roscoe (a beautiful delicate pink sort), Maxima Kavalesky (fiery scarlet), and Barbara Hope, like Lady Chesterfield in colour but not such a strong grower.

For 25 double-flowered tuberous-rooted Begonias, Mr. W. S. Edwardson, Elsdon, Hatherley Road, Sidcup, secures the 1st prize, a Silver Cup. The varieties are unnamed, but contain some fine whites, yellows, crimsons, oranges, and apricots. 2nd, Mr. F. Davis, Wollashill, Pershore.

For 50 double-flowered tuberous-rooted Begonias, Messrs. Blackmore & Langdon, Bath, are awarded the 1st prize, a Silver Cup. Duchess of Cornwall (deep and brilliant crimson), Margaret Gwillim (bright yellow), Pink Pearl (delicate shell pink), and Kennerley Rumford (rich orange-apricot) attracted our notice especially.

Messrs. Blackmore & Langdon are also awarded the 1st prize for a group of 50 tuberous-rooted Begonias. In this case the varieties are single-flowered, and include several that possess exquisitely-frilled, crimped, and crested petals.

For 20 herbaceous Calceolarias, Mr. Henry Buckston, Sutton-on-the-Hill, Derby, obtains the 1st prize, a Silver-gilt Medal. The plants are remarkably well grown, many of them being over 2 feet across, while the individual "pouches" were more than 3 inches across in many cases. No two plants are alike in colour; they vary from bright yellow with deep-maroon spots to deep wine-red with almost black spots.

For 24 pots of Lily of the Valley, Mr. Carlton White, 53, New Bond Street, obtains the 1st prize, a Silver-gilt Medal. The plants are growing in 5-inch pots, being well flowered and clean in colour.

For a collection of Gerberas, only one exhibitor is showing, viz., the Etablissements Horticoles du Littoral, Cap d'Antibes, France. About 9 square yards of cut bloom represent the collection, and the flowers are of shades of scarlet, orange, crimson, mauve, white, apricot, salmon, and yellow, some of the individual heads being 6 inches across.

NON-COMPETITIVE EXHIBITS.

Messrs. Sutton & Sons, Reading, make an excellent display around the Chilliawallah Obelisk of Cinerarias, herbaceous Calceolarias, Chinese Primulas, Nicotiana Sanderæ, Calceolaria profusa, Nemesia, Schizanthus, and Primula obconica. The Obelisk is banked up with Cinerarias of the stellata type, the whites, blues, purples, crimsons, and mauves being artistically grouped. Plants of Primula obconica are magnificent, mostly in 5-inch and 6-inch pots, with fine foliage, and trusses of large flowers on stems often nearly 1½ foot high. The colours range from pure white to intense crimson, passing through lilac, mauve, rose and purple. The Schizanthuses are mostly in 8-inch pots, and are about 2 feet high, being one sheet of bloom.

Messrs. Carter & Co., Raynes Park, S.W., furnish 100 feet run of space in the large tent with masses of Cineraria stellata and the usual florist's types. The latter are arranged in semi-circular stands in tiers in bays, the pillars being furnished with green lattice-work decorated with Mrs. W. G. Flight Rose in full bloom, other plants of the same being dotted about for effect. The central portion of this exhibit constitutes its chief attraction and charm. It consists of a beautiful deep green and well-shown greensward with a miniature fountain in the centre of a small fish-pond, and surrounding this are four circular beds of a brilliant rose-red Petunia, "Queen of Roses." These are flanked by a bed of Petunia Crimson King on the right and Purple Prince on the left, and beyond these again a crescent-shaped bed of the bright-rose-coloured Stock Queen Elizabeth, bedded in fibre, providing an excellent contrast. The background consists of Lawson's Cypress and other Conifers, miniature fountains, and hardy Ferns, while hanging baskets of Schizanthus complete the arrangement.

On the right side of the main entrance a collection of scented Pelargoniums flanking the pathway is from the gardens of Mr. Leopold de Rothschild, Gunnersbury House, Acton. The specimen plants, trained as balloons, pyramids, fans, &c., and grown in tubs, are nearly 2 feet across, with the exception of some small plants of "Little Pet" in 6-inch pots. The plants present a rather sombre appearance, much to the advantage of Messrs. Carter & Co.'s blaze of colour immediately opposite on the left. The large plants are chiefly Pelargonium radula and P. capitata.

Messrs. Dicksons, Chester, make a fine display of Rambler and Wichuraiana Roses, fronted by plants of Crassandra undulæfolia with masses of orange-salmon flowers, Dracæna Victoria (broadly striped with gold and green), Dieffenbachias, coloured Dracænas, Phrynium variegatum, Aglaonema splendens, Crotons, including F. K. Sander, Abutilons, Spiræa Arendsii and Sansevieria zeylanica.

Messrs. Godfrey & Sons, Exmouth, exhibit a collection of about 40 baskets of fancy Pelargoniums reminiscent of old times with their brilliant shades of colour, striping and blotching. Each basket contains a different variety, some with very deep colours, but not one of pure white. Constance, a white with crimson veining and blotch, is a distinct variety, and Captivation, soft-pink, with deep maroon blotch and red veining, is another choice variety.

Messrs. Low & Co., Bush Hill Park, Enfield, have a collection of plants occupying about 400 square feet. There are numerous finely-grown specimens of Callistemon speciosus in sheets of scarlet "brushes" beneath tall specimens of Kentia Belmoreana, Hydrangeas, Ericas, Acacias, Azalea rosæflora, Boronia heterophylla and B. polygalæfolia, soft, rosy-lilac, flowers in great masses, a plant rarely seen; and Actus gracillima, with long, arching sprays of orange and purple-spotted flowers. A batch of the white-flowered Carpenteria californica, Rambler Roses, including Crimson Rambler, Hiawatha, Dorothy Perkins, &c., lend a brilliant touch of colour to the group.

Messrs. James Veitch & Sons' fine exhibit of greenhouse plants, arranged on one of the centre stages, at once arrests attention and evokes admiration. In the centre are 10 pairs of Fuchsias trained outwards to the pathway, the stems being about 10 feet in length and studded with masses of drooping blossoms beneath the foliage. On the table are masses of Streptocarpus, including pure white, deep rose, purple, lilac and other varieties. Next to these is a grand display of Hippeastrums, with batches of Calceolaria Clibranii and stellata Cinerarias in the centre to relieve them. Next to these some excellent Schizanthuses, and on the other side of the table Gloxinias in many varieties, numerous Cinerarias, including a very distinct new break in a hybrid called flavescens, a cross between Senecio auriculatissimus and Feltham Beauty. It is a dwarf, sturdy grower, with trusses of pale, straw-yellow flowers. Several fine deep red and yellow Cannas, several plants of Kalanchoe flammea with scarlet flowers, many hybrid Gerberas, and a neat little lot of Exacum macranthum, with its deep-violet flowers, complete a very attractive and highly-cultivated group.

Messrs. Webb & Sons, Stourbridge, have a fine display of Calceolarias, Gloxinias, Schizanthuses, Cineraria stellata, Primula obconica, Hippeastrums, all remarkably well grown and clear in colour. The exhibit is arranged in enormous banks set off with Palms and Ferns. The plants exhibited by this firm are as near perfection in growth, form and colour as they can well be.

Messrs. H. Cannell & Sons, Swanley, are staging a fine mass of Cannas in a bank about 5 yards long, and consisting of some of the clearest scarlet selfs and the brightest of yellows and apricots, many of which are spotted and flicked with carmine. The same firm has a glowing lot of Salmon Paul Crampel zonal Pelargoniums.

Adjoining is a fine exhibit of Pelargoniums staged by Mr. H. J. Jones, Ryecroft Nurseries, Lewisham, containing at least 30 distinct varieties of Zonal Pelargoniums, many of them quite new, delicate and brilliant in colour, and not yet known to commerce.

ROSES.

By "White Rose."

There are few things in Rose growing more difficult than training Roses for a show, and the unusual amount of sunshine we have enjoyed for the past few months has not rendered the task any easier; but British nurserymen are accustomed to varying conditions of climate, and if many of their best flowers were over before the opening of the exhibition they found others to supply their place, which can leave little cause for regret. A first glance at the Roses would make one regard the International as a triumph of the Polyantha Rose, whether of the dwarf or climbing section. Very bright and attractive are these little Roses in many of the groups both small and large, and one's impression is that, under glass, as in the garden, Mrs. W. H. Cutbush is hard to beat as a pink, and Katherine Zeimet is almost equally good in the white section.

A little group of novelties from this group is to be found in the French tent, of which the two most worthy of notice are Maman Turbat, a pink not far from Mrs. W. H. Cutbush in colour, with, perhaps, slightly larger flowers. The other is a white, Yvonne Rabier by name; the petals are fresh and clean, and the freshly-opened flower shows a centre of yellow anthers, which is pleasing.

Probably every rosarian has lost but little time in making his way to Mons. Pernet Ducher's group, in the expectation of seeing something new to the Rose world, an expectation which is not disappointed.

At the corner of the group is a new yellow of very clear colour, which is believed to have come over without a name, but now is christened Constance. Next to this is a Rose of the most remarkable colour of any in the large show, Mme. Edouard Herriot, a Rose of which report reached us from France last summer, and which we see with great interest. The colour is, perhaps, most nearly described as that of the Lyon Rose, intensified with vermilion; it is certainly highly attractive, and will no doubt become a useful decorative Rose, and for showing in bunches should become very useful. But at the present it hardly seems to have either the form or substance of the Lyon Rose, and its colour must prove its power of establishing a position among the Roses. The exhibit is remarkably interesting, for two groups of the Rose Sunburst, which was shown at the N.R.S. shows last year, have been the subject of much discussion.

We have heard complaints that it has failed to produce its wonderful colour in this country, and Mons. Pernet Ducher has in this group supplied the explanation. In one group he shows the Rose grown on the first buds, where we find nothing very remarkable in the matter of colour, but when these first growths are pinched back and secondary growths allowed to develop their flowers, then we get the colour in perfection, and very lovely it is. This is the answer to the complaint, and it would appear that the rosarian will have to practice the methods of the Chrysanthemum grower in order

to obtain this beautiful flower in perfect condition. Rayon d'Or, the well-known yellow Rose of this raiser, was, of course, in this group, and another yellow, Mrs. George Buckwith, which it is said will be found in habit of growth and constitution to be an advance on Rayon d'Or, but as shown to-day the colour is hardly so deep. Mme. E. Rostand, a pale buff with salmon or apricot centre, is to be found here, and must be noticed, as it has become very popular with our cousins in America, while a batch of Viscountess Enfield makes it clear that, whatever be the fate of this Rose out-of-doors, it becomes a very fresh and beautiful colour under glass.

Another visit must certainly be paid to the new cut Roses in Tent 3. Mrs. E. Alford is a soft pink of beautiful shape and plenty of substance; the tint is that of Mme. Abel Chatenay minus the vermilion shading which is so strong a feature in that popular Rose.

Sallie, a pale buff with apricot tints in the depth of the centre, is also worth mention, and Ophelia, next to it, a pretty soft shade of pink. The weakness of these Roses is that they are rather wanting in distinctness of colour. This cannot be said of a seedling of BENJAMIN CANT & Co., which is staged in the middle of a large group where it might be overlooked unless searched for. This is a deep apricot little Rose with a cinnamon shading, called Sunbeam, and is worth remembering when it comes into commerce.

Among the Roses of recent introduction shown in this section, perhaps the most noticeable is Alexander Hill Gray. This Rose appears in several boxes, and is attractive both for the symmetry of its form and the clear yellow colouring of the petals. A similar but slightly deeper shade of yellow appears in Melody, a prettily-shaped but decidedly smaller Rose, which may perhaps take a good place among decorative Roses.

I was pleased to see a good plant of Mrs. George Shawyer, with some of its finely-formed flowers. Mr. MOUNT has shown us what this Rose is capable of doing under glass when in good hands, but it is not to be confined to pots, for it is a good grower, and should be valuable in the garden, where a Rose of decided colour is always welcome.

I must add something, if only a few words, of the large groups in the big tent. One of the most notable items in a remarkable group is a stand of Lady Roberts, in Messrs. FRANK CANT & Co.'s exhibit. The colour of these and of a few flowers of Mrs. R. Waddell is superb. Near by, and again in a group in the centre, Mr. MOUNT shows Mrs. John Laing, in marvellous perfection, as only he can grow it. This fine, old Rose, which received a Gold Medal in the days when the N.R.S. awarded but one in the year, is still one of the best, both in greenhouse and garden, but few have seen more beautiful specimens of it than are shown to-day.

Messrs. CUTBUSH have staged a very bright group, almost entirely composed of Polyantha varieties, and to be noted as a specially artistic arrangement, in its way as attractive as anything in the tent. Messrs. PAUL & SON'S two groups near by are on a similar plan, but Hybrid Teas replace the dwarf Polyanthas as a groundwork. Messrs. HOBBIES have as their centre of attraction a series of arches covered with Ramblers, which make a pleasing background to the groups of Roses in pots which surround them.

These large, isolated groups of Roses have a certain special interest, in that they suggest to amateurs effects which they may, in one way or another, often apply in their own gardens. But it is seldom that the scope of an ordinary flower show will permit of arrangements on such a scale as this. We may therefore do well to make such use of it as we may.

[Further details of the Rose classes will be published in our next issue.—EDS.]

TREES AND SHRUBS.

The 1st prize for a group of 36 trees and shrubs of ornamental foliage is won by Messrs. PAUL & SON, Old Nurseries, Cheshunt, who exhibit Acer atropurpureum, Pyrus salicifolia, alba pendula, Alnus imperialis lacinata (a showy tree), Acer pictum aureum, Quercus Concordia (yellow foliaged), Acer campestre Schwernii (purple foliage), and the fine Pyrus Aria aurea. 2nd, Hon. VICARY GIBBS, Elstree (gr. Mr. Edwin Beckett), for Maples extensively, including Acer carpiniifolium, A. postelense (yellow-leaved), also Prunus, Ribes, and Sambucus in variety. 3rd, Mr. CHAS. TURNER, Slough, whose best specimens are Quercus pannonica, Acer Pseudo-platanus Nizetti purpurascens, and Ginkgo biloba.

The Hon. VICARY GIBBS, Aldenham House, Elstree, is placed 1st in the class for 24 bunches of flowering shrubs, distinct, having Buddleia globosa, Lonicera ciliosa with clusters of orange-coloured flowers, Olearia stellulata, Eleagnus umbellatus, Cytisus, Syringas and Viburnums. 2nd, Messrs. PAUL & SONS, The Old Nurseries, Cheshunt, whose best examples are Styrax obassia, Rhododendrons, Weigelia Couqueta (a pretty pink), Cercis Siliquastrum, and Viburnums. 3rd, Mr. CHAS. TURNER, Slough, who shows Philadelphus, Æsculus Briottii, Viburnums, and Spiræas.

For a collection of flowering and foliage plants arranged for effect in a space not exceeding 400 square feet, the 1st prize is awarded to Messrs. FISHER, SON & SIBRAY, LTD., Handsworth, Sheffield, whose group includes many rare trees, such as Japanese Maples, the silvery Salix regalis, Æsculus macrostachya, Ailanthus Vilmoriniana, Diervillas, Vitis species, the pretty white Azalea Miss Buist, Rhododendron Pink Pearl, and others. 2nd, Mr. R. C. NOTCUTT, Woodbridge, with Pyrus, Kalmias, Cytisus, Olearia stellulata, Fabiana imbricata, standard Brooms, and pretty Syringas with Anemone-like white flowers.

The 1st prize for 24 Lilacs, distinct, is won by Messrs. PAUL & SONS, Old Nurseries, Cheshunt, for excellent trusses of Miss E. Willmott (double white), La Tour d'Auvergne (double lilac), President Carnot, Villosa, and Alphonse Lavallæ, with others.

The best exhibit of a group of Lilacs in 200 square feet is shown by Mr. CARLTON WHITE, 53, New Bond Street, W. Well-grown plants include Marie Lemoine, Alphonse Lavallæ, alba grandiflora, and others. The exhibit lacks labels of identity.

The best group of ornamental Conifers arranged in a space of 250 square feet is displayed by Messrs. J. WATERER & SON, Bagshot, this being a very pretty exhibit of well-grown trees, including Abies Douglasii glauca elegans, Juniperus communis alpina aurea, Picea ajanensis (a very attractive tree), Athrotaxis selaginoides, and various Cupressus and Juniperus.

In the class for a collection of Conifers occupying a space of 500 square feet the two most meritorious exhibits are placed equal 1st. One of the exhibitors, Messrs. GEO. JACKMAN & SON, Woking, have a fine collection of Abies Veitchii, A. lasiocarpa, Picea Pinsapo, Retinosporas, the glaucous Abies alcochiana, A. balsamea, and various Cedas and Juniperus. The other, Messrs. J. WATERER & SON, Bagshot, exhibit Abies arizonica, Picea Morinda, Cryptomeria japonica, a fine Abies Webbiana, Cupressus obtusa var. Crippsii, Tsuga Mertensiana, and various Cedars very finely. 2nd, Messrs. J. JEFFERIES & SONS, Royal Nurseries, Cirencester, who show such distinct trees as Picea lasiocarpa, Abies pungens, Kosteri, Juniperus japonica aurea, Nordmann's Spruce, Thuya, Cedrus, and various Cupressus.

In the class for 24 Conifers, distinct, the 2nd prize is awarded to Messrs. J. WATERER & SON, whose best trees are Abies nobilis glauca, A. Nordmanniana, Pinus parviflora, A. concolor, and A. pectinata var. pendula.

The 1st prize for 12 Conifers distinct is awarded to H. J. ELWES, Esq., Colesborne, Cheltenham, who exhibits Picea Omorika, Pinus Teocote, P. halapensis, Cupressus cashmeriana, and other rare trees raised from seeds imported from the native habitats.

In all the five classes for Bay trees (Laurus nobilis), the exhibits of Messrs. SANDER & SONS are pre-eminent, the 1st prize being awarded in each case.

The best exhibit of Hollies is shown by Messrs. J. WATERER & SONS, Bagshot. Ilex aquifolium serratifolia, I. a. recurva, I. a. Rogersii, I. latifolia, I. a. Wilsonii, I. Perneyi, and I. crenata are the most distinct in this group.

The 3rd prize is awarded to M. F. STEPMAN, Rue des Quatres Vents 61, Molenbech, Brussels, in the class for an exhibit of Lilacs in a space of 200 square feet, who exhibits Reine Elizabeth (a grand white), Princess Clémentine (a fine double white), Negro, and Jacques Callop (in resemblance to Uba grandiflora).

The best exhibit in the class for a group of Japanese Maples in a space of 300 square feet is won by Messrs. J. WATERER & SONS, Bagshot, who show fine specimen plants of nearly all the varieties of Acer palmatum Corallinum, A. p. dissectum atropurpureum, and the green-leaved form. 2nd, Messrs. FISHER, SON & SIBRAY, LTD., who group blocks of each kind, their finest plants being Acer japonicum aureum and A. polymorphum magnificum (purple-leaved). 3rd, Messrs. W. FROMOW & SONS, Sutton Court Nursery, Chiswick.

The best-clipped trees are shown by Messrs. J. PIPER & SONS, 80, Bishop's Road, Bayswater, W.

RHODODENDRONS AND AZALEAS.

The 1st prize for a collection of Rhododendrons arranged in a space of 500 square feet is awarded to Messrs. WATERER & SONS, Bagshot, for a fine display, among which is a specimen plant of Doncaster (deep crimson), Corona (lovely salmon-pink), Marchioness of Tweedale (deep pink), Gomer Waterer, and George Hardy (pure white). 2nd, Messrs. FLETCHER BROS., Ottershaw, Chertsey, with Michael Waterer (crimson), Mrs. J. Simpson (blush white), Marie Stuart (lilac), Sappho (white and purple), Pink Pearl, the quaint lilac-flowered fastuosum plenum, and Marchioness of Lansdowne (a splendid bright-red). 3rd, Messrs. GEO. JACKMAN & SONS, Woking, whose best examples are Doncaster, Marie Stuart, Purity (a pretty white), Cynthia (deep rose), and Pink Pearl.

For an exhibit of flowering shrubs, not more than two of any one variety, Rhododendrons, Azaleas, Roses, and Lilacs excluded, the 2nd prize is awarded to Messrs. GEO. JACKMAN & SONS, Woking, who have arranged a semi-circular group, in which we noted Philadelphus Mont Blanc, Andromeda speciosa, Hydrangeas, Viburnums, Weigelias and Spiræas, Hypericum patulum, Phlomis fruticosa, and various Cytisus.

The 1st prize for 30 plants of Azalea pontica, distinct, in flower, is awarded to Messrs. R. & G. CUTHBERT, Southgate, who have excellent plants of A. coccinea speciosa Fanny (soft pink), Unique (flamed buff), and Pallas (orange). Azalea altoclarense (butter-yellow), A. occidentalis magnifica are all attractive garden plants.

Messrs. R. & G. CUTHBERT, Southgate, are the only exhibitors in the class for a collection of Azalea mollis and A. sinensis, and other species, arranged in a space of 300 square feet, having excellent plants of J. C. van Thol, Prince of Orange, Aluminous (buff), Flambeau, Albicans (light habited, but effective white), Fairy Queen (luminous pink), and of Azalea rustica flore pleno were grouped varieties Aida (soft blush), Norma (lightly salmon tinted), Phoebe (yellow), and Freya. A very fine group.

The best group of Azalea pontica, arranged in a space of 200 square feet, is staged by Messrs. R. & G. CUTHBERT, Southgate, who exhibit Ghent Azalea Guelder Rose (buff), Sang de Gentbrugge (bright orange), Queen Victoria (a lovely pink), and the rosy-pink Fanny. 2nd, Messrs. GEO. JACKMAN & SONS, Woking, who have choice specimens of Azalea coccinea speciosa (apricot-red), Minerva (soft yellow and pink), Raphael de Smet, and the brilliant Gloria Mundi among others.

The best exhibit of 30 plants of Azalea sinensis is made by Messrs. R. & G. CUTHBERT, Southgate, being a showy and well-grown collection.

For 30 Rhododendrons in flower, distinct, the 1st prize is awarded to Messrs. J. WATERER & SON, Bagshot, for a group of well-grown plants, the best of which are Pink Pearl, Strategist (deep pink), Francis B. Hayes (white with maroon signal), Gower Waterer, Lady Clementina Mitford (soft pink and yellow spotted), Mrs. E. C. Stirling (pastel pink), and a big plant of the Lilac-tinted Album elegans.

CLEMATIS.

In the class for a collection of Clematis arranged in a space of 400 square feet, a fine display is made by GEO. JACKMAN & SONS, Woking. Noteworthy plants are Lady Northcliffe, Mrs. Spencer Castle (double lilac), The Old Belle of Woking (palest pink and very double), Mrs. Hope (showy lavender), Lord Neville (dark mauve), several forms of Jackmannii, and others of proved garden worth. The majority of the plants are balloon-trained. The 1st prize for 12 plants of Clematis in flower is won by Messrs. GEO. JACKMAN & SONS, Woking. The group includes Beauty of Worcester, Lady Neville, Nelly Moser, Mrs. George Jackman, and Lady Northcliffe, in addition to other standard varieties.

BULBOUS PLANTS.

The premier exhibit in a class for a display of bulbous plants, occupying 100 square feet, is made by Messrs. R. Wallace & Co., Colchester, who exhibit Lilium Brownii, Brodiæa coccinea, Calochortus cœrulea major, Ixias, and Gladiolus especially well. 2nd, Messrs. Barr & Sons, for Lilies and Ixias mainly. Their best plants are Lilium Hansonii, L. tigrinum Fortunei, Ixia Lady Slade, and Tritonia crocata Alberta.

The only exhibit of a collection of Liliums, arranged in a space of 100 square feet, is made by Messrs. R. Wallace & Co., Colchester, who have such fine Lilies as excelsum, elegans in variety, Hansonii, auratum, Brownii, and myriophyllum well staged. L. tenuifolium and its variety Golden Gleam and L. Marhan are rarer kinds shown. The 1st prize is awarded.

The best exhibit of 24 Liliums in flower is staged by Messrs. R. Wallace & Co., Colchester, who have Lilium elegans var. Orange Queen, L. longiflorum, L. Brownii, and L. speciosum especially good.

Messrs. Barr & Sons, Covent Garden, W.C., have a grand group in the class for a collection of Tulips in vases, occupying 200 square feet, from which we select Dorothy (dove-coloured), King Harold, Salmon King, Red Standard, Black Chief, Inglescombe Yellow, Pride of Inglescombe, Beauty (red flushed), and Glow (a deep crimson). The flowers were singularly free from blemish throughout, and the collection is placed 1st. 2nd, a very fine group, including Inglescombe Yellow, Orange King, Melicette, Prima Donna, Eldorado (a fine yellow), Leghorn Bonnet (a lovely straw yellow), Rosamund (very well done), and Duke of Westminster, shown by Messrs. Alex. Dickson & Sons, Belfast.

3rd, Messrs. J. Jefferies & Sons, Royal Nurseries, Cirencester. Miss Willmott (soft yellow), Fairy Queen, King Harold, and Van Poort are the best in this collection.

The exhibit of the Marquis of Northampton, Castle Ashby, Northampton (gr. Mr. A. Searle), is the best in the class for a display of hardy herbaceous flowers. It is a pretty group, in which the early-flowering Gladiolus figure largely. Other good things are: Pæony Dainty, Lilium speciosum, L. umbellatum, Lupins, and Spanish Irises. The exhibit was awarded the 2nd prize.

Messrs. Barr & Sons, Covent Garden, London, are the only exhibitors in the class for a collection of Irises in flower; their group contains Iris amœna, I. pallion, I. squalens, I. variegata in great variety, and some of the newer forms.

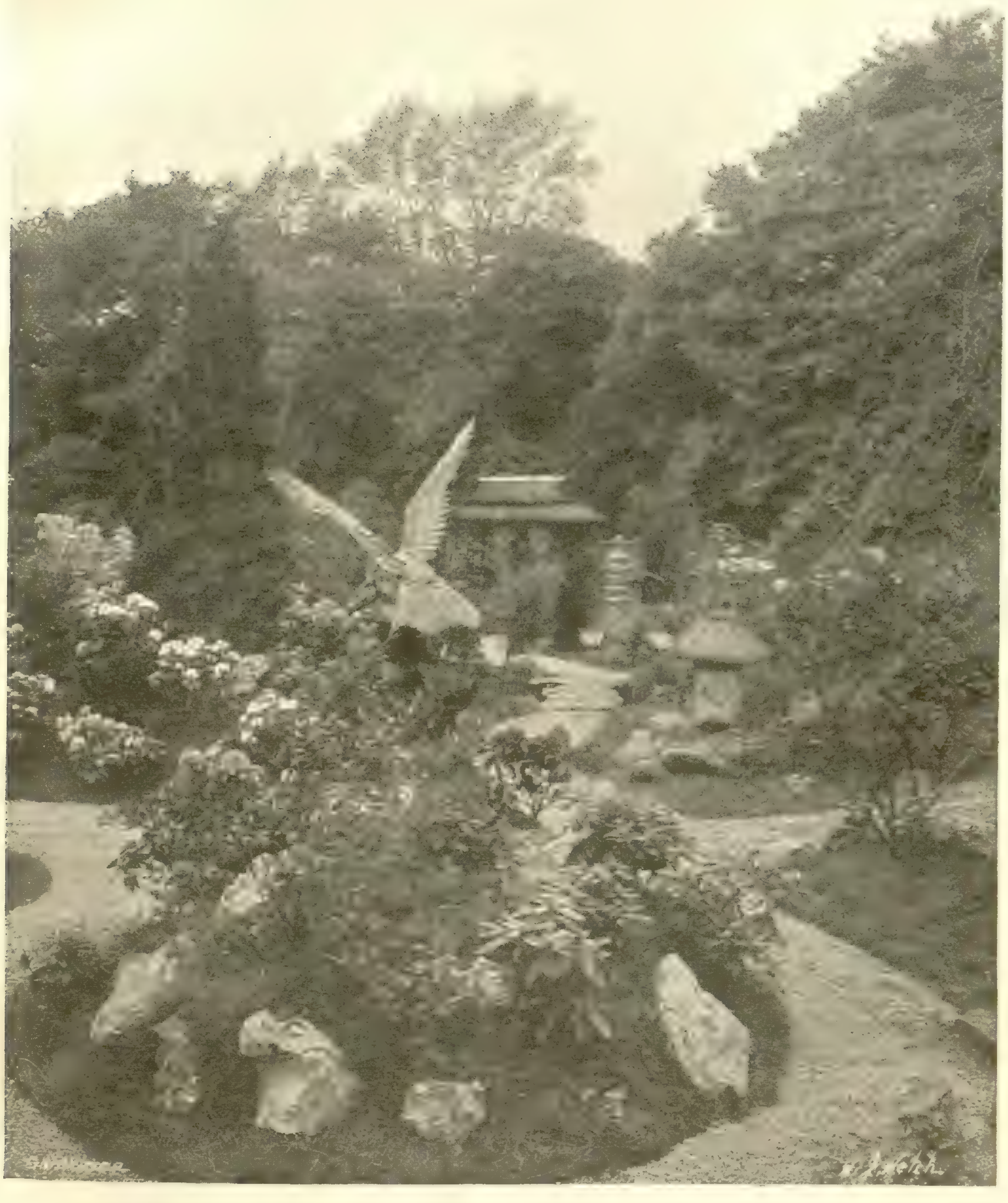


Fig. 7.—view of japanese garden, shown by messrs. james carter and co.

ALPINES.

Messrs. Thompson & Charman, Bushey, Hertfordshire, excel in the class for an exhibit of Alpines occupying 50 square feet. This exhibit includes a great number of novelties and rare plants. Mimulus radicans is excellent, also Lithospermum Heavenly Blue, rare Sedums, Corydalis tomentosa, Lewisia Howellii, Dianthuses in variety, and the fine Primula Palinuri. 2nd, Messrs. Bees, Ltd., Liverpool, who stage a pretty group, containing many rarities, including Oxalis enneaphylla, Celmisia spectabilis, Saxifraga Stribneyi, Wahlenbergia serpyllifolia, Roscœa cautleoides (a soft-yellow-flowered plant), and a patch of Campanula garganica.

In the class for a collection of Alpines arranged in a space of 100 square feet, the Craven Nursery, Clapham, Lancaster, put up a very attractive group, for which the 1st prize is awarded. Pinus Cembra forms in the background, and at their feet are Wahlenbergia serpyllifolia major (a carpet of purple bells), Primula farinosa, a turf of rosy-pink. Rare Androsaces, Saxifragas, the dainty Campanula alpina, the rare Daphne rupestris, magnificently flowered, and which we were pleased to see again in good health, the vernal Gentian, and colonies of Cypripedium spectabile. Primula sikkimensis adds much charm to this comprehensive group. 2nd, Messrs. Artindale & Son, Nether Green Nurseries, Sheffield, who showed many hardy Orchids, including good masses of the hardy Cypripediums, Viola gracilis, the Alpine Phloxes, and Daphne Cneorum. Primula pulverulenta and Japanese Maples give colour to the scheme. 3rd, Messrs. Gunn & Sons, Olton, near Birmingham, who show Violas in large patches, Saxifragas, Aubrietias, and the Alpine Phloxes.

In the class for a group of Primulas in flower occupying 50 square feet, the 1st prize is awarded to the Right Hon. Lord Northcliffe, Sutton Place, Guildford. The exhibit is of Primula japonica, P. Veitchii, P. pulverulenta, P. Cockburniana, P. Sieboldii and other species, all well-grown plants. Another exhibit in this class is disqualified.

Mr. J. Douglas, Edenside, Great Bookham, excels in the class for 12 show Auriculas, distinct, have excellent specimens of Ruby, Olympus, Shirley Hibberd, and a number of attractive seedlings. Mr. Douglas is also the 1st prize winner in the class for 12 Alpine Auriculas with Dean Hole, The Bride, Janet, Mrs. Markham, and Zingara as his best varieties.

THE ROCK-GARDENS.

By Reginald Farrer.

The non-competitive exhibits of rock-works and Alpines considerably outnumber those put up for competition. This mild and gentle spirit in the exhibitors tends perhaps to dull that keen edge of emulation which might have obviated many repetitions of plants and effects. None the less, the result is a show of remarkable brilliancy, the latitude allowed to non-competitive classes encouraging a pleasant diversity of size and scheme.

That veteran cultivator and "protector" of Alpines, M. Correvon, with his usual courage, brought from Geneva an exhibit of choice, rare plants, and arranged them among small blocks of the grey mountain limestone. They appear a trifle tired with their long journey, but make a most interesting show. Eritrichium gleams in the pin-points of azure that are all it ever offers to even the most assiduous cultivator, Ranunculus parnassifolius and R. Traunfellneri are in evidence, and various Primula hybrids, such as discolor and Heeri (a poor form); there is also that attractive rarity, Matthiola genestralis.

Mr. Clarence Elliott, Stevenage, close by, has staged, among blocks of Craven mountain limestone, fine masses of Pentstemon Davidsoni, Oxalis enneaphylla, Viola gracilis, Campanula Allionii (in good form), and other famous Alpines. The rosy variety of O. enneaphylla is especially attractive.

Messrs. Cunningham & Fraser have an interesting lot of plants, including such notable wonders as Primula Reidii, P. deflexa, P. Littoniana, Pentstemon Douglasii, Linnæa Tanakea, Polemonium pulchellum, Rhododendron glaucum, and Meconopsis aculeata. These have no rock to aid them, and rely for power of attraction on their intrinsic rarity.

Messrs. PULHAM, in an ambitious scheme, have prepared a large rocky glade, with stream, cascade, pool, summer-house, and every other refinement of polite luxury. I cannot wholly enjoy the rusty brown of their rock, rather too regularly placed, but the elaborate picture it offers is certainly one to be noticed.

Mr. G. REUTHE, Keston, Kent, reigns in isolated splendour over several rocky and rather unrestful hillocks, with a moss-edged pool precisely in the middle. There are fine masses here, and many interesting species, such as Orchis fusca, O. mascula, Allium karataviense, Ranunculus asiaticus and Geranium lancastriense, all shown in splendid groups with a top-dressing of moraine chips that helps to enhance their charm.

Messrs. T. S. WARE, LTD., Feltham, give us a rockwork with walls of stones. There is a pool in the middle and a daintily-placed Phormium.

Messrs. BAKER, Wolverhampton, have a noble and decisive scheme, with great blocks almost too rigidly stratified, but broken by luxuriant masses of such brilliant plants as Azalea rosæflora, Wahlenbergia saxicola, and Edraianthus serpyllifolius major. Here also there is a pool in the middle, and another small one under a rock, rather improbably packed with Nymphæas.

Messrs. KENT & BRYDON, Darlington, have compiled an easy rock-garden of pleasant effect.

Messrs. JACKMAN'S edifice, though large, has too much effort and too little ease; the rock being bold and raw in outline, and not placed with any eye for felicity of scheme.

Messrs. R. WALLACE & Co., Colchester, have achieved one of the most ambitious works in the show, and the result is a great pleasure. From a large undulating rock-garden of suitable rock, with a big pool starred too frequently with stones, one wanders up into a more formal walled garden, and so round again along the crest of a hill in a copse, where Lilies in rich beauty lurk apparently uncultivated. There is also a grotto with Ferns, and Japanese Maples and Wistarias in bowls precisely placed by the creeks and headlands. In the formal garden a fountain plays like a geyser, and Habranthus pratensis blazes almost blindingly, blushing especially scarlet at its pretence of being a "hardy" plant. This excellent exhibit was awarded the cup presented by Queen Alexandra.

Immediately opposite is Messrs. BACKHOUSE'S deep glade, which, beginning with a bog in which Liliums and Cypripediums appropriately run riot, is divided from the dell of Alpines by a steep embankment masked with Fir trees. In the dell, built of great blocks by some convulsion of nature, are many treasures, such as Primula Unique, Pinguicula grandiflora, and the wonderful Ranunculus Lyallii. Haphazard Nature seems to have also been responsible for the various colour arrangements in this Cyclopean compilation.

Mr. MAURICE PRICHARD, Christchurch, Hampshire, has an even lovelier glade, of which he has made a picture, the only fault being that it is conceived mainly from one point of view. This exhibit, like almost all the others, declines to be happy without a pool, and in this case complete success crowns the difficult and doubtful effort. Gunneras and Bamboos are artfully disposed, and the main rockwork bank ends in a specially beautiful stone. Sedum pilosum, Silene Hookeri, Androsace lanuginosa, and Dianthus neglectus are conspicuous among the plants displayed. (Special Award.)

Messrs. W. CUTBUSH & SON, Highgate, have a fine slope of limestone, with deep bays and noble masses of Cypripedium spectabile, Lilium Parryii, and L. Bloomerianum magnificum. At the foot of this was the inevitable bean-shaped pond. (Special Award.)

Messrs. GEO. BUNYARD & Co. exhibit a rock-garden freely furnished with plants in flower.

Messrs. THOMPSON & CHAPMAN have a small and unpretending space in a glade, marred by a small cutlet-shaped bed with four blue Lobelias and a Geum in the middle.

Messrs. CHEAL & SONS, Crawley, have erected a rock and water garden with rather formal work to an insignificant mass of rock. Round a semi-circular lake stretch two wings of pergolas, embracing a plain summer-house, the whole being of imposing and luxurious effect.

Conspicuous among the larger competitive exhibits for a rock-garden occupying 600 square feet, is Messrs. PIPER'S bold and stately rockwork, well schemed and built of dignified blocks, aptly related to each other, with a Fern-filled watery cave, the inevitable pool, and drifts of such beauties as Primula Beesiana, P. Bulleyana, and Azalea rosæflora and Wistarias were cunningly disposed.

Next door the GUILDFORD HARDY PLANT CO. have an unpretentious and placid exhibit, with tiny ponds, and Ailanthus plants sitting on the tops of little hills.

Messrs. WHITELEGG & PAGE have an apparently small, but deep and well-like excavation built of small flat stones, in wall-like structure. Here, beside a pool, was Primula Lissadell in splendour. There were also a fine form of Aquilegia cœrulea and the copper variety of Ajuga reptans, looking its best among white Erinus.

Mr. JOHN WOOD'S erection of singularly beautiful stone shows an almost equally singular sense of design and scale. So good, indeed, is the building, that the plants themselves seem almost to feel themselves unworthy of such a noble stage. This exhibit not only deserved the 1st prize, but won it.

Near by, Messrs. BARR & SON'S exhibit, a very favourable specimen of a rock-garden as most people hope to have it and build it. As in too many cases, Acers and tall things are put on the precise top of hillocks, instead of at the side, to lend height. Nor, I think, need one expect to make Viola gracilis a carpet under a Maple.

In the class for an exhibit occupying 400 feet, Mr. R. TUCKER has another "sample" rock-garden on its smaller scale. But here a specially interesting collection of plants attract the trained eye, and are none the worse for the painfully rare additional charm of being correctly named. Saxifraga Hausmannii is in flower, and many other rarities are gathered around it, including Silene pumilio and Stachys corsica. And exhibitors of rock-gardens 400 feet in area do not seem to suffer quite that wild passion for ponds that haunts the larger exhibitors. (1st prize.) 2nd, Mr. W. FELLS, who has made a deep hollow of reddish sandstone, on which are shown good masses (among others) of Geranium grandiflorum, Delphinium nudicaule, and Convolvulus Cneorum. (2nd prize.)

Mr. HEMSLEY has a construction of rather bald and bricky rock, boldly and skilfully planned (but with—a pool!). At the edge of a flagged path Primula farinosa shows delicately, and on the shelves are Saussurea decurrens, Pentstemon glaber in variety, and even Sutherlandia frutescens.

The Misses HOPKINS have an exhibit in their usual style.

Mr. AMOS PERRY, outside the great tent, has filled one corner with a lovely pool adorned with proper plants (including Papyrus), and the opposite niche with a rocky breast that is only less successful than the rich and tropical effect of the little water-garden, so rich and cool, and complete.

Messrs. BEES LTD., Liverpool, exhibit a rock-garden which was remarkable for its brilliant flowers.

MISCELLANEOUS BORDER FLOWERS.

The 2nd prize in a class for herbaceous Pæonies, in a space of 200 square feet, is won by Messrs. PAUL & SONS, The Old Nurseries, Cheshunt, whose best plants are grandiflora nivea, Lucrece (a fine pink), formosa alba (semi-double), and M. Jules Calot (semi-double pink).

For 20 Violas in flower, distinct, Messrs. SEAGROVE & Co., Lane End Nurseries, Gledless, Sheffield, are awarded the 1st prize. Mrs. Morrison, Gladys Finley, Mrs. Henry Wood, Mosley Perfection, Mrs. Gabb, and Ajax are among the best shown. 2nd, Mr. CHAS. TURNER, Slough, who exhibits White Swan, Blue Duchess, Mrs. Chichester, Mrs. G. F. Gordon, and Admiral of the Blues finely.

Sir Trevor Lawrence's Cup was offered in the class for a collection of hardy herbaceous plants occupying 100 square feet. Messrs. G. and A. CLARK, LTD., Dover, the winners, stage grand trusses of Anchusa, new pink Astilbes, the purple, double-flowered Delphinium "The Alake," showy Pyrethrums, Geum Mrs. Bradshaw, German Irises, and Spiræa palmata. 2nd, Messrs. ARTINDALE & SONS, Norfolk House Hall, Sheffield, with Eremurus and Lupins as features. Anthemis montana, Verbascum Caledonia, Trollius, Lilies, Pyrethrums and Irises are also well represented.

For 24 Violas, distinct, the 1st prize is made in favour of Mr. F. J. BELL, Crescent Nurseries, Whitley Bay, for a very bright, fresh lot of flowers, noteworthy being G. C. Murray (purple), Evelyn Bell (royal purple), King George (light purple), Helen Paul (light yellow), and Kate Blythe (lilac and white). The 2nd prize group cannot be identified with the name of the exhibitor. 3rd, Messrs. BOSTOCK & SONS, 75, Springfield Road, Birmingham.

The 1st prize for a collection of Violas or Pansies in a space of 100 square feet is shown by Messrs. ARTINDALE & SON, Sheffield, who have the finest group of Violas in the show. Jas. Pilling, Bridal Morn, Redbraes, Moseley Perfection and Countess of Eglinton, Miss V. W. Bertram and Minnie J. Ollar are the most showy varieties. 2nd, Messrs. GUNN & SONS, Olton, who have Moseley Perfection, The Gem, Swan, Virgin White, and Kitty Bell in good form.

In the class for an exhibit of Dahlias in a space measuring 6 feet by 3 feet, the prizes are offered by the National Dahlia Society. The 1st prize is won by Messrs. STREDWICK & SON, Silver Hill Park, St. Leonards, whose best blooms are Sweet Briar, Mary Purrier, Red Admiral, Mrs. Stephens, Richard Box and Johannesburg of the Cactus section, whilst good Pompons and show Dahlias are J. Walker, Dazzler, Geo. Brinkman and Donovan. 2nd Messrs. J. CHEAL & SONS, Crawley, who have plants in pots, of which the smaller forms of the Cactus section are best.

For a collection of hardy or half-hardy annuals or biennials, occupying 100 square feet, the premier exhibit is by Messrs. F. SMITH & Co., Woodbridge, Suffolk. The exhibit contains many of the newer kinds—Rhodanthes, Antirrhinums, Clarkia Vesuvius (a fine salmon variety), Phlox Drummondii Chamois Rose, Arctotis grandis, and a large selection of others. Alongside is a non-competitive group of border perennials commonly in flower at this season.

The best group of Pæonia Moutan, arranged in a space of 100 square feet, is shown by WM. ARTINDALE & SON, Nether Green, Sheffield, their fine variety including Pæonia Moutan, Queen Elizabeth, P. Jeanne d'Arc (soft pink), P. Mme. Stuart Low (salmon-rose), P. Louise Mouchelet (soft pink). All these are double-flowered varieties. 2nd, W. WEST-NEAVE, Esq., West Court, Bray-on-Thames, for a fine collection, but the exhibit lacked names.

FRUIT.

The exhibits of fruit trees, both in the classes and not for competition, are in most cases of exceptional merit, and as regards the trained trees it is doubtful if so fine a show of all the useful methods of training adopted in the British Isles has ever been seen at any previous gathering. In general condition, in neatness of training, and in many cases for their ample crops of fruits, these constitute object-lessons of great value to all gardeners, especially to the younger members who have not had the opportunity of studying fruit-tree training as practised in the leading British nurseries. Both in the large central plant marquee and in the open ground near the rock-gardens, visitors will find much to interest them in these exhibits, and they should make a special point of seeing Messrs. VEITCH & SON'S contribution, which is really a well-designed fruit garden that admirably illustrates the special advantages of every practical form of training. It is one of the most instructive demonstration exhibits that can be found in the whole show.

In the same neighbourhood is also a highly-creditable arrangement of fruit trees from Messrs. LAXTON BROS., especially designed to show their excellent methods of growing trained trees in pots ready for transference to gardens without check or danger. Many of these could scarcely be surpassed in condition and neatness of training.

It is often said that British growers neglect the modern science of fruit raising with a view to improvement on sound lines, but these two cases are amply sufficient to answer such doubts as not only has the season of production been greatly extended, but quality has also received due attention.

An interesting comparison may be made as regards some of the fruits shown at Chelsea at

this International Show with the same kind of fruits in 1866. Taking Peaches and Nectarines first, out of a total in trade lists at the present time amounting to over 70 varieties, a large number of which are represented by trees or fruits, no fewer than 50 have originated with Messrs. RIVERS & SON, many having been raised since the last International Show. Again, on referring to the Strawberries, about the same total, i.e., 70, are catalogued by the trade, though necessarily a small proportion of these are included in the Chelsea show, yet of the total there are only a dozen which were in general cultivation in 1866, and of the remainder Messrs. Laxton & Sons have originated 32, most of which are general favourites. Of the three new Strawberries at this show, i.e., King George V, The Earl, and The Queen, the last two show considerable advance upon two old favourites which were prominent in 1866, namely, British Queen and Viscountess Hericart de Thury.

Further details next week.

NEW PLANTS.

Except in two classes, the plants shown in this division were not in commerce, and had not prevously been exhibited in public.

Six stove or greenhouse plants, distinct, in or out of flower, introduced by the exhibitor, Orchids and Roses excluded.—In this class, the 1st prize is won by Messrs. SANDER, of St. Albans, for a group comprising Ceratolobus Forgetiana (see fig. 8), a Peruvian Palm; Alocasia Micholitziana (see fig. 9), with velvety, arrow-shaped leaves, waved at the margins, and with a bold, white midrib down their entire length. Mussænda Sanderi, an Asiatic species, with clusters of small, yellow flowers, surrounding which are large, heart-shaped, pure-white bracts, arranged after the manner of the sterile florets of some species of Hydrangea. Trevesia Sanderi, an Aralia-like plant, with handsome, deeply-cut leaves, a native of Annam, French Indo-China. The leaves are borne on long, cylindrical petioles; the leaf-blade, roughly circular in outline, is 2 feet in diameter, divided into five lobes, which are further deeply and curiously incised. Eriobotrya japonica var. variegata, a form of the type, with leaves variegated with irregular markings of pale green, dark green, and white, the whole plant covered with a cottony tomentum, and Adiantum Siebertianum, a new and attractive Maidenhair, from Australia, with curious elongated fronds.

Three hardy plants, in flower, distinct, Roses excluded.—Messrs. BEES LTD., Liverpool, have obtained the small Silver Medal for Celmisia spectabilis argentea (see Awards); Lupinus argentus, a North American species, introduced in 1905, with small, silvery leaves, and erect racemes of rose-purple, Pea-shaped flowers, blotched with white on the standard; and Roscœa cautlioides, a Chinese species, introduced in 1907. The latter has pale primrose-yellow flowers, borne single in the axils of sheathing bracts, in groups at the apex of flower-scapes, about 9 inches high.

One species or variety of stove or greenhouse foliage plant, introduced by the exhibitor.—The small Silver Medal in this class is awarded to Mr. W. A. MANDA, South Orange, New York, U.S.A., for Polypodium Mandaianum, a Fern, with glaucous, green fronds, 3 inches in length, borne on petioles about a foot long, gracefully arched pinnæ deeply laciniated.

Twelve plants, in or out of flower, distinct, put in commerce since January 1, 1909.—Messrs. BEES LTD., Mill Street, Liverpool, have obtained the Small Silver Medal for the following 12 distinct plants:—Primula malacoides alba, a white-flowered form of the type, raised this year; Primula × Unique; Primula malacoides; Primula Bulleyana; Celmisia spectabilis "var. argentea" (see Awards); Incarvillea brevipes, a species from China introduced in 1906, with rich rose-purple flowers borne on scapes about 9 inches high; Erodium olympicum, a species from Asia Minor introduced in 1907, with finely-cut grey-green leaves; Lewisia Cotyledon, a plant with small, starry, rose-coloured flowers borne on much-branched scapes arising from a rosette of fleshy spathulate leaves; Oxalis enneaphylla; Anemone demissa, a Chinese species introduced in 1906, with small white flowers borne in clusters on scapes about 9 inches high; Iris Forrestii, a small yellow-flowered Chinese species introduced in 1907; and Veronica pyrolæ formis, an interesting little plant with ovate-spathulate sessile leaves and erect spikes of bluish-white flowers.

Messrs. W. A. MANDA, South Orange, New York, have received a Bronze Medal in this class for a group of 12 distinct plants, which was composed as follows:—Nephrolepis viridissima, dark-green waved fronds; N. Millsii, with finely-divided fronds; N. magnifica, a charming dwarf crested form; Dracæna Mandaiana, rose-coloured, and D. "Bronze Beauty," rose-margined bronze leaves; Adiantum "Glory of Doordrecht," Asparagus elongatus, dark-green feathery growths, about 2½ feet high, gracefully arched; Asparagus Sprengeri variegata; Sansevieria Craigii, variegated leaves; Furcræa Watsonii, stiff leaves, striped with white and bright green; Anthericum Mandaianum, a dwarf-growing plant, dark-green leaves, with prominent white mid-rib, and Araucaria "Silver Star," a form of A. elegans, with white tips to the young growths.

FIG. 8.—CERATOLOBUS FORGETIANA: A NEW PALM FROM PERU.

One climbing Rose plant, not in commerce, in flower.—The 1st prize in this class is awarded to Mr. CHARLES TURNER, of Slough, for the seedling rose "Ophelia." The flowers are single, rose in the bud state, pure white when fully open, borne in many-flowered clusters.

The 2nd prize is obtained by Messrs. B. R. CANT & SONS, Colchester, for the new seedling Rose "Sweet Pea," a small-flowered Polyantha variety, with single white flowers tinted with rose and slightly-waved petals.

Messrs. BAKER, of Wolverhampton, are awarded the 3rd prize for a new Rambler, named "Dorothy Jeavons," a semi-double, white-flowered variety of the Polyantha class.

One seedling Rose plant, not in commerce, in flower, climbers excluded.—A glorious Rose, of the Pernettiana section, named Mme. Edouard Herriot, shown by M. J. PERNET DUCHER, Venissieux les Lyons, Rhône, France, is placed 1st in this class. The flowers are of a salmon colour, suffused with apricot-yellow, later becoming flushed with a rosy tint when fully expanded. The variety is recommended by the judges for the *Daily Mail* Cup.

Messrs. LOWE & SHAWYER, LTD., of Uxbridge, are placed 2nd in this class for a new seedling named "Mrs. E. Alford." The flowers are large, of the La France type, the petals beautifully imbricated, recurved, of a rich flesh-pink.

The 3rd prize is obtained by Messrs. ALEX. DICKSON & SONS, LTD., of Belfast, for a new Hybrid Tea Rose named "George Dickson," a large, rich crimson flower, very full and fragrant.

Six flowers of any Rose, not in commerce.—A Hybrid Tea named "Sallie," shown by Messrs. B. R. CANT & SONS, Colchester, has obtained the 1st prize in this class. The petals are of a beautiful creamy-white, tinted buff-yellow, and suffused with rose; petals beautifuly imbricated. The 2nd prize is won by "Mrs. Gordon Sloane," a Hybrid Tea, shown by Messrs. ALEX. DICKSON & SONS, Belfast. This variety has white petals suffused with bright rose; very fragrant. The 3rd prize in this class has been awarded to FRANK CANT & Co., of Colchester, for a Hybrid Tea named "Mrs. E. V. Penrice." This variety has flowers of pale flesh-pink with a deep rose centre; very full and of good form.

AWARDS TO NOVELTIES.

FIRST-CLASS CERTIFICATES.

Leptospermum scoparium var. Nichollii.—This variety is a charming addition to a family of Myrtaceous shrubs that has hitherto been chiefly represented in our greenhouses by L. scoparium, the "New Zealand Tea Bush." It differs from the type, which is white-flowered, in having blossoms of a bright carmine-crimson, densely borne on thin, purplish, twiggy growths, that are but sparsely clothed with small, linear-lanceolate, sessile leaves. Individually, the flowers measure about three-quarters of an inch in

diameter, and consist of five rounded petals, alternating with five smaller sepals, that are also coloured; the centre of the flower is occupied by a dark-coloured disc, partly hidden by the numerous small stamens that surround it. The specimen exhibited stood about 4 feet high, and formed a neat bush, with somewhat erect branches, purplish in the young state, and clothed with silky hairs. Introduced from New Zealand, 1908. This was one of the most delightful of the many novelties at the Exhibition. (Rev. A. T. BOSCAWEN, Long Rock, Cornwall.)

AWARDS OF MERIT.

Calceolaria Veitchii.—A hybrid between Calceolaria alba, a white-flowered species, and a seedling from Calceolaria "Golden Queen." The plants exhibited show a variation in height of from 3 feet to 5 feet; the erect stems are freely branched, and bear numerous, rather small, pale lemon-yellow flowers. The habit of the plant and its floriferous nature make it a subject of great value for decorative work. (Messrs. ROBT. VEITCH & SON, Exeter.)

Celmisia spectabilis argentea.—The radical leaves are about 8 inches long, lanceolate, entire, covered on the upper surface with a silky tomentum, densely felted beneath. The flower scapes, also clothed with tomentum, are about 1 foot in height, and terminate in a Marguerite-like flower, 3 inches in diameter. The ray florets are pure white, the disc florets yellow. (BEES LTD., Liverpool.)

Deutzia Veitchii.—Introduced from Western China, through Mr. E. H. Wilson, and one of the most valuable of the many additions that have been made to this important family of garden shrubs of recent years. A shrubby plant, about 3 feet high, with hispid leaves, 3½ inches long by 1 inch broad, finely serrate on the margin. The flowers, borne in corymbs terminating short branchlets, are of a rich, deep rose in the bud, bright rose when fully expanded. They measure fully an inch in diameter, and are of much substance; the centre is occupied with the petaloid filaments, which are terminated by bright-yellow anthers. In view of the fact that M. Emil Lemoine has already raised some choice varieties from material far inferior to that furnished by this species, the hybridist of the future should be able, with this richly-coloured form, to evolve a new race of valuable hardy shrubs. (Messrs. JAMES VEITCH & SONS, LTD.)

Eremurus Tubergenii.—A fine addition to this family of hardy Liliaceous plants. The flowers are pure, bright yellow, borne in densely-flowered spikes. (Messrs. WALLACE & Co., Colchester.)

Hydrangea Sargentiana.—A striking species, introduced from China, through E. H. Wilson, and named in compliment to the eminent dendrologist, Professor Sargent, of the Arnold Arboretum, Boston, U.S.A. The well-grown specimens shown by the exhibitors stand about 4 feet high. The stems are remarkable in that they are clothed with stiff, erect, scaly hairs, of a pale yellowish-green. The leaves are large and handsome, dark velvety-green on the upper surface, paler beneath, and clothed with hairs on both surfaces. They measure 15 inches in length, the petiole being 3 inches long, and the blade 1 foot long by 8 inches broad. The inflorescence, nearly a foot in diameter, consists, for the most part, of fertile flowers, with from 8 to 10 pure-white, sterile flowers, 1½ inch across, projected well out from the corymb. The stamens are bluish, and give a lavender-blue colour to the fertile flowers. (Hon. VICARY GIBBS.)

Iris variegata var. "Ossian."—Falls deep rose, veined with yellow and purple; standards rich, deep yellow. (Messrs. BARR & SONS.)

Iris squalens var. "Nibelungen."—Falls rose-purple, veined white; standards buff-yellow; a large flower. (Messrs. BARR & SONS.)

Lastrea patens var. Mayi.—A hybrid between L. patens (a broad-fronded species) and L. lepida (a species with narrow, finely-divided fronds). It shows the pale-green colour of the former species. The fronds are plumose, finely dissected, and the plant highly decorative. (Messrs. H. MAY & SONS, Edmonton.)

Leptospermum scoparium var. Boscawenii.—A seedling form of the type species, raised from seed introduced from New Zealand in 1909. The specimens shown are in the form of open bushes, 6 feet or more high, with the slender, gracefully-arched, upper branches studded with globular, cherry-red flower-buds, or rosy-white, star-shaped blossoms. Individually, the flowers measure 1 inch in diameter, and are composed of five oval, white petals, suffused with rosy-red at the base. The small sepals are also rose-coloured, as are the numerous stamens that surround the dark, glossy, central disc. The flowers are sessile, terminating in short, slender branchlets. The twiggy growths are furnished with linear-lanceolate, sessile leaves, and are clothed with silky hairs. This variety forms a charming companion to the carmine-flowered form above described. (Rev. A. T. BOSCAWEN, Long Rock, Cornwall.)

Lilium davuricum var. luteum.—A variety of the type with rich, bright-yellow flowers, thickly spotted with reddish-brown in the interior. The buds, stems, and young leaves are covered with the characteristic cottony tomentum. (Mr. AMOS PERRY, Enfield.)

FIG. 9.—ALOCASIA MICHOLITZANA: A NEW SPECIES FROM MALAYSIA.

Lilium myriophyllum.—A beautiful Chinese Lily, introduced to cultivation through Mr. E. H. Wilson, V.M.H. The flowers have the form of L. Brownii, but the perianth segments are of a purer white, and have only a flush of rose on the exterior. The interior of the throat is soft yellow, and the large and prominent anthers are coloured a deep orange. The leaves are narrow and measure about 4 inches in length. (Messrs. R. WALLACE & Co., Colchester.)

Oxalis enneaphylla var. rosea.—The type species of this charming rock-plant, which hails from the Falkland Islands, has white flowers. The form rosea, as the name implies, is of a soft rose colour, which makes it a charming plant to associate with the type. (Mr. CLARENCE ELLIOTT, Stevenage.)

Pyrethrum "Queen Mary."—A charming, bright, rose-pink variety, 3½ inches across. The plant is a strong grower, and one of the earliest to bloom. It is, therefore, a valuable market variety, as well as a good garden plant. (Mr. G. W. MILLER, Clarkson Nurseries, Wisbech.)

Polypodium Vidgenii.—A species native to Queensland, Australia. It is remarkable in having numerous cinnamon-red sterile fronds that reach for about a quarter of the length of the fertile fronds. The latter, from 2 feet to 3 feet in length, are gracefully arched, and have finely-divided pinnæ, of a bright, pale green. (Messrs. MAY & SONS, Edmonton.)

Sweet Pea "Mrs. Cuthbertson."—A very strong grower, bearing from seven to nine flowers on a spike. A bicolor form, with standard a clear rose-pink, wings white, slightly suffused with pale rose. The finest of its class. (Messrs. DOBBIE & Co., Edinburgh.)

Sweet Pea "Brunette."—A self-coloured form of rich mahogany-red. By far the best of the darker-coloured section. Raised by Mr. Malcolm. (Messrs. DOBBIE & Co., Edinburgh.)

Sweet Pea "Melba."—A pale-salmon self, with very large flowers, the standard measuring 2¼ inches broad. The spikes usually bear four flowers each. The finest of the salmon-coloured forms. (Messrs. DOBBIE & Co., Edinburgh.)

Tuberous Begonia "Princess Victoria Louise."—A magnificent double-flowered form, of a soft, rich pink colour. (Messrs. BLACKMORE & LANGDON.)

Papaver orientalis var. "Edna Perry."—A variety of the Oriental Poppy, with rich, salmon-pink petals, fringed at the edges, and with a large, black, central blotch. A distinct variety. (Mr. AMOS PERRY, Enfield.)

Papaver orientalis var. "Perry's White."—A distinct and striking form, with large, satiny-white flowers, barred from the centre to the middle of each petal with purplish-crimson, which terminates in a black blotch. A unique form. (Mr. AMOS PERRY, Enfield.)

SECOND

EXHIBITION SUPPLEMENT

THE ROYAL INTERNATIONAL HORTICULTURAL EXHIBITION. 1912.

THE EXHIBITION.

NEW PLANTS.

NON-COMPETITIVE GROUPS.

"GARDENERS' CHRONICLE" CUP.—The 25-guinea cup offered by the *Gardeners' Chronicle* for the best novelty in the show has been awarded to the Rev. A. T. BOSCAWEN, of Cornwall, for his exhibit of the New Zealand plant Leptospermum scoparium Nichollii, a variety with brilliant red flowers. As was recorded in our Supplement last week, a First-class Certificate has also been awarded for this variety.

A large Gold Medal was awarded to Capt. DORRIEN-SMITH, D.S.O., of Kingshill, Berkhamsted, for an interesting group of Olearias, the "Daisy Bushes" of New Zealand and Australia. Some of the species of Olearia are amongst the most beautiful and striking members of the flora of New Zealand. A familiar example is Olearia Haastii, a hardy, free-flowering shrub frequently seen in English gardens. The majority of species are, however, tender, and require a sheltered position out of doors or the protection of a cool greenhouse, except in favoured localities. The group exhibited by Capt. DORRIEN-SMITH comprised 33 distinct species, all (with one exception) out of flower, but attractive, nevertheless, owing to the handsome evergreen foliage which these shrubs possess. Included in the group was the rare Olearia semidentata, which has only recently been introduced to cultivation by the exhibitor from the Chatham Islands, a small volcanic group on the east coast of New Zealand. This species is a compact bush, and has close-set leaves that measure 2½ to 3 inches long by ½ to ¾ inch broad, lanceolate in outline, narrowed at the base, serrate or serrulate near the tips, and covered on the under-surface with white tomentum. It is described as growing in swamps, and the flowers are stated to have purple rays and violet disc florets. A white-flowered form of this species is also known. Another species from the Chatham Islands is Olearia chathamica, which has oblong-lanceolate leaves 3 inches long by 1½ to 2 inches broad, serrate at the margins, covered with white, loosely-adpressed tomentum beneath. The flowers are described as purplish or white, with violet-coloured disc. Olearia Colensoi belongs to the broad-leaved species which has thick, coriaceous leaves, 6 inches long by 3 inches broad, oblong-lanceolate, obtuse, the older leaves shining above, densely felted on the under-surface: the younger leaves covered above as well as beneath with white tomentum. Closely resembling this species in foliage is Olearia Lyallii, from Ewing Island in the Lord Auckland group and the Snares. From the North and South Islands and Stewart Islands comes Olearia nitida, a handsome species with broadly ovate-lanceolate leaves 3½ inches long by 2½ inches broad, sinuate at the margin, more or less coriaceous, distinguished by the silvery lustre of the under-surface. One of the most magnificent species of the genus is Olearia insignis, which has stout, densely-pubescent branches crowded with thick, coriaceous leaves at the tips; the latter oblong or ovate, 7 inches long by 4 inches broad, entire, the older leaves shining above, white with adpressed tomentum beneath, the young leaves covered with white tomentum on both surfaces. Species with a Holly like appearance are Olearia macrodonta, with leaves 4 inches long by 2 inches broad, strongly toothed and waved at the margin, whitish beneath; its variety minor with similar but smaller leaves, and O. ilicifolia with linear lanceolate glaucous green leaves, toothed and waved at the margin, sparsely pubescent beneath; both the species have a musk-like fragrance. Olearia avicenniæfolia has broadly lanceolate leaves, narrowed at both ends and measuring 4 inches long by 1½ inch broad, whitish-buff beneath; O. oleifolia, oblong-lanceolate leaves, 2-3 inches long by ½ inch wide, glossy above, white beneath; O. nummularifolia, small, close-set, coriaceous leaves, ¼-½ inch long, suborbicular in outline; O. virgata lineata, slender, twiggy branchlets, leaves 1-1½ inch long, excessively narrow-linear; O. furfuracea, leaves 3 inches long, 2½ inches broad, margins wavy and toothed, shining above, silvery white beneath; O. lacunosa, leaves 4 to 6 inches long, narrow linear, ¾ inch broad, with white mid-rib, rugose beneath, covered with rusty tomentum; O. angustifolia, leaves narrow lanceolate, coriaceous, 3 to 5 inches long, ½-¾ inch broad, doubly serrate at the margin, white beneath; O. moschata, leaves obovate, ¾ inch long, white beneath, musk scented;

FIG. 10.—GROUP OF ORCHIDS AWARDED THE KING'S CUP.

Exhibited by Sir George Holford, K.C.V.O. (gr. Mr Alexander).

O. odorata, leaves fascicled, linear-spathulate, 1 inch long; O. ferruginea, an Australian species, with ovate leaves, 3½ inches by 2 inches, the young wood and under-surface clothed with rusty tomentum; O. ramulosa, leaves minute, obovate, in fascicles; O. Cunninghamii, obovate leaves, slightly toothed, whitish beneath; and O. myrsinoides, an Australian species, with small toothed leaves, 1 inch long, the under-surface and wood clothed with loose white tomentum. The other species that made up this interesting collection were Olearia dentata (in flower), O. Traversii, O. grata, O. speciosa, O. Solandri, O. Forsteri, O. lyrata, O. argophylla, O. glutinosa, O. stellulata, and its variety Gunniana.

A large collection of Chinese trees and shrubs was exhibited by the Hon. VICARY GIBBS, of Aldenham House, Elstree (gr. Mr. Edwin Beckett). The plants were all raised from seed collected by Mr. E. H. Wilson in Western China, the greater portion since 1908. A considerable number of the specimens were presented to the exhibitor through the kindness of Professor Sargent, of the Arnold Arboretum, Boston, U.S.A. Included in this assemblage of plants were most of the species mentioned in the notice of Messrs. Veitch's group. Only a few of the specimens were in flower, and many of the more recent introductions remain to be specifically identified. The most striking of the flowering subjects were: Hydrangea Sargentiana, with large, bold leaves and corymbs of lavender-blue flowers, surrounded by five or six large, pure-white, sterile florets; Lonicera Maackii, one of the best of the bush Honeysuckles, with trumpet-shaped flowers borne on the axils of the opposite leaves along the whole length of spreading, horizontal branches; white at first, the flowers become cream-coloured, and then buff-yellow before they fade; Aristolochia heterophylla, a new species allied to the "Dutchman's Pipe"; Ribes longiracemosa, a new Currant with drooping racemes of brownish flowers 20 inches in length; Neillia sinensis, a neat shrub with racemes of pinkish flowers similar to those of Ribes; Deutzia longifolia, a pale rose-coloured species, which received an Award of Merit at a recent R.H.S. meeting; Cotoneaster humifusa, C. Dielsiana, C. Zabelii, C. divaricata, and several unnamed species of this genus. Amongst the plants in leaf only the most striking was a new, and at present unnamed, species of Paulownia, with very large five-pointed leaves borne on stout cylindrical petioles 18 inches to 2 feet in length. Although the young wood of this tree is slightly injured by frost, it is hoped that it will prove hardy when it has attained sufficient dimensions to escape the "frost-line." Two new Catalpas were also included in the group. These were named Catalpa Fargesii and C. Duclouxii. Of very graceful appearance was the foliage of Ailanthus Vilmoriniana, a new species of the "Tree of Heaven," which has long pinnate leaves bearing as many as 17 pairs of leaflets. Several of the new Acers were also attractive, particularly A. Davidii, which has simple ovate-acuminate leaves of a dark-green colour, tinted with bronze when young, and a bark striated and netted with white; Acer Henryi, with three-lobed leaves, dentate at the margins and bright-red when young; and A. Wilsonii, a neat species, with small three to five-fid leaves, are also promising plants. One of the most interesting plants in this large and important collection was a small specimen of Salix magnifica, a new Willow, which has very large leaves. In the young state, as exhibited, the plant resembled a species of Polygonum rather than a Willow; the obovate leaves were only about 6 inches long, with a red petiole and mid-rib, but mature plants have leaves of much larger dimensions. Very decorative items were the species of Vitis and Rubus, which were represented by well-grown specimens trained to a trellis work of stakes. Many of these fine species are already in commerce, but others in the group are new and at present unnamed. In addition to the above were numerous species of Berberis, Viburnum, Pyrus, Prunus, Evodia, Philadelphus, and Spiræa. For this magnificent group, which included several hundreds of plants, a large Gold Medal was awarded, also the silver cup offered by Messrs. Veitch & Sons, Ltd., for the best group of hardy trees and shrubs exhibited by an amateur.

Miss E. WILLMOTT, of Warley Place, Essex (gr. Mr. C. R. Fielder), was awarded a silver cup for a small group of Chinese plants raised from seed collected by Mr. E. H. Wilson. The group comprised a number of specimens of the new Hydrangea Sargentiana, that displayed a considerable degree of variability in the size, form, and marginal serration of the leaves; Hydrangea Bretschneiderii sutchuenensis, a species with ovate-lanceolate leaves finely serrate at the margin, hairy on both surfaces, with corymbs of cream-white fertile flowers surrounded by pure white sterile florets; H. villosa; Rhododendron micranthum, a small Alpine species with leaves about 1 inch long, oblanceolate, covered with brown scales on the under-surface, and white flowers borne in erect, dense racemes; Berberis Gagnepainii, B. verruculosa, B. Wilsonæ; Spiræa sp. Viburnum Sargentii, with red petioles and young wood and three-lobed leaves; and several unnamed species of Lysinotus. From a botanical point of view, an interesting exhibit in this group was Helwingia sp., a shrubby plant with alternate, ovate-lanceolate leaves, about 4 inches long by 2 inches broad, bearing on the mid-rib in the centre of the leaf a small brownish flower. An unnamed species of Sabia was also exhibited. This plant is a member of the type genus of the N. O. Sabiaceæ, and is related to Meliosma; it is a straggling shrub, with broadly-ovate leaves, hairy on the principal veins on the under-surface; the petioles are coloured red. A specimen of the Saxifragaceous plant Deinanthe bifida was also included in this collection. This is a herbaceous plant with stems about a foot high and large, ovate, coarsely-serrate leaves, bifid at the apex and borne in a whorl composed of four leaves at the apex of the stems. From the centre of the whorl of leaves the reddish flower-stalk arises,

FIG. 11.—DEUTZIA VEITCHII: FLOWERS ROSE-COLOURED.
(Award of Merit. See p. xvi. of first Supplement.)

bearing fertile bluish-purple flowers and sterile florets like those of Hydrangea. A fine specimen of this plant was also exhibited by Mr. ELWES, of Colesborne, Gloucestershire.

A large group of new Chinese plants, chiefly trees and shrubs, was arranged by Messrs. JAMES VEITCH & SONS, Ltd., Chelsea, in the great tent. The exhibits comprising this group were all of them introduced to cultivation during the past decade by the exhibitors, through Mr. E. H. Wilson. Some 150 distinct species of plants were assembled, and they were illustrative, not only of the wealth of the Chinese flora in hardy trees and shrubs suitable for our climate, but also of the enterprise of Messrs. VEITCH and the energy and ability of Mr. Wilson, erstwhile their collector. In only a few instances were the plants in flower, but most of them were possessed of an attractiveness, either of form or foliage, that rendered them interesting to the general public as well as to the plant-lover. Apart from several interesting new genera that have been discovered in China of recent years, these new introductions are chiefly remarkable for the number of new and distinct species that belong to families of favourite garden plants, such as, for instance, Deutzia, Hydrangea, Viburnum, Berberis, Ilex, Vitis, Rubus, Rosa, Buddleia, Lonicera, Cotoneaster, and Spiræa, all of which were represented in the group by a number of new species. Amongst the subjects in flower, Rosa Moyesii was the most prominent. This species has flowers 3 inches across, of a rich crimson colour, with a circular ring of yellow anthers in the centre. Beautiful in itself, this species should be of great value to the hybridist. Another new Rose, known as R. Willmottiæ, has smaller flowers than the preceding, of a delicate rose-pink shade. Both species are native of the Chino-Thibetan borderland. Of the new Deutzias in the group, D. discolor major and D. Wilsonii are both fine species, with pure-white flowers of large size, but the most handsome is D. Veitchii, which has flowers of a deep rose colour. The new varieties of Buddleia variabilis known as magnifica and Veitchiana are now frequently met with in gardens. Less well known is Stranvæsia undulata, a sub-evergreen Rosaceous shrub with corymbs of white flowers, very freely produced, and later followed by orange-red fruits. Some half-dozen species of Cotoneaster were in flower, but, as is well known, the fruit is more decorative than the blossoms in most species of this genus. Exception must, however, be made in the case of Cotoneaster Harrovianum, a new species named in compliment to the manager of Messrs. VEITCH'S Coombe Wood nursery. It has pure white flowers borne in small dense clusters terminating dwarf branchlets in the axils of dark-green leaves. Several Barberries were in flower, notably Berberis Gagnepainii, B. verruculosa, B. dictyophylla (remarkable for the white stems of the young growths), B. polyantha, and B. Wilsonæ, the latter species a dwarf plant with small, neat foliage, particularly attractive in the autumn when the branches are laden with coral-red fruits. Styrax Hemsleyanum was represented by a specimen about 8 feet high, bearing freely its graceful racemes of small, pure-white, bell-like blossoms

FIG. 12.—IRIS SQUALENS VAR. "NIBELUNGEN": FALLS ROSE-PURPLE, VEINED WHITE; STANDARDS BUFF-YELLOW.

(Award of Merit. See p. xvi. of first Supplement.)

Amongst evergreens the Hollies have received several important additions of recent years. The neat, dense-growing Ilex Pernyi and the large but somewhat similar I. Veitchii are two excellent garden plants that attracted considerable attention. Others of this genus are Ilex Fargesii, with linear lanceolate leaves 6 inches long; I Engleriana, with similar but broader leaves; I. yunnanense, with Box-like foliage. I. aquifolium chinensis, with rather thin, somewhat drooping, leaves; and several other species at present unnamed. Two dwarf Euphorbiaceous plants with evergreen leaves are Sarcococca Hookeriana and S. ruscifolia, very useful for dry situations in poor soil or for planting beneath trees. A fine specimen of Camellia cuspidata, a hardy species, the white flowers of which are figured in *Gardeners' Chronicle*, April 20, p. 261, fig. 123, was also a notable feature of this group. The Loniceras with evergreen foliage were L. pileata and L. nitida, both small-leaved species suitable for clothing banks or rockwork; the evergreen Viburnums included V. rhytidophyllum, V. utile, V. coriaceum, and V. propinquium.

Amongst the new genera introduced to gardens from China by Messrs. VEITCH, Dipelta is perhaps the most interesting horticulturally. This genus is allied to Diervilla, and the flowers are similar in shape, and rose-coloured. The distinctive difference is in the fruit which in Dipelta is winged and resembles the samara of the Wych Elm. Two species are known, Dipelta floribunda and D. ventricosa, and specimens of both species were exhibited.

Climbing plants were represented by the handsome-leaved Actinidia chinensis, which yields an edible fruit; Cocculus heterophylla; Aristolochia heterophylla, which bore numerous curious flowers resembling those of the "Dutchman's Pipe," the bent flower-tube yellow, with five small chocolate-coloured segments; Celastrus latifolius; and about 30 species of Rubus and 25 species of Vitis, many members of the last two genera being new and at present unnamed. The trees in the group worthy of special mention were Populus lasiocarpa, the large-leaved Poplar, a fine example of which occupied a prominent position in the group; Juglans cathayensis, a new Walnut; Liriodendron chinensis, a Chinese form of the "Tulip Tree"; Fraxinus bracteata; Euptelea Davidiana; Betula alnoides pyrifolia, Sapindus mukorossii: Tilia Miqueliana chinensis, T. Oliveri, and T. tonsura, three new Limes; several new Maples—Acer Davidii, A. griseum, A. Henryi, A. Oliverianum, A. pictum Mono, and A. tetramerum lobatum being particularly promising plants. The three species of the remarkable genus Davidia, which have recently been distinguished, were included in the group. These are named Davidia involucrata, distinguished by the silky pubescens on the under surface of the leaves; D. Vilmoriniana, with leaves glabrous and glaucous beneath; and D. laeta, yellowish-green on the under-leaf surface and less deeply toothed.

The group was edged with the new Chinese herbaceous plants, the species represented being Senecio Clivorum and its variety crenata, S. Veitchianus and S. Wilsonianus, Thalictrum dipterocarpum (bearing handsome rose-coloured flowers with bright-yellow stamens), Podophyllum Emodi, Rodgersia æsculifolia and R. pinnata alba (handsome foliage plants for moist situations), Astilbe Davidii (rose-coloured) and Astilbe grandis (pure white) two handsome additions to this genus. The most important new herbaceous plant in the group was, however, a white form of Primula pulverulenta, known as "Mrs. R. V.

Berkeley." The flowers are borne in a succession of whorls, as those of the type, but they are white, with a yellow throat, and reddish on the exterior of the corolla tube.

The conifers included Pinus Armandi, a five-leaved Pine allied to P. koraiensis; Tsuga yunnanense, close to T. Sieboldii; Larix Potaninii, with bluish-green linear leaves about 1 inch long; Picea complanata and an unnamed species; Cephalotaxus Oliveri, a species close to C. drupacea; and Libocedeus macrolepis, a handsome tree, unfortunately not perfectly hardy.

For this fine group of new plants, Messrs. JAMES VEITCH & SONS, LTD., were awarded a Gold Medal and the "South Wales" silver cup.

*** In our description of Polypodium Mandaianum on page xv of Supplement last week, there was an obvious error. The length of frond was printed 3 inches instead of 3 feet.

AWARDS TO NEW ORCHIDS.

FIRST-CLASS CERTIFICATES.

Lælio-Cattleya Lustre var. Lavingo (callistoglossum × Luddemanniana).—A beautiful variety with large sepals and petals of deep, rosy pink; the front lobe of the lip rich crimson varied with rich purple in front and yellow lines through the base and throat.

Dendrobium Dalhousianum luteum.—A very distinct form with sulphur-yellow tinted flowers and the usual crimson discs at the base of the lip.

Cattleya Mendelii var. Queen Mary.—The sepals and petals are white, the front lobe of the lip being covered with a delicate rose suffusion.

Brasso-Cattleya "The King" (parentage unrecorded).—The most gigantic of this class of hybrids. The sepals and petals are deep-rose colour, the lip of the same shade, with a darker purple suffusion in the centre. The front of the throat has a suffusion of yellow with crimson-purple lines at the base.

Cattleya Dirce magnifica (Vulcan × Warscewiczii).—One of the most distinct of recent hybrid Cattleyas. The sepals and petals are coloured rosy-purple, with crimson-purple suffusion in the centre. The lip is crimson-purple lined, with yellow at the base. From Lieut.-Colonel Sir G. HOLFORD.

Odontioda Queen Mary (Vuylstekeæ × eximium).—A most distinct and beautiful variety, the sepals and petals being of a deep-red purple margined with white, and a distinct white ring running round the centre well within the margin. The sepals are marbled with white. The broad lip is white, with a large, reddish-crimson blotch in the centre in front of the yellow disc.

Odontoglossum Her Majesty (parentage unrecorded).—A very fine seedling with rich claret-purple blotches, marbled and margined with white. (From Messrs. CHARLESWORTH & Co.)

Miltonia Jules Hye de Crom.—One of the finest of the hybrid Miltonias. The sepals are white, the petals also white, with a rose suffusion at the base. The lip is pure white with a rich crimson disc, as in M. Memoria G. D. Owen. (From M. JULES HYE DE CROM.)

Miltonia Hyeana var. Vogelzang.—A large white flower with a distinct yellow disc in the centre. (From M. LAMBEAU, Brussels.)

Odontoglossum amabile Duke of Portland.—A flower of perfect shape, showing the whole of the surface covered and suffused with rich violet-purple.

Odontoglossum eximium King George V.—One of the finest-coloured forms we have seen, the rich, solid-purple blotches covering the whole of the segments, with a distinct white outer margin. The lip is white in front, with a crimson blotch in the centre. (From Messrs. SANDER & SONS.)

Odontioda Mrs. F. M. Ogilvie (amabile Royal George × Vuylstekeæ).—This large flower is heavily blotched on the sepals and petals with almost solid-red blotches. The outer margin is white, suffused with rose. The lip is white, with red markings at the base. (From F. M. OGILVIE, Esq.)

Odontoglossum eximium var. exquisitum.—A beautiful flower, having a solid blotch of deep-purple colouring, the sepals and petals being margined and marbled with white. (From M. CHAS. VUYLSTEKE, Ghent.)

Lælia purpurata Schröderæ.—A well-known form with almost white sepals and petals, the lip being veined with lilac. (From Baron BRUNO SCHRÖDER, The Dell, Egham.)

AWARDS OF MERIT.

Lælio-Cattleya Lustre var. Buddha.—The sepals and petals are of fine form and delicately suffused with lilac. The remarkable broad lip is a rich purple colour, veined with a deeper shade of purple. The throat and base of the lip are lined with white and yellow.

L.-C. Gladiator (Mossiæ × callistoglossa).—The sepals and petals of this variety exhibit a deep rosy-lilac, the lip being rich crimson lined with yellow at the base. (From Lieut.-Colonel Sir G. HOLFORD.)

L.-C. Ulysses (Fascinator × Mossiæ Reineckiana).—The sepals and petals are white, and possess unusual substance. The broad, rounded lip is white, with purple suffusion on each side, and a bright-yellow disc.

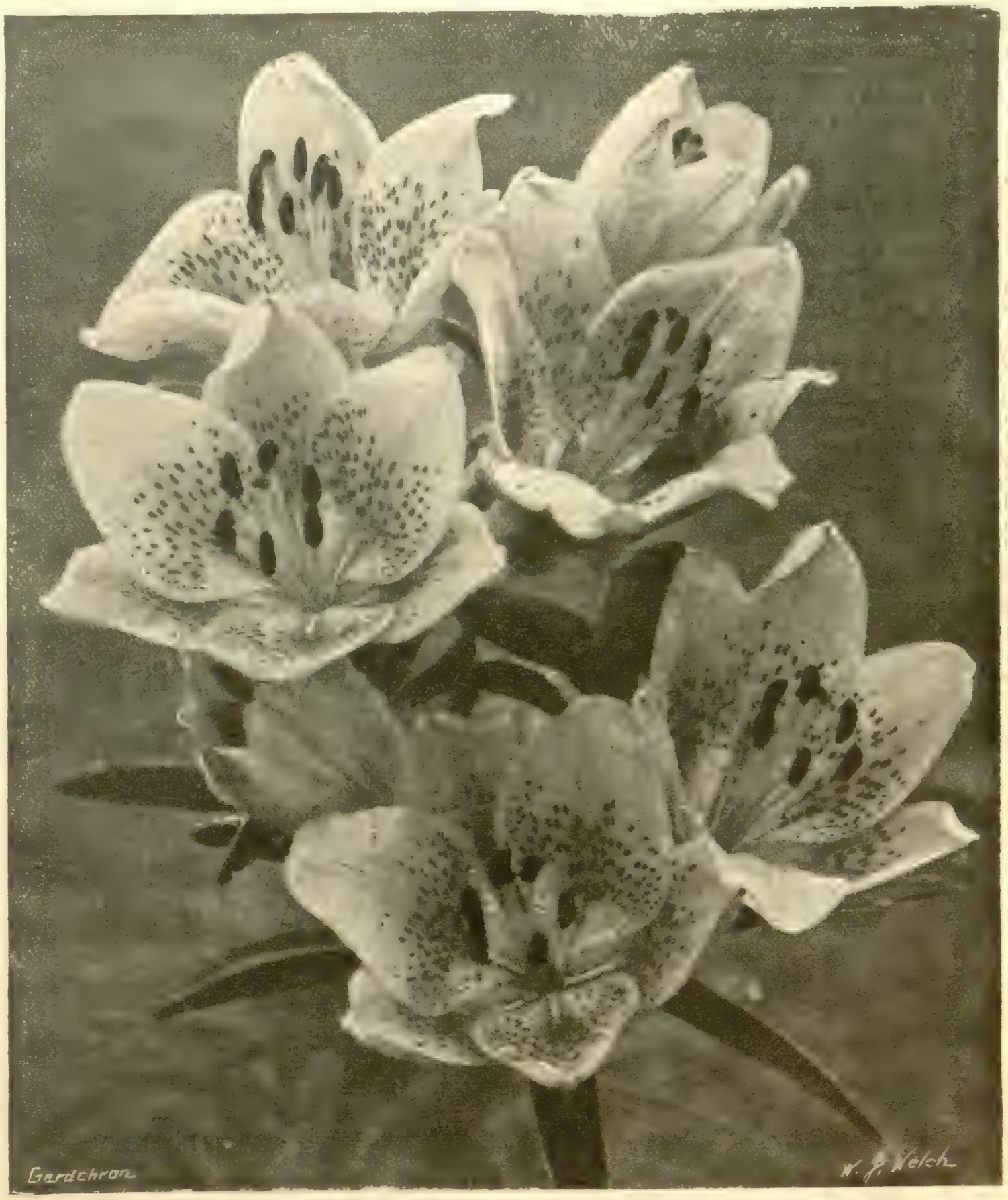


FIG. 13.—LILIUM DAVURICUM VAR. LUTEUM.
(Award of Merit. See p. xvi of first Supplement.)

L.-C. Ulysses alba.—A pure-white form of the above, with very fine form and substance.

Odontioda Chantecleer (Noezliana × Cooksoniæ).—A very fine, round flower, with brilliant-red sepals and petals. The broad lip has some yellow lines in front and the usual yellow disc in the centre. (From Messrs. CHARLESWORTH & Co.)

Cattleya Mossiæ var. Mme. Jules Hye.—A gigantic variety with a rich crimson lip.

Odontioda Bradshawiæ var. Vogelzang.—A fine variety with bright, rose-purple markings. (From M. F. LAMBEAU, Brussels.)

Zygopetalum Armstrongeæ (Mackayi × Rostratum).—The sepals and petals are purple, marbled with green. The elongated lip is reddish-purple in front, becoming suffused with violet at the base. (From Messrs. ARMSTRONG & BROWN.)

Odontoglossum majesticum var. James Whitton (eximium × percultum).—One of the finest of the large-flowered section, the whole of the centre of the sepals and petals being coloured rich-purple and margined with white. The lip is white, with rich-purple markings in the centre.

O. crispum James McNab.—A distinct, solid, rich-coloured form with white marblings.

O. amabile Princess May.—A large, round flower with white sepals and petals, blotched and spotted with rich crimson in the central area. The large lip is white, with purple spotting over the basal half. (From Messrs. F. SANDER & SONS.)

O. ardentissimum var. Carmen.—A fine form with almost solid, rose-purple blotches covering the sepals and petals, which are marbled with white. (From F. M. OGILVIE, Esq.)

Odontioda Bradshawiæ Lady Colman.—A fine, brilliant scarlet form, of good shape and substance. The plant carried three racemes of flowers.

SELAGINELLAS.

J. GURNEY FOWLER, Esq., Glebelands, South Woodford (gr. Mr. Davis), in connection with and as a contrasting setting for a group of Orchids—to which we referred last week—staged an extremely interesting group of more than 100 specimen plants of Selaginellas, consisting of numerous species. These were mostly grown as conical or hemispherical specimens with very pretty effect, and amongst them we noticed S. apus, presenting a tiny, dense, Moss-like appearance; S. Martensii formosa, a bold grower; S. Kraussiana aurea and S. K. variegata, S. cuspidata, Emiliana aurea, of a bright-golden tint; several forms of S. plumosa, bold and Fern-like in appearance; S. caulescens, resembling a finely-

cut Davallia; S. elegans, a dwarf and compact, crispy species; S. Braunii, an enlarged counterpart of the same, a veritable gem; S. Watconiana, another Davallia-like form on minute lines; S. grande, a plumose form; S. cæsia, of a peculiar bluish-green hue, and many others. This formed a good representative group of the smaller species of this interesting link between the Ferns and the Mosses, and was deservedly awarded a special cup.

INSECTIVOROUS PLANTS.

A large Gold Medal was awarded to Messrs. A. J. A. BRUCE & SON, Chorlton-cum-Hardy, Manchester, for an exhibit of insectivorous plants. The group was arranged in an attractive manner, and took the form of a mossy bank, a pool of water at the foot and Ferns and grasses here and there, a touch of colour being given by the high orange-red fruits of Nertera depressa. So arranged, the curious, trumpet-shaped pitchers of the Sarracenias or "side-saddle flowers," as they are commonly called, were afforded a delightful and natural setting, and proved very decorative. Growers of these interesting plants might with advantage adopt this method of displaying them in conservatories. The principal species of Sarracenia were included in the group, as well as some attractive hybrids and varieties. Amongst others noted were a fine plant of Sarracenia flava gigantea, the tall, erect pitchers, 2½ to 3 feet high, with large, spreading pale-green lid, finely veined with purple; S. Wrightii, a hybrid with slender pitchers 2 feet high, the throat and lid white, veined and netted with bright green; S. Willmottæ, a hybrid with curved pitchers about 1 foot long, and a very broad, fan-shaped lid, richly veined with purple; S. "Sir Frank Crisp," a dwarf variety with curved pitchers and a finely-waved lid, pale green in colour, suffused with rose and veined with purple; S. Watsonii, a hybrid with tall, slender pitchers, the upper portion and lid white, finely netted with rosy purple; S. "Mrs. J. H. Dick," a tall, slender, bright-green pitcher, 2½ feet high, with a recurved, wavy lid spotted with white and slightly veined; S. Swaniana, a charming little plant, about 9 inches high, with over-arching lid, pale green in colour, suffused with rose; S. Farnhamii, slender pitchers, prettily-waved lid, pale green spotted with white and finely netted; S. rubescens, slender, erect pitchers, the upper portions and lid reddish brown; S. Courtii, with curved pitchers and very large wing, one of the early hybrid in this genus; S. psittacina and S. purpurea "The Huntsman's Horn," the latter a hardy species, suitable for moist places in the rock or bog garden. In addition to the Sarracenias, the following insectivorous plants were included in the exhibit:—Dionæa mucipula ("Venus's Fly Trap"), Drosera rotundifolia, D. capensis and D. binata ("Sundews"), Pinguicula caudata (Butterwort), Darlingtonia californica (The Californian Pitcher Plant), and Cephalotus follicularis (the "West Australian Pitcher Plant").

A Gold Medal was awarded to J. J. NEALE, Esq., Lynwood, Penarth (gr. Mr. Haddon), for a remarkably fine non-competitive exhibit of insectivorous plants, which comprised Nepenthes, Sarracenias, Droseras, Utricularias, and Cephalotus, all extremely well-grown, especially the Droseras. Two of the finest plants of Drosera dichotoma measured 2 feet high and as much in diameter, and a fine example of D. binata had numerous leaves a foot long, the plant measuring over a foot through. One specimen of the latter species was in flower. Other species of Drosera shown in this group were Drosera capensis, D. spathulata (a charming little species from Australia with rosettes of red spathulate leaves), and two British species, D. rotundifolia (the "Common Sundew") and D. longifolia (=D. intermedia), the "Lesser long-leaved Sundew." The West Australian Pitcher Plant (Cephalotus follicularis) was represented by several examples, the finest bearing 30 pitchers of a rich-purple colour, the lid prettily blotched with white. Although the pitchers resemble small editions of those produced by Nepenthes, the plants have no botanical affinity. The Sarracenias or "side-saddle flowers" of the United States of America were represented by several fine species and hybrids. The species were S. purpurea, S. flava, S. rubra, and S. variolaris; the hybrids S. melanorhoda (the finest plant having over 40 pitchers), S. Willsii, S. Tolliana, S. Swaniana, S. Stevensii and S. Fildesii. Numerous plants of the Mexican Butterwort (Pinguicula caudata), with rosettes of broad, viscid, yellow-green leaves were interspersed between the larger plants, and a specimen of the new Pinguicula gypsicola, also from Mexico, was shown. Two specimens of Utricularia montana were in flower, the smaller raised from seed sown in 1910. Suspended in baskets above the plants enumerated were Nepenthes Rafflesiana, N. ampullaria, and the hybrids N. mixta, N. Mastersii, and N. "Sir W. T. Thiselton-Dyer."

SWEET PEAS.

The displays of Sweet Peas were remarkable alike for their extent and quality, particularly considering the earliness of the date and the unfavourable spring. The flowers were all from plants grown indoors, but this enhances rather than detracts from the merits of the blooms.

The competitive classes were few in number, and in only one was there anything approaching to a keen competition. The Sherwood Cup was splendidly won by Mr. C. W. BREADMORE, Winchester, whose collection was well staged, and comprised stems of moderate length, almost all carrying four blooms, and there was no trace of the coarseness that is too frequently seen in modern exhibition Sweet Peas. Countess Spencer, Lavender George Herbert, Dazzler and Helen Lewis were especially fine. The 2nd prize was won by Mr. W. E. ALSEN, Denmead Nurseries, Waterlooville, Hampshire. At first glance this was the more imposing group, but inspection revealed its demerits in the form of coarseness in many of the stems and inequality in the bunches. Messrs. LUMLEY & Co., Hayling Island, were placed 3rd with an attractive arrangement. It will be noted as a rather rare fact that the 1st, 2nd, and 3rd positions in this class were all won by growers in Hampshire. In the two smaller classes Sir RANDOLF BAKER, Bart., M.P., Ranston, Blandford (gr. Mr. A. E. Nestor), was placed 1st, but in neither case was there a bunch of outstanding merit.

FIG. 14.—CALCEOLARIA VEITCHII: FLOWERS WHITE.
(Award of Merit. See p. xvi. of first Supplement.)

NON-COMPETITIVE EXHIBITS.

Sweet Peas were superbly staged in groups not for competition, and the entire display constituted one of the most charming features of the show. Messrs. DOBBIE & Co., Edinburgh, and Mark's Tey, Essex, have shown Sweet Peas many times in many places, but never have they

done themselves more credit than at the International. From whatever aspect the group was considered, even the most captious critic could find no fault. Three varieties received Awards of Merit from the special committee of Sweet Pea experts representing the Royal Horticultural Society. These were Brunette (a quite distinct mahogany red), Melba (the exquisite soft salmon), and Mrs. Cuthbertson (a superb bicolor, which has a marked characteristic of throwing five blooms on a stem. Other varieties of excellence were Lavender George Herbert, Thomas Stevenson, True Lavender, Lady Miller, Decorator, Inspector, May Campbell, Mark's Tey, Elfrida Pearson and Dobbie's Scarlet.

FIG. 15.—SWEET PEA MELBA: FLOWERS PALE SALMON COLOUR.

(Award of Merit. See p. xvi. of first Supplement.)

Mr. W. E. ALSEN, Waterlooville, Hants., arranged a group at some distance from the other exhibits in this section. There was evidence of great strength in the stems, and in some few instances this was accompanied by wide placing of the blooms, but the varieties were admirably chosen and disposed to create a pleasing effect. Annabel Lee is a splendid variety, both in respect of size and form: the colour is a peculiar shade of rose mauve with some lilac in the wings. Minnie Furnell, Moneymaker, George Stark Improved, Stirling Stent, Melba, and Bobby Stewart were also finely shown.

Messrs. E. W. KING & Co., Coggeshall, Essex, were represented by a small but highly-meritorious group. Varieties were numerous, but Anglian Blue and Anglian Pink were so conspicuously superior to all their fellows that we will not set rivals against them by naming others. The flowers proved sound culture and the arrangement was good.

Messrs. G. STARK & SON, Great Ryburgh, Norfolk, had an ambitious exhibit, for they had limited the varieties to those of their own raising and introduction. George Stark Improved, Hercules, Florence Wright Spencer, Margaret Cook and Helen Williams were especially attractive, but there was not a weak vase in the whole collection.

Messrs. R. SYDENHAM LIMITED, Tenby Street, Birmingham, had a stand in which quality of bloom was combined with good variety and excellence of arrangement. The varieties Mrs. T. W. Warren, Charles Foster, Lady Evelyn Eyre and Iris were particularly fine.

Mr. C. W. BREADMORE, Winchester, staged a fine collection, and also had many varieties in tubs. In the cut-flower exhibit varieties were numerous, some of the finest being Elsie Herbert, Lord Curzon, Aggie Elder, Princess Mary, Helen Lewis, Mrs. C. W. Breadmore, Clara Curtis, Freda, Countess Spencer, and Maud Holmes.

Messrs. R. H. BATH, LTD., Floral Farms, Wisbech, had a beautiful group of excellent varieties. Thomas Stevenson, Charles Foster, Mauve Queen, Isabel, Dorothy and Scarlet Emperor were especially noticeable as being shown in perfect condition.

Mr. J. AGATE, Sea View Nurseries, Havant, arranged a group, in which the best varieties were Felice Lyne, Captain Travers, Mr. Herbert Lees, Stirling Stent, and Barbara.

The blooms staged by Mr. STEVENSON, Wimborne, were on the small side in both spikes and blooms, but the group was up-to-date so far as varieties are concerned. Doris Usher, Scarlet Emperor, May Campbell, and Mrs. Cuthbertson were all good.

Messrs. S. BIDE & SONS, Farnham, had a collection comprising all the leading standard varieties and novelties in capital form.

ALPINES.

The CRAVEN NURSERY CO., Ingleborough, Yorkshire, won the special cup offered by Lady Trevor Lawrence for Alpines in Class 245. In this class the plants were required to be shown in pots, pans, or boxes, without the use of rock. Consequently the effective massing together of certain species growing naturally in similar places was more difficult than in the ordinary rockery. For example, a fine mass of Primula farinosa was in this exhibit interspersed with elegant blooms of Saxifraga linguiata. Other Saxifragas shown in fine condition were S. lantoscana, S. cochlearis, S. cæsia, S. squarrosa, and S. valdensis. A grafted specimen of the rare Daphne rupestris, 8 by 6 inches in extent, is probably the finest in existence. The deep-blue bells of Wahlenbergia serpyllifolia from the Pyrenees were in splendid profusion. Among other noteworthy plants observed were Dianthus frigidus and D. alpinus, Anemone sylvestris var. major, Campanula cenisia, Aquilegia glandulosa, Campanula alpina (a much rarer species than the common C. barbata, which it somewhat resembles, but hardly so beautiful), and Ranunculus crenatus (which takes the place in the Eastern Alps of R. alpestris). Pleasing groups of Primula Cockburniana, P. pedemontana, P. carniolica, and the pale-yellow P. sikkimensis were tastefully arranged among the Saxifragas. A fine bank of small dwarf Pinus montana and P. Cembra, relieved here and there with Globe flowers and Cypripedium spectabile, formed a suitable background to this interesting exhibit.

CARTER'S JAPANESE GARDEN.

Messrs. CARTER & Co., of Raynes Park, had thoroughly transformed the large space allotted to them for laying out their Japanese garden. It was difficult to realise that only a few weeks ago we saw this same piece of ground given up to the children for playing games. There was a garden capable of accommodating several hundred visitors at the same time, with three separate entrances. The one nearest to the *Gardeners' Chronicle* bureau, in the thatched archway, with a pair of fine old bronze Japanese lanterns, admitted us to the splendid garden. On the left there stood a bronze sacred Hoho bird, of splendid workmanship, with its seven long tails and fierce ruffled hackle. This fine piece of Japanese art will adorn Sir Frank Crisp's well-known garden at Friar Park, Henley-on-Thames. On the right we saw an old Japanese well, its square wooden bucket hanging ready for use, with the rope passed over a large wooden pulley. Immediately in front the eye was attracted by a large mound planted with many specimen Umbrella Pines (Sciadopitys

verticillata) from 10 to 15 feet high; the six-tiered granite pagoda on the apex of the mound dominated the scene, its two tons of grey stone adding to the old-established appearance of the garden. A Pine-clad rocky hill hid for a moment the cascade, from which noisily tumbles 6,000 gallons of water every hour, down to the winding lake. Shoals of goldfish lazily swam in the fresh, cool water, now hiding amongst the Iris, or with the nonchalance of an abundant food supply, daintily sampling the broken biscuit which visitors cast on the waters. The stepping-stones laid across a narrow part of the lake brought the wanderer to fresh features. There were appropriate plants in plenty to admire. Old, stunted Maples and Wistarias, with drooping flowers, were standing in weather-worn vases. Rhododendrons, smothered with trusses of bloom, gave place to patches of Lilium auratum with delightfully-fragrant flowers, whose pollen marked the unwary person seeking its perfume from close quarters. In the far background stood an unostentatious tea-house surrounded by trees, shrubs, and pleasant flowers. The way led down to another part of the winding lake, where bronze storks stood immovable waiting for the fish to come within striking distance. On the banks of the lake were stone lanterns, centuries old, which after dusk gave a dim, twinkling light amidst the many plants—some of them, grey foliaged and greedy, absorbed the light, others, like the satiny Pæony blooms, reflected it—all serving their required purpose in the scheme. So went the way along the shingle paths over bridges, flat or curved, just as required by their position, to the large well-made spacious timber bridge with a splendid Torii arch sheltering the room-like structure, where the visitor might pause and rest, surveying the many features of the garden, unmindful of the harmless sacred foxes standing just outside. The quiet restfulness of the unpainted woodwork and weather-worn stonework was enhanced by the blue of the Hydrangea and the delicate flowers of the Japanese Iris which were planted in profusion.

Fig. 16.—KING GEORGE AND QUEEN MARY INSPECTING MESSRS. CARTER'S JAPANESE GARDEN.

HARDY PLANTS.

NON-COMPETITIVE EXHIBITS.

Mr. Amos Perry, Hardy Plant Farm, Enfield, staged bold masses of Phlox Laphamii, P. pilosa alba, P. canadensis, exceedingly well-grown Pyrethrums, showy Oriental Poppies, of which the best was Princess Ena (soft unspotted salmon), Mrs. Perry (a fringed flower), and Perry's Unique (with bright-scarlet fringed petals). In the centre of the group were colonies of the hardy Cypripediums—C. spectabile, C. pubescens, and C. macrantha. Surrounding these were groups of Lilium tenuifolium, L. umbellatum, tree Pæonies, Irises, and Dictamnus, whilst at the foot of the group were masses of Ramondia pyrenaica, various Dianthus, Ixiolirion Pallasii, and Lithospermum Heavenly Blue. Towering over all were bold spikes of Eremurus himrob, E. himalaicus, and E. Elwesianus. In an annexe Mr. Perry staged rock plants, one wing being occupied by Bamboos, Gunneras Scirpus, and Mimulus, the whole making a very attractive group.

Messrs. J. Waterer & Sons, Bagshot, covered a large area of bank with grandly-grown trees in tubs. Clipped Yews in fine form furnished one wing of the group, with a fine specimen of Taxus adpressa aurea occupying the foreground. The Japanese Maples shown were superb specimens, and included Acer palmatum dissectum and A. p. d. purpureum in their best form. The opposite wing included columnar specimens of Retinispora squarrosa, R. filifera, and R. f. aurea. Recessed among the taller trees were groups of Kalmia latifolia, Viburnum plicatum, various Pittosporums, and dwarf Abies, a veteran Abies excelsa Gregoriana being noteworthy among them.

Messrs. J. Cheal & Sons, Crawley, arranged a boldly-designed and thoroughly successful architectural exhibit of old English type in the form of a paved court with a semi-circular pergola as a background. In the centre was a pool, displaying twin fountains, the margins and approaches being of stone paving. A clipped Yew fence formed one boundary, a stone wall supporting a raised terrace the other. A pergola, tastefully festooned with Roses, Vines, and Clematis, converged on a dial plateau, which faced a garden rest-house. The whole design was that of an effective garden retreat. On either side of the formal garden, but screened therefrom, were rock-gardens and pools suitably planted.

Messrs. Fisher, Son & Sibray, Ltd., arranged a large group of trees and shrubs in the great tent. Japanese Maples were well displayed. Tall avenue trees such as Elm, Lime, Oak, Beech, and Chestnut were shown in a form rarely seen, with yellow-foliaged and the white variegated Oaks. As smaller specimens, Dimorphanthus, tree Ivies, Ceanothus azureus Weigelias and Cornus revealed a great choice of material for the shrubbery. The group was boldly planned in blocks of each plant represented, and all the specimens were of excellent merit. In another tent this firm grouped Japanese Maples in about 20 of the principal varieties.

Messrs. Geo. Bunyard & Co., Ltd., Maidstone, grouped showy border flowers in the form of a long, undulating bank. Pyrethrums were plentifully represented, also Lilium croceum, L. longiflorum, German Irises, and Oriental Poppies, whilst Heucheras, Ixias, Aquilegias, and Pæonies contributed to a display bright with colour and arranged with admirable taste.

Messrs. R. Wallace & Co. set up a group of various herbaceous plants—Verbascums, Spiræas, and the brilliant Habranthus pratensis were included.

Mr. Frank Lilley, Guernsey, exhibited cut Gladiolus of the Nanus section, German Irises, Ixias, Spanish Irises, Watsonia coccinea, Brodiæa coccinea, and Iris pavonia, the Peacock Iris.

Messrs. Rich & Co., Bath, staged cut Pyrethrums, Queen Mary being conspicuous by reason of its rich pink colouring. P. Mrs. Bateman (brown-scarlet), with Aquilegias and Oriental Poppies, made up the display.

Messrs. Harkness & Sons, Bedale, staged new Verbascums—Harkness's Yellow, a form of phlomoides, and a white variety of the same race. Several fine seedlings were included also, a fine collection of herbaceous Lupines.

Messrs. G. & A. Clark, Ltd., Dover, showed Geum Mrs. Bradshaw in fine form; grand Pyrethrums, of which Margaret Moore (soft pink), John Malcolm (richer pink) were good. German and other Irises were well represented in this exhibit.

Messrs. Barr & Sons, King Street, Covent Garden, London, grouped the best herbaceous plants in season, the collection occupying the end of two sections of the large tent. A very full collection of German Irises, Dimorphotheca aurantiaca, and several hybrid forms, Geum Mrs. Bradshaw (with large, double, scarlet flowers) were good, as also were herbaceous Lupines in many artistic shades. The Dropmore Anchusa, Anchusa Opal, Gladiolus, and giant Eremurus made up a good display. This firm also showed Pigmy trees and a quantity of May-flowering and Darwin Tulips.

Messrs. Dicksons, Ltd., Chester, grouped trees and shrubs in a recess of the central avenue. Nandina domestica (with purple, Ferny foliage), Griselinia littoralis macrophylla, Picea lasiocarpa arizonica (a glaucous-leaved tree), Ulmus cornubiense Dicksonii (a showy, big-habited, yellow-foliaged Elm), the Yellow Deodar, Pittosporums, and Japanese Maples were included in this group. In the large tent, Messrs. Dicksons grouped herbaceous plants in variety, Delphinium Belladonna semi-plena and D. Persimmon being well shown.

Sir Everard Hambro, K.C.V.O., Hayes Place, Hayes, Kent (gr. Mr. W. Grandfield), staged a very comprehensive collection of Alpines and dwarf shrubs. Azaleas and Rhododendrons in many rare species formed the background. Primulas in groups gave colour masses, but the feature of the exhibit was the array of rare Alpines. Jankæa Heldreichii (nicely flowered), Ramondia pyrenaica in broad masses, Phyteuma cordatum, Lewisia Howellii, Saxifraga longifolium "var. latifolium," S. valdensis (very elegantly flowered) S. Stribneyi (very rare), Edraianthus dalmaticus (a flattened pumiliorum), Sedum pilosum (with leaf rosettes like a Sempervivum), a fine clump of Androsace helvetica, and A. argentea. A big pan of Saxifraga Boydii alba and Erinacea pungens were among the gems of this collection.

Mr. Maurice Prichard, Riverslea Nurseries, Christchurch, showed extensively cut German Irises, of which we noted Rembrandt (copper and crimson), Her Majesty (soft pink), and Lohengrin

(deep lavender), Pæony lobata, hardy Cypripediums, bold breaks of double and single Pyrethrums, Delphiniums, Eremurus robustus, E. Elwesianus, and E. himrob were all shown extremely well. This group was a notable contribution to the colour feast of the tent in which it was displayed.

Messrs. CUTBUSH & SON, Highgate, showed Azaleas in great variety and numbers. Practically all the sections were represented and all the plants were well flowered.

Messrs. B. LADHAMS, LTD., Shirley Nurseries, Southampton, exhibited Rehmannias, Anchusas,

FIG. 17.—ODONTIODA QUEEN MARY.
(First-class Certificate. See p. xxi.)

species and varieties of Heucheras, noteworthy being the variety Shirley with flowers a brilliant scarlet, Campanula davurica Mauve Queen, Muscari plumosum majus, and the rare Sisyrinchium anceps variegata.

Mr. L. R. RUSSELL, Richmond, Surrey, exhibited tree Ivies in gold and silver, variegated varieties, variegated Eleagnus, Ceanothus azureus, Cytisus Butterfly, C. Mayfly, and a large collection of variegated Acers and other trees, associated with the purple-leaved Maples, made a showy and elegant group. At one end was a representative collection of Bamboos, of which Bambusa gracilis, Thamnocalamus nepalense, Phyllostachys flexuosa, Arundinaria anceps, and P. rubicunda are noteworthy.

Messrs. W. FROMOW & SONS, Chiswick, staged a big group of ornamental trees and shrubs—Japanese Maples, Chinese Vitis, Eleagnus, and Bamboos, and a host of other trees. Retinospora Crippsii and Sciadopitys verticillata were showy plants as grouped.

Messrs. WATKINS & SIMPSON, LTD., wholesale seedsmen, Tavistock Street, London, erected a long lean-to building, in which were grouped a big and showy array of their specialities. The groups were of annuals mainly and several new breaks or races were exhibited, notably Clarkia Vesuvius, a fine salmon-red, and Nemesia Triumph, best described as a race of improved colouring.

Messrs. KELWAY & SON, Langport, Somersetshire, staged showy Pyrethrums and herbaceous Pæonies, including single and double forms of both plants. At the entrance to a tent was a further grouping of Delphiniums, Lupinus Somerset, tree Pæonies, and Gaillardias.

Messrs. GUNN & SONS, Olton, show their Viola cornuta purpurea as a setting to Phloxes, Pæonia rosea, early-flowering Gladiolus, double and single Pyrethrums, Irises and Lilies. The group is most effective with its groundwork of purple.

Messrs. DOBBIE & Co., Edinburgh, exhibit Violas in quantity in conjunction with their Sweet Pea group. We note Sunburst (flamed purple on yellow), Royal Sovereign, Dobbie's Sunrise, Unicorn, Klondyke, Virgin White and many others. Messrs. DOBBIE'S are also showing early-flowering Chrysanthemums and various Dahlias.

Mr. G. W. MILLER, Clarkson Nurseries, Wisbech, shows Pyrethrum "Queen Mary" in quantity. The flowers are full double, coloured pink, and have stout stems; this exhibitor also set up other Pyrethrums.

Mrs. E. LLOYD EDWARDS, Bryn Oery, near Llangollen, is showing a quantity of hybrid Heucheras. Salmon Spray is free-habited and of good colour; Tinkabel has long petalled flowers coloured soft scarlet; Liberty, a brizoides hybrid; and Edge Hall Improved is a distinct pink. This exhibit contains several very attractive Aubrietias.

THE LOCKSHEATH NURSERIES, LTD., near Southampton, put up a group of cut Gladiolus of the Nanus section, including a few Pæonies, Sweet Peas and Carnations.

Messrs. R. H. BATH, LTD., Wisbech, have staged a magnificent lot of Tulips—Clara Butt, Suzon, The Fawn, Yellow Perfection, Nora Ware, King Harold, Mr. Farncombe Sanders, Glare of the Garden, and La Tulipe Noire being among the best.

Messrs. JOHN FORBES, LTD., Hawick, have put up a big group of Pentstemons, Phloxes, named Antirrhinums and Delphiniums; Violas and the Pelargonium Black Vesuvius forming the groundwork.

Messrs. REAMSBOTTOM & Co., Geashill, King's Co., Ireland, show St. Brigid Anemones largely. The flowers are in splendid condition, and the colours most pleasing.

Messrs. JARMAN & Co., Chard, show Centaureas (Sweet Sultan) in conjunction with Viola cornuta purpurea, Aquilegias, Clarkias and zonal Pelargoniums.

Messrs. HOGG & ROBERTSON, 22, St. Mary Street, Dublin, has a group of May-flowering and Darwin Tulips in fine form, Miralis (a fine plum-purple), Rosetta (pink), Dom Pedro (bronze), Margaret, Guider, and the rich yellow Mrs. Jas. Robertson. In the centre of the group are magnificent flowers of Iris Lortete and several of the Spanish Irises.

Messrs. W. & J. BROWN, Stamford, Peterborough, show Eremurus, Lilium tigrinum, Lilacs of sorts, Verbenas and some new Gaillardias, among which we note a big lot of Lady Rolleston (self-yellow) and The King, with broad crimson-yellow-edged flowers.

Messrs. HOGG & ROBERTSON exhibit Ixias in quantity; Desdemona, Hogarth, Vulcan and Cottage Maid are among those well represented.

FIG. 18.—OXALIS ENNEAPHYLLA VAR. ROSEA.
(Award of Merit. See p. xvi. of first Supplement).

Messrs. JAS. COCKER & SONS, Aberdeen, show wonderful plants of Anemone sulphurea, all splendidly flowered. Trollius Mrs. J. Hadden (a good bronze), T. Aberdonian, T. asiaticus and a big lot of Gentiana acaulis distinguished this collection, and two baskets of the true Aquilegia Stuartii well flowered.

Messrs. HUBERT & Co., Guernsey, have a group of bulbous plants and flowers. Ixias, Watsonias, and the early-flowering Gladiolus make a good display. Spanish Irises, Ranunculus and Anemones are also largely shown.

Messrs. CARTER, PAGE & Co., 52, London Wall, E.C., have a big collection of annuals nicely grown and staged; Violas form a margin to the group, and the two ends are filled with zonal Pelargoniums and Dahlias: a bright and showy exhibit.

DR. WATT, Morelands Duns, N.B., exhibits a fine group of Primulas. P. obconica in pink and white colourings are well grown. Several quaint double Primroses are on view, also

FIG. 19.—MILTONIA JULES HYE DE CROM.
(First-class Certificate. See p. xxi.)

a number of showy species and varieties. P. deflexa, P. mascaroides, P. Forrestii, P. germinifolia Winteri (a very pretty species), and a curious green Primrose.

Mr. WALTER T. WARE, Bath, exhibits his Tulip Inglescombe Yellow, a fine soft-yellow flower, and very strong.

Messrs. G. GIBSON & Co., Bedale, have a bank of hardy flowers. Papavers, Aquilegias and the various Brooms are shown in a cut state.

THE LISSADELL HARDY PLANT NURSERY, Sligo, exhibit grandly-grown Primula "Lissadell hybrid," a lovely vermilion-tinted flower; P. Bulleyana, P. pulverulenta, P. sikkimensis, P. Poissonii, P. Veitchii and P. Cockburniana.

Mr. JAS. HARRISS, Blackpill Nurseries, Swansea, has a group of St. Brigid Anemones in quantity. The blooms are of good form and very double, and represent a good strain of this popular flower.

Mr. WM. SYDENHAM, Melbourne, Derbyshire, makes a good show of 100 kinds of Violas.

THE CHADWICK MEMORIAL SCHOOL, Carlisle, show Tulips, Lilies and various herbaceous flowers.

H. J. ELWES, Esq., Colesborne, contributes fine plants of Oxalis adenophylla from the Andes of Peru, Deinanthe cœrulea from Western China, a species of Rhodostachys, and a fine plant of Convolvulus Cneorum.

Messrs. BEES, LTD., Liverpool, exhibit new plants, including Iris Bulleyana, a species close to I. graminea; I. Forrestii, yellow-flowered and promising; Roscœa canthoides; Dracocephalum bullatum, dull blue flowers in dense cymes; Veronica pyrolæformis; and Salvia multirrhiza, all from China.

Mr. JOHN E. KNIGHT, Wolverhampton, shows Stocks, notably, Pink Beauty and Queen Alexandra.

Messrs. GEO. JACKMAN & SONS, Woking, exhabit Aquilegias, Delphinium Persimmon, D. King of Delphiniums, Cypripedium spectabile and C. pubescens, Liliums, Verbascums and Pyrethrums being a showy and atractive group.

Mr. G. REUTHE, Fox Hill Nursery, Keston, arranged a beautiful group at the corner of a tent. His best plants were Azalea rosæflora, A. amœna splendens, A. amœna Hexe, all magnificently flowered. Cut trusses of Rhododendron Falconeri, showy plants of Crinodendron Hookeri, trusses of Embothryium coccineum,

masses of Rhododendron Roylei, R. triflorum, Irises, Ranunculus, and Anemones, tall spikes of Eremurus, and a collection of rare flowering shrubs made up a fine exhibit.

Messrs. GUNN & SONS, Olton, Birmingham, showed excellent Phloxes, noteworthy being Selma, Elizabeth Campbell, Frau von Lassberg, Mrs. Oliver, and varieties of Phlox suffruticosa.

The Rev. A. T. BOSCAWEN, Ludgvan, Cornwall, exhibited several varieties of Leptospermum scoparium. The variety Chapmanii has large, ruby-red flowers, var. Nichollii intense-ruby flowers, thickly covering the twiggy growths (awarded *Gardeners' Chronicle* Cup), var. Boscawenii has large, white flowers, with vermilion centres and elegantly droop-

Mr. L. R. RUSSELL, Richmond Nurseries, Surrey, was awarded a gold medal for an imposing group of Caladiums, Dracæna Victoria, Anthurium crystallinum, many Codiæums (Crotons), Palms and other stove plants. A row of dwarf plants of Euonymus radicans variegata well illustrates the decorative value of this warm greenhouse shrub. There were many good varieties of Caladium, including Richard Hoffmann, which has leaves so transparent that ordinary printed letters may be read through them; and Mrs. Tomlinson, a delicately beautiful variety, with crumpled red and green leaves.

ALOCASIAS AND AROIDS.—Mr. L. R. RUSSELL, Richmond, Surrey, won the 1st prize for a collection of Alocasias, including good plants of A. and Lord Napier Nectarines, Hale's Early and Amsden Peaches, Early Rivers Cherries, Royal Sovereign and Waterloo Strawberries, Universal Melon, Brown Turkey Figs, and Muscat of Alexandria Grapes.

In the two following classes, namely, that for a collection of nine dishes of fruit, and for a table of 12 dishes of dessert fruits, decorated with plants and flowers, his Majesty the KING, Frogmore Gardens, Windsor (gr. Mr. Mackellar), won leading honours, namely, Messrs. G. Bunyard & Co.'s Silver Cup and a Large Gold Medal. The fruits were of uniform excellence throughout, and in the table class Orchids and Asparagus were most tastefully employed. It may be mentioned here that Mr. Edward Harriss,

FIG. 20.—GROUP OF NEW CHINESE TREES AND SHRUBS EXHIBITED BY THE HON. VICARY GIBBS.
(See p. xix.)

ing habit (see Awards). These plants are likely to prove hardy in the warmer counties of Britain, with the help and protection of a south wall.

MISCELLANEOUS.

In the class for 100 plants of Streptocarpus, Messrs. J. PEED & SONS, West Norwood, showed well-grown plants bearing goodly quantities of flowers of decided shades of colour. 2nd, the Hon. JOHN WARD, Chilton Lodge, Hungerford.

Messrs. PEED & SONS also won the 1st prize in the class for 50 Gloxinias.

There was no 1st prize awarded in the class for 25 Gloxinias. The 2nd prize was awarded to the collection from Mr. H. B. BRANDT, Capenor, Nutfield.

The 1st prize for two Bananas was awarded to Sir WALPOLE GREENWELL, Marden Park, Surrey, who showed a couple of fine examples of the Chinese Banana. The fruiting specimen was said to be bearing 233 "fingers."

The best specimen plant in Class 26 was Medinilla magnifica, shown by Messrs. CHAS. TURNER, Slough; 2nd, Messrs. J. CYPHER & SON; 3rd, Mr. W. A. MANDA.

argyrea and A. argentea. The exhibit filled a space of 100 square feet.

FRUIT.

COMPETITIVE CLASSES.

COLLECTIONS OF FRUIT.

Much interest was aroused in the three classes for collections of fruits when it was known that his Majesty KING GEORGE (gr. Mr. Mackellar), the Duke of WESTMINSTER (gr. Mr. N. F. Barnes), and the Marquis of SALISBURY (gr. Mr. Prime) were competitors. The Eaton Hall collection won the 1st prize in Class 349, for twelve dishes. Conspicuous dishes were:—Grapes: Madresfield Court, Muscat of Alexandria, and Black Hamburgh; Lord Napier and Early Rivers Nectarines (very fine and well coloured), Royal George Peaches, Transparent Gage Plums, and Lady Sudeley Apples. Asparagus and Lilies, with a few other flowers, were employed in this exhibit with good effect. The Marquis of SALISBURY was awarded the 2nd prize (a Gold Medal) for handsome, well-ripened fruits, arranged with Codiæum (Croton) and Cyperus foliage, and Japanese Maple leaves on the table. The finest fruits were Early Rivers

who contributes the articles in these columns on the cultivation of fruits under glass, is the fruit foreman at Windsor, and may be congratulated on the excellence of the hothouse fruits exhibited. The Duke of WESTMINSTER, the Marquis of SALISBURY, and WINGFIELD DIGBY, Esq., followed in the two classes with meritorious examples of the leading fruits. Notable dishes in the Windsor exhibits were Black Hamburgh and Foster's Seedling Grapes, Melons, Cherries, Nectarines, Peaches, Plums, and Figs.

GRAPES.

Eight classes were allotted to Grapes, but the competition was not keen, and the exhibits were somewhat disappointing, especially as regards the white varieties, in several of the stands. The black varieties were also, in many instances, deficient both in size and colour of berry; but this defect is exactly what might be expected, for it is rare that Grapes are seen at exhibitions in May anywhere near the standard of average productions from British gardeners.

Lady WANTAGE, Lockinge Park, Berkshire (gr. Mr. W. Fyfe), was awarded the Gold Medal and £7, which constituted the leading prize, in the class for 12 bunches, not more than three

bunches of any one variety. Four varieties were shown, and though the bunches were not large, they were compact, and the berries were well coloured, especially of Madresfield Court and Black Hamburgh; but Foster's Seedling was also good, and it was pleasant to see ripe samples of Buckland's Sweetwater, instead of the green Muscat of Alexandria, which appeared in several other classes.

In the class for one bunch of black and one of white Grapes, the Marquis of SALISBURY was placed 1st, winning a Silver Cup for Black Hamburgh and Muscat of Alexandria; and he was followed by H. W. PERKINS, Esq., Greenford, Harrow, who had Foster's Seedling in place of the last-named variety, the same two varieties being shown by Sir W. GREENWELL, Marden Park, Caterham, who was awarded the 3rd prize.

From Bestwood Lodge, Arnold, came the finest two bunches of Black Hamburgh, compact, and of excellent colour, well winning the large Silver-gilt Medal awarded by the judges.

The 2nd prize, also a Silver Cup, was awarded to the Duke of WESTMINSTER, Eaton Hall, Chester (gr. Mr. Barnes), who had Marchioness, Hero of Lockinge, Sutton's Seedling, and Countess in admirable condition; but the general effect was not so good, as all the fruits were yellow-skinned.

C. F. RAPHAEL, Esq., Potter's Park, Shenley, was awarded a large Silver-gilt Medal as the 3rd prize, for a handsome lot of fruits, superbly netted, amongst which Royal Jubilee, Hero of Lockinge, and Eureka were especially conspicuous.

Only three prizes were named in the schedule, but the judges awarded a fourth—a Silver Medal—to the HORTICULTURAL COLLEGE, Swanley (principal Miss F. R. Wilkinson), for a most praiseworthy collection, comprising Emerald Gem, Elmcroft Beauty, Superlative, Perfection, Hero of Lockinge, and Sutton's Scarlet. Several critical visitors thought this exhibit should have had a higher position in the class, and, regarded simply from an effective point of view, the

FIG. 21.—FIRST PRIZE COLLECTION OF FRUIT EXHIBITED BY HIS MAJESTY THE KING IN CLASS 351.

(See p. xxvi.)

The other prizes were adjudged to exhibits from Eaton Hall and Greenford, of average merit.

MELONS.—It has been sometimes said that the popularity of Melons as a garden fruit is declining, but the evidence is quite against that view. Since the 1866 International, considerably over 100 varieties have been certificated by the Royal Horticultural Society; in fact, the only fruit which surpasses the Melon in the number so honoured is the Apple. In the show at Chelsea, Melons were very conspicuous, and the five classes provided were well filled with exhibits of high merit; in fact, no part of the fruit section was so represented in point of numbers, competitions, and quality. Apparently, however, the latter character had to be judged without tasting, for, except in one class, we did not observe that the fruits had been cut. General appearance and the ripeness had been accepted as the guiding points.

The class for 24 Melons, in not fewer than 6 varieties, and no more than 4 fruits of any one variety, constituted a large display alone, as there were four exhibits, and the 96 specimens shown were of remarkably uniform merit. The 1st prize (Silver Cup) collection came from the Hon. J. WARD, Chilton Lodge, Hungerford (gr. Mr. Chas. Beckett), and comprised even, handsome fruits of Superlative, Hero of Lockinge, Countess, Barnet Hall Favourite, Royal Jubilee, and Ringleader, and seldom have these fine varieties been better represented on the exhibition table.

opinion seemed to be justified. The SWANLEY COLLEGE growers, however, vindicated themselves in the three following classes for two varieties, one scarlet-flesh and one green-flesh Melon; they won the three premier honours (a Silver-gilt Medal in each instance), the varieties being Superlative and Emerald Gem, in first-rate form. In the class for scarlet-flesh varieties, Mr. C. H. BECKETT was 2nd, showing Sutton's Scarlet; WINGFIELD DIGBY, Esq., Sherborne Castle, was 3rd in both classes.

For one fruit of Melon of white flesh, H. J. THORNHILL, Esq., Diddington Hall, Huntingdon, won the 1st prize with Hero of Lockinge; 2nd, Mr. C. H. BECKETT, for the same variety; 3rd, the SWANLEY HORTICULTURAL COLLEGE.

OTHER FRUITS.

PEACHES AND NECTARINES.—Four classes were devoted to these fruits, and the examples shown were very fine, but the number was restricted, and in some of the classes there was no competition. Peaches and Nectarines are now so widely grown under glass, and such excellent early varieties are at command, it is surprising that there were not more exhibitors, although the date was somewhat early. The chief class was for three dishes of Peaches and three of Nectarines, and the only exhibitor, the Duke of PORTLAND, Welbeck Abbey (gr. Mr. J. Gibson), won the leading prize—a silver cup—for handsome fruits of Hale's Early, Duke of York, and Alexander Peaches, with Early Rivers, Lord Napier and Cardinal Nectarines, superb in both size and colour. In two other classes for these fruits the same exhibitor won a 1st and a 2nd prize, the Duke of St. ALBANS and the Hon. J. WARD also securing awards with good fruits of the above-named varieties.

CHERRIES.—In the class for two varieties of Cherries, the Duke of PORTLAND was awarded a Silver-gilt Medal as the 1st prize, showing large, handsome examples of Bigarreau de Mezel and Early Rivers. The former variety is not generally grown in England, but is said to have been known on the Continent since the early years of the past century, and to have been noted for the large size of its early fruits.

STRAWBERRIES.—The Marquis of SALISBURY was awarded the Silver Cup as a 1st prize for nine varieties of Strawberries, comprising excellent fruits of Utility, Monarch, Reward, Bedford Champion, The Bedford Leader, Royal Sovereign, Waterloo and British Queen. It is interesting to note that all with the exception of the last two have been raised by Messrs. Laxton Bros., and only the last one was known at the time of the 1866 International Show.

In other classes Royal Sovereign was shown in capital condition by the Earl of LYTTON, Knebworth, Hertfordshire, the Marquis of SALISBURY and Mr. J. ADAMS, Lewes.

PLUMS AND FIGS.—These fruits were shown by few exhibitors in the competitive classes, but the Duke of WESTMINSTER and the Marquis of SALISBURY had fair examples, with which they won premier prizes.

NON-COMPETITIVE EXHIBITS OF FRUIT.

Of the several non-competitive collections of fruit, the palm must be given to the huge exhibit from the gardens of Mr. LEOPOLD DE ROTHSCHILD, Gunnersbury House, Acton (gr. Mr. J. Hudson, V.M.H.). The collection embraces several hundreds of fruit trees in pots, and occupies a quarter of an acre. The arrangement is in a long oblong form, the two sides being faced by picked fruits, flowers, Ferns, and a broad margin of the variegated Ophiopogon. In the centre is a broad walk, 10 feet wide, arched over with vines growing in pots. Numerous well-fruited plants of Sunrise and Golden Nugget Tomatos furnish desired colour. The Grapes were of the varieties Black Hamburgh, Royal Muscadine, and the Strawberry. There are 12 varieties of Cherries, the finest being Early Rivers, Elton, Governor Wood (see fig. 22), Florence and May Duke, although others are good also. Nectarines include Lord Napier,

Early Rivers, and Cardinal. Good Peaches are seen in the varieties Duchess of Cornwall, Duke of York, and Peregrine. Plums are represented by Early Transparent Gage (see fig. 26), Jefferson, Early Rivers, Kirk's, and others. The best

FIG. 22.—POT-TREE OF CHERRY GOVERNOR WOOD EXHIBITED BY MR. LEOPOLD DE ROTHSCHILD.

Figs are Pingo de Mel, Bourjassotte Grise, and Negro Largo. There are four varieties of Melons, trained erect, the varieties being Eminence, Bountiful, Ringleader, and Sutton's Scarlet. The Loganberry and the Newberry were included, as also were Oranges and Royal Sovereign and Alpine Strawberries.

Messrs. JAMES VEITCH & SONS, Chelsea, have in the large tent a group of 75 well-grown and fruited trees, including Peaches Duke of York, Hale's Early, Amsden June, and Peregrine; Nectarines, Cardinal, Lord Napier, Early Rivers, and Précoce de Cronsels; Plums, Jefferson, Early Transparent, Gage, and Denniston's Superb; Cherries in variety; Figs; and a very ornamental, small-fruiting Orange (see fig. 27), that was very attractive. The group is arranged in large oval form, and exhibits superior culture. This firm has, in the open ground, a large group of trees and bushes trained in diverse forms.

Messrs. LAXTON BROS., Bedford, exhibit a semicircular group surrounding a central mound. The mound is covered with Strawberries in pots, and there are several other mounds of these fruits. The rich colouring of the fruits attracts the eye, and makes this group an exceedingly effective one. As a background are arranged fruit trees, chiefly Peaches and Nectarines, faced by Cherries, Currants, and Gooseberries in great numbers. Dwarf bushes of the Laxtonberry, a hybrid between the Loganberry and the Raspberry, are included. The Strawberries included a new variety named King George V (see fig. 23), said to be an improved Royal Sovereign; The Queen, red-scarlet; Laxton's Main Crop, and others.

Messrs. STORRIE & STORRIE, Dundee, have a collection of fruit trees in pots as well as numerous flowering plants. There are a few Peaches, Pears, Apples, Cherries, White, Red, and Black Currants, and Gooseberries.

Messrs. GEO. BUNYARD & Co., Maidstone, have a surprisingly good collection of nearly 80 dishes of Apples that have been wonderfully well kept. When it is remembered that the fruits have been gathered for a period of eight months, their firm, plump, fresh condition naturally excites admiration. Smart's Prince Arthur, Calville de Feu, Sandringham, Blue Pearmain, Norfolk Beefing, Alfriston, Calville Malingre, and Cox's Orange Pippin are all shown well.

Messrs. RIVERS & SON, Sawbridgeworth, had two handsome groups of fruit trees which secured premier honours. Apples, Pears and Plums were represented by grandly-grown, vigorous trees, bearing ample crops of fruits, but the especial interest of the collection was provided by the Peaches and Nectarines, of which the Sawbridgeworth firm has raised so many fine varieties of improved characters. Nectarine Cardinal and Peach Kestrel were conspicuous for the number of large, handsome fruits the trees bore. The new Nectarine (101 seedling) was also notable for its large, richly-coloured fruits. Amongst Cherries, Guigne Annonay was in excellent form, and this fine, black Cherry, which is in the front rank for early forcing in pots, as it ripens even earlier than its handsome companion. Early Rivers is rapidly taking a place amongst general favourites. The other group from Messrs. RIVERS was composed entirely of Oranges and other Citrus fruits, in tubs and pots, which have long been a speciality at Sawbridgeworth, and a fine exhibit was staged at the great show in 1866. The Egg Orange and Maltese Blood varieties were well shown, but we missed that high-quality Orange Sustain, which has become a favourite where these plants are grown.

The KING'S ACRE NURSERY Co., Hereford, won the judges' high commendation and honours for an extensive group of fruit trees in pots, the specimens showing, in their condition and fruitfulness, the close attention this firm pays to that branch of their business. Peaches, Nectarines and Plums were well represented, amongst the latter being Denniston's Superb, Belgian Purple, and Jefferson, in capital form and well fruited. Pears also were good, notably Pitmaston Duchess; while Cherry Noble, Currant Comet, Gooseberry Mayduke, and Fig White Ischia were conspicuous amongst many other meritorious varieties of their respective kinds.

In the Belgian section the NATIONAL COMMITTEE FOR THE PROGRESS OF HORTICULTURE contributed, through their London representative, Mr. E. Pollett, 40, Finsbury Square, E.C., a large collection of fruits, including Peaches, Nectarines, Strawberries, and Grapes, most of which had been entered in the schedule classes, but were not staged with the other exhibits. Several cups and medals were awarded to these interesting exhibits, which were of considerable merit, especially the Amsden Peaches, which are great favourites on the Continent, and the Gros Doré and Louis Vilmorin Grapes, which are scarcely known in Britain under these names. The former has a medium-size, roundish berry, nearly golden when ripe, the bunches small, but compact.

Preserved fruits constituted a large and excellent display, Messrs. WILLIAM POUPART, LTD., Fernleigh Orchards, Twickenham, staging an imposing exhibit of fruits in glass jars with metal tops, which were greatly admired. (Gold Medal.) From the Elsenham Orchards (the property of Sir WALTER GILBEY), in Essex, Mr. H. Cotterell brought a series of fine samples of preserved fruits and jams. Mrs. MILLER, of Marlow-on-Thames, also exhibited a group of choice preserves, including fruit jellies, marmalades, chutneys, pickles, and Raspberry vinegar.

VEGETABLES.

The weather has not been generally favourable to vegetable-culture, either in or out of doors, since the beginning of the year, and there were not a few who feared that this section of the show would be more or less of a failure. This, however, did not prove to be the case. On the contrary, the display as a whole was magnificent, and in certain features it has certainly never been surpassed at any exhibition in this country. Generally speaking, there were not many exhibitors in each class, and few of those who were represented ventured to stage anything except produce which was of first-class quality for the time of the year.

The MEMPES FRUIT FARM, LTD., Purley, Reading, secured the premier Award in the market growers' class for a collection of vegetables effectively arranged in a space not exceeding 100 square feet. Cucumbers and Tomatos were much the finest features of the group, but all the numerous kinds represented were excellent.

The THATCHAM FRUIT AND FLOWER FARM, Newbury, won the 1st prize in the class for a collection arranged in a space not exceeding 50 square feet. The vegetables comprised practically every kind that could be produced at this season, and, with one or two exceptions, the quality of

FIG. 23.—STRAWBERRY KING GEORGE V. EXHIBITED BY MESSRS. LAXTON BROS.

the produce was highly meritorious. The arrangement, too, was very good.

In a class for a group arranged on a space not exceeding 100 square feet, restricted to amateur growers, the Hon. VICARY GIBBS, Aldenham House, Elstree, Herts. (gr. Mr. Edwin Beckett), showed in remarkable form. It makes no manner of difference to this renowned grower whether a show is early or late in the year or the class is difficult or easy to fill, his produce is sure to be ready and fit to meet the keenest competition. The present group included Egg Plants, Vegetable Marrows, Tomatos, Cucumbers, Peas, Beans, Carrots, Turnips, Lettuces, Asparagus, Mushrooms, Potatos, Radishes, Mustard, Cress, Chilian Beet and Spinach.

Mr. C. P. RAPHAEL, Porter's Park, Shenley, Hertfordshire (gr. Mr. Grubb), was placed 1st in the class half the size of the preceding one; the collection was good throughout.

The Duke of PORTLAND, Welbeck Abbey, Worksop (gr. Mr. Jas. Gibson), won splendidly in the class for a collection of 25 dishes, not fewer than 12 kinds nor more than two dishes of any kind. All the produce was of outstanding merit and the arrangement was such as to secure the utmost value of each specimen in the general effect. There were Turnips Early Red Milan and White Gem; Lettuces Sutton's Ideal and Golden Ball; Potatos Sutton's Ideal and Supreme; Cauliflowers White Queen and Magnum Bonum; Vegetable Marrows Perfection and Moore's Cream; Cabbage Flower of Spring; Carrots Sutton's Favourite and Champion Scarlet Horn; Onion Sutton's White Leviathan; Tomatos Sutton's Eclipse and Perfection; Beans Mammoth Long Pod, Selected Canadian Wonder and Princess of Wales; Peas Early Giant and Selected Duke of Albany; Cucumbers Sutton's King George and Delicacy; and Beet Sutton's Globe. The 2nd prize was won by Mr. A. B. H. GOLDSCHMIDT, Cavenham Park, Mildenhall.

Mr. W. H. MYERS, Swanmore Park, Bishop's Waltham, Hampshire (gr. Mr. G. Ellwood), won handsomely in the classes for 12 distinct kinds. The vegetables represented comprised Vegetable Marrow Sutton's Table Dainty, Broccoli Late Queen, Turnip Early Red Milan, Asparagus, Bean Sutton's Princess of Wales, Potato Sutton's Ideal, Carrot New Red Intermediate, Tomato Sutton's Perfection, Cucumber Sutton's Delicacy, Pea Sutton's Centenary, and Cabbage Flower of Spring. The Marquis of NORTHAMPTON, Castle Ashby (gr. Mr. Searle), was placed 2nd, and Mr. H. T. TATHAM, Elstree, 3rd.

Mr. E. BIGGS, Fleet House, Weymouth, was awarded the 1st prize for a collection of nine distinct kinds, including Cauliflower Sutton's First Crop, Carrot Sutton's Early Gem, Potato May Queen, Vegetable Marrow Sutton's Cream, Tomato Sutton's Satisfaction, Asparagus, Bean Sutton's Masterpiece, and Cucumber Sutton's Pride of the Market; 2nd Mr. W. B. M. BIRD.

In a smaller class for a collection of six kinds Mr. A. J. BIGGE was placed in the leading position. The dishes comprised Cauliflower Magnum Bonum, Asparagus Sutton's Favourite, Pea Sutton's Pioneer, Tomato Sutton's Best of All, and Potato May Queen. Mr. H. BRADSHAW, The Grange, Steeple Aston, was a good second.

The 1st prizes in the classes for a collection of Cabbages and a collection of Lettuces respectively were won by the Hon. VICARY GIBBS with magnificent exhibits in each instance.

For a collection of Cucumbers, four varieties, three fruits of each, Mr. S. MORTIMER, Swiss Nursery, Rowledge, Farnham, was easily first, the varieties being Cynosure, Mascot, Matchless

FIG. 24.—EXHIBIT OF ORCHARD-HOUSE FRUIT EXHIBITED BY MR. LEOPOLD DE ROTHSCHILD.

(See p. xxvii.)

FIG. 25.—MESSRS. SUTTON AND SONS' EXHIBIT OF FLOWERING PLANTS.

(See p. xi of first Supplement.)

and Unrivalled; 2nd Mr. W. E. ALSEN, Denhead Nurseries, Waterlooville, Hants.

Mr. A. J. THORNHILL was awarded the 1st prize in the class for two varieties of Cucumbers with Lockie's Perfection and Sutton's King George. For one variety Baron E. VON ERNSTHAUSEN, Manor House, Ditton Hill, was 1st with Veitch's Sensation, and the CHADWICK MEMORIAL SCHOOL, Carlisle, 2nd.

Mrs. DENISON, Little Gaddesden, Berkhamsted, Hertfordshire (gr. Mr. A. G. Gentle),

FIG. 26.—PLUM EARLY TRANSPARENT GAGE EXHIBITED BY MR. LEOPOLD DE ROTHSCHILD.

was a splendid 1st for a collection of six dishes of Potatos, distinct. The varieties were Royalty, Factor, Purple Eyes, Long Keeper, Snowball, and King of the Russets. The Countess COWPER, Panshanger, Hertfordshire (gr. Mr. R. Staward), was 2nd. For three dishes, distinct, Mr. W. H. MYERS was 1st with Early Rose, Gladiator and Harbinger, Mr. J. H. VIRGO, Walton-in-Gordons, Somerset, gaining the 2nd prize.

The Hon. VICARY GIBBS won easily in the class for a collection of salads arranged in a space not exceeding 9 square feet. The vegetables included Lettuces, Cucumbers, Tomatos, Endive, Chicory, Mustard, Cress, Onions, Radishes, and Nasturtiums. For a smaller collection of salads Mr. H. T. TATHAM, Kendal House, Elstree, was an excellent 1st, Mr. W. H. MYERS being 2nd.

The premier position in the class for six dishes of Tomatos, distinct, six fruits of each, was secured by the Duke of PORTLAND, who staged Sutton's Eclipse, Best of All, Perfection, Winter Beauty, Princess of Wales and Satisfaction; 2nd, The Marquis of SALISBURY, Hatfield House, Hatfield (gr. Mr. H. Prime). For three varieties Mr. W. H. MYERS was 1st with Sutton's A1, Best of All and Perfection, followed by Mr. A. J. THORNHILL, Diddington Hall, Huntingdon.

Mr. A. J. HARWOOD, St. Peter's Nurseries, Colchester, was placed 1st for 100 heads of Asparagus with superb produce, whilst Mr. J. GARLAND, Broadclyst, Exeter, excelled in the class for 50 heads.

In the class for a dish of 50 dwarf French Beans Mr. W. H. MYERS showed finest, having beautiful pods of Sutton's Tender and True; Mr. A. J. BIGGE, Frome, Whitfield, Dorchester, was 2nd. For 30 Broad Beans Mr. W. B. M. BIRD, Eartham House, Chichester, was 1st with Button's Giant Seville; 2nd, Mrs. CURZON, Watermouth Castle, with Sutton's Mammoth Longpod.

Mr. E. BIGGS showed best in the class for six Beetroots with Sutton's Globe, Mr. W. H. MYERS following with the same variety. For three Broccoli or Cauliflowers, two varieties, the Duke of PORTLAND was 1st with Cauliflowers White Queen and Magnum Bonum. For three varieties of Carrots, 18 of each, the Duke of PORTLAND led with Sutton's Champion Scarlet Horn, New Red Intermediate and Favourite; 2nd, Mr. W. H. MYERS. The 1st and 2nd prizes for a dish of Mushrooms went respectively to Messrs. TIGWELL & SONS, Greenford, Middlesex, and J. PITHER, LTD., Uxbridge, Middlesex.

In the class for 50 pods of Peas, one variety, Mr. W. H. MYERS was placed 1st with Alderman and Mr. J. W. MANN, St. Andrews, Guernsey, 2nd with Duke of Albany. For one variety of Potato the Duke of PORTLAND was awarded the 1st prize with Balmoral Castle, and Mrs. DENISON the 2nd with King Edward VII. Mr. W. H. MYERS was 1st for three varieties of Radishes, showing Long Rose, Long White and Long Scarlet. The 2nd position was taken by the Marquis of RIPON, Coombe Court, Kingston Hill.

Mr. E. J. PRESTON, Kelsey Hall, Beckenham, was a splendid 1st for three varieties of Rhubarb with The Sutton, Champagne and Hobday's Giant; 2nd Mr. T. DAWES, Syderstone, King's Lynn. Mr. W. H. MYERS excelled in the class for three varieties of Turnips with Sutton's Early Red Milan, Early White Milan and White Gem. For three varieties of Vegetable Marrows the Duke of PORTLAND was 1st easily.

NON-COMPETITIVE EXHIBITS OF VEGETABLES.

It is not fair to make comparisons between the produce grown in our own and other countries, but the "French" gardeners of Great Britain have no cause to question their ability to grow vegetables as good as any cultivated in the most celebrated French gardens.

Messrs. J. CARTER & Co., Raynes Park, arranged an excellent collection of vegetables. There were Potatos Long Keeper, Lady Llewelyn, Sharpe's Victor, and King Edward VII; Tomato Carter's Sunrise; Cucumber Improved Telegraph; Lettuces Giant White and Holborn Standard; Vegetable Marrows Moore's Cream and Green Pen-y-byd; Cauliflower Carter's Forerunner; Pea Early Morn; Turnips Little Marvel and Red Top Milan; Carrots Improved Early Horn and Golden Ball; Radish White Olive; French Bean Carter's Perpetual; and Cabbage Early Heartwell.

Messrs. JAS. VEITCH & SONS, LTD., Royal Exotic Nursery, Chelsea, had a very smart table of excellent vegetables. Among the conspicuous features were Lettuces Cold Frame, Acquisition, and All the Year Round; Peas Thomas Laxton, Gradus and Veitch's Victor; Tomatos Ham Green Favourite, Coronation and Victoria; Turnip Paris Market; Cauliflowers Veitch's Early Forcing and All the Year Round; Asparagus, Mushrooms, Vegetable Marrows, Celery, Radishes, and Carrots.

The HALLIFORD FRENCH GARDEN, Shepperton, Middlesex, staged a small but extremely meritorious group of kitchen-garden produce, comprising Radishes, Turnips, Lettuces, Peas, Cauliflowers, Cucumbers, and Carrots.

Mr. S. MORTIMER, Swiss Nursery, Rowledge, Farnham, exhibited several magnificent Cucumbers, in the raising and culture of which he has made for himself an enviable reputation. The varieties were Matchless, Improved Telegraph, Lord Roberts, Lockie's Perfection, Cynosure, and Unrivalled.

The NETHERLANDS HORTICULTURAL FEDERATION staged, in the marquee allocated to Holland, a

collection of vegetables of considerable variety and interest. The kinds most conspicuous were: Rhubarb, Tomatos, Peas, Beans, Leeks, Carrots, Cucumbers, Cauliflowers, Herbs, Lettuces, Radishes, Turnips, and Beetroot.

In the tent set apart for the produce of Belgium, the BELGIAN NATIONAL COMMITTEE staged Carrots, Radishes, Onions, Cauliflowers, Turnips, Parsnips, Asparagus, Parsley, Cucumbers, Spinach, Rhubarb, Celery and Mushrooms.

France, too, showed many vegetables. Messrs. VILMORIN, ANDRIEUX & Co., Paris, exhibited Asparagus, Cauliflowers, Carrots, Cucumbers, Potatos, Globe Artichokes, Endive, Radishes, Cabbages, Leeks, Beetroot, Capsicums, Peas, Egg Plants, Lettuces, and Celery. Messrs. ROBERT & VIDAL, Hyères, displayed immense Globe Artichokes and Tomatos. The SYNDICAT DES MARAICHERS, Paris, showed Cucumbers, Cauliflowers, Lettuces, Endive, Carrots, Onions, Turnips, Radishes, Cabbages, and Tomatos. M. COMPOINT contributed large and small green Asparagus, and the SOCIÉTÉ D'HORTICULTURE DE PYRENEES ORIENTALES sent Lettuces, Peas, Beans, Potatos, Tomatos, Vegetable Marrows, Carrots, Globe Artichokes, and Cabbages. Asparagus was the conspicuous feature of the small exhibit from the PRODUCTIONS DE CAVAILLON.

FIG. 27.—CITRUS JAPONICA FRUCTU ELLIPTICUS; A SMALL-FRUITED ORANGE EXHIBITED BY MESSRS. JAMES VEITCH AND SONS.

(See p. xxviii.)

AUSTRALIAN EXHIBITS.

The tent devoted to the Australian exhibits contained many interesting features illustrative of the various fruits cultivated in the several states of that continent. Many different kinds of fruit flourish in the Commonwealth. In the tropical regions the Mango and Pineapple develop to perfection, whilst commoner fruits as Apples, Pears, Strawberries, Raspberries, and Currants bear enormous crops of delicious fruits in the colder parts of the temperate zone. In the middle of the tent were arranged many jars of fruits and honey. There is light and dark ran honey labelled as "gums"—White Gum, York Gum, and Liquid Gum—as well as crystallised honey. The poles of the tent are hidden by glass-framed cases of wheat; and various cereals are laid out at one end of the tent, radiating in the manner in which the sun's rays are depicted by some artists. The most important exhibit in the Australian tent was contributed by New South Wales. For the most part the exhibit was composed of Apples in the boxes in which they travelled from the other side of the globe, and these boxes are not especially packed or selected, but are simply a portion of an ordinary consignment. The quality of the fruit was excellent, the Apples being clean and free from bruises.

Mr. E. K. WOLSTERHOLME, of Bathurst, showed many splendid examples; the fruits of the well-known Apple Jonathan were of even size and brilliantly coloured. Stone Apple (otherwise Loddington Seedling), a variety which is favoured in some of our English gardens, and might, with profit, be largely grown, has also withstood the long journey well, and, although not so showy as the rosy-cheeked varieties, takes the eye well. The fruits of Rome Beauty, a good keeping variety, are very large, and are nicely flushed with red.

From Messrs. SIM BROS., Capertee, who are the only exhibitors of Pears, came the varieties McIntosh Red and Esopus Spitzenberg; the fruits of McIntosh Red have splendid rich colour, and the latter fruits are conical, the Russet being flushed with red. The Pears from Messrs. SIM, Capertee, were Broompark and P. Barry; the latter is a delicious fruit. In shape just that which is meant by Pear-shaped, and the skin is brown. The firm flesh is exceedingly pleasant-eating. Mr. HEWSON, Penrose, contributed the rosy-cheeked Rymer Apple, Five Crown, Yellow and Red, and that good keeping variety Granny Smith. The managers of the Government Farm at Glen Innes displayed the Stone Apple, Jonathan, and Munro Favourite; the last is named a splendid large yellow Apple, delicately flushed with pink. Messrs. DEVONPORT BROS., Salong, contributed well towards making this colonial exhibit so successful, and mention must also be made of Messrs. H. S. WARK, Bathurst, and R. G. EDGELL, Bathurst, both of whom are the consignees of the varieties mentioned, and are evidently skilled growers. Besides the boxes of Apples and Pears, there were many jars of preserved fruits, such as Pineapple, Peach, Cherry, Apricot, and small red Tomatos, whilst shallow boxes contained dried Pears, Apples (slices), Sultanas, Almonds, and Currants. The Western Australian contribution contained many Grapes and a goodly number of boxes of Apples and Pears. As in the exhibit from New South Wales, some of the fruits were shown in the boxes in which they had travelled overseas, but the arrangement was not quite so attractive. Of the varieties of Grapes, Santo Paulo was the best; this has a very long berry, quite finger-like in shape, and the flavour is first-rate. Doradilla is another white Grape, and Flame Tokay and Purple Cornichon were the best of the black-skinned varieties. The most attractive Apples were Esopus Spitzenberg, Rome Beauty, Stansil, and Jonathan. There were also several boxes of Glou Morceau Pear.

The most prominent growers in Western Australia, whose fruit was on show, are the ILLAWARRA ORCHARD CO.; Mr. W. REID, Bridgtown; Mr. BOOTH, Mount Barker; and Mr. W. SOUNESS.

South Australia and Victoria both exhibited much smaller collections. From the first-named state Glou Morceau and Reinette de Canada Pears were the most prominent feature, whilst Victoria relied for attraction chiefly on Jonathan Apple and various bottled fruits. The Loquat and Blackberries had kept well, but the slices of Rhubarb had lost colour and appeared a trifle stringy.

CANADA.

The Dominion of Canada had a tent, arranged under the direction of Col. Hutchinson, Crystal Palace, representative of the fruits of different parts of Canada. This tent was also attractively arranged, the centre being occupied by garden chairs, so that visitors could rest and admire the fruits at their leisure. Massive, opulent looking, brass rails were fixed in front of the side stages and the large groups at the far end of the test. This latter feature was backed by tall Douglas Firs, various Pines, Silver Firs, Spruces, and a row of Acer Negundo variegata. In front of these young trees large numbers of Northern Spy Apple, which have been in cold storage for the past eight months, were arranged in large

mounds. Many glass jars, some of them of large dimensions, contained fruiting branches of Peach, Grape, Pear, Apple, Plum, and Red Currant, which the preservative liquid has kept fresh and in apparently good condition. As well as the large quantity of Northern Spy Apple, the varieties Ben Davies and Spitzbergen were well represented.

SOME OF THE FUNCTIONS.

BANQUET OFFERED BY THE ROYAL HORTICULTURAL SOCIETY.

The President and Council of the Royal Horticultural Society gave a banquet in their Hall, Vincent Square, on May 24, in honour of the foreign guests. The tables were beautifully decorated. Sir Trevor Lawrence presided. The company numbered about 500 and included Prince Alexander Mestshersky, Lord Desborough, Sir Geo. Holford, Sir Edward Durning Lawrence, Bart., Sir Thos. Elliott, K.C.B., Permanent Secretary, Board of Agriculture, &c.

After the loyal toasts, Baron von Ernsthausen proposed "The Royal International Horticultural Exhibition."

Mr. J. Gurney Fowler was to have responded, but in consequence of fatigue due to his heavy labours the honour fell to Mr. Veitch, who paid a tribute to all who had taken part in the exhibition.

Sir Trevor Lawrence proposed "Our Guests from Abroad."

Monsieur A. Truffaut, Président de la Société Nat. d'Hort. de France, responded.

Herr Ernst Krelage, President Dutch Bulb Growers' Society, gave "The Royal Horticultural Society."

Sir Jeremiah Colman, Bart., Treasurer of the Exhibition, responded. He said he was honoured by being asked to speak for the 13,000 members of that distinguished Society, and he expressed the great pleasure of all at meeting so many distinguished friends from all parts of the world.

Monsieur M. de Vilmorin proposed "The President."

Sir Trevor Lawrence responded, and again said how delighted he was to meet everyone present.

During dinner, Monsieur Tivader Nachez performed some violin solos.

DINNER AT GUNNERSBURY.

At the invitation of Mr. Leopold de Rothschild, a large party visited Gunnersbury Park on Thursday evening, May 23, where they were warmly welcomed by their host. Before dinner, the company explored the beautiful grounds, for which they expressed their greatest admiration. The dinner tables were decorated with red, white and pink Carnations, and baskets of home-grown fruit. After dinner Mr. Leopold de Rothschild renewed his welcome to the visitors, whose health he proposed on behalf of the management of the Royal International Horticultural Exhibition, and thanked them for their kindness in coming over to England. There were speeches of congratulation from various members of the company, including Count Georges de Germiny, Herr Krelage (Haarlem), Mr. Beetson (Australia), Dr. K. Schechner (Vienna), Monsieur Philip de Vilmorin, Sir J. Colman, Sir G. Holford, and Professor Valvassori (Florence).

VISIT TO BURFORD.

A large number of guests travelled by special train from Victoria Station on Saturday to Box Hill on a visit to Sir Trevor Lawrence at his beautiful seat at Burford Bridge. The weather was delightful, and the company greatly enjoyed visiting various parts of the lovely estate, especially the magnificent plant houses. They were entertained to luncheon on the lawn, where they received a hearty welcome from the President of the Royal Horticultural Society.

Prince Alexander Mestshersky returned thanks for the company. He and the other visitors, he said, were charmed with this land, and he quoted the Russian poet, Chimekoff, who, referring to England, described it as:

> "Isle of riches, isle of wonder,
> Fairest thou beneath the skies;
> Brightest gem of emerald verdure
> Studding ocean's azure zone."

Music was discoursed during the afternoon by the band of Pipers of the Queen's Own Cameron Highlanders. After tea the company returned by special train to London.

VISIT TO WINDSOR.

A large party of the guests travelled to Windsor on Friday, when they greatly enjoyed their visit to the Castle and other places of interest. The extraordinarily good appearance of the Frogmore Gardens excited the greatest admiration, the guests from abroad being particularly impressed by the general excellence of the crops. His Majesty's gardener, Mr. A. MacKellar, received hearty congratulations.

VISIT TO FRIAR PARK.

On Sunday, the 26th ult., a large party visited Friar Park, Henley-on-Thames, by invitation of Sir Frank and Lady Crisp. The visitors were entertained at luncheon and tea, and were conducted over the famous garden and rockeries. A trip on the river was a pleasant feature of the day's proceedings.

NATIONAL ROSE SOCIETY'S CONFERENCE AND DINNER.

In order to mark the occasion of the exhibition a special conference on Roses, followed by a dinner, was held by the National Rose Society in the Holborn Restaurant on May 20. At the conference the President, Rev. J. H. Pemberton, delivered an address on the "Modern Development of the Rose," particulars of which will be published in a subsequent issue. The dinner was attended by many foreign visitors, including, amongst the French visitors, Messrs. Pernet-Ducher, A. Soupert, René Barbier, J. B. Croibier, M. de Vilmorin, Léon Chenault, Georges Truffaut, P. Guillot, and P. Lambert; Mr. E. G. Hill, of Richmond, U.S.A., and Jonkheer J. L. Moek. Amongst English members were noticed Messrs. George Paul, V.M.H., Edward Mawley, V.M.H., J. Brown, the Mayor of Colchester, H. R. Darlington, G. L. Paul, George Gordon, John Green, Dr. A. K. Williams, and many others.

The President proposed the toast of "Our Brother Rosarians from Beyond the Seas." He referred to the world-wide influence of the Rose, which is a favourite flower in all parts of the globe. Messrs. Pernet-Ducher, E. G. Hill, and P. Lambert replied.

The secretary, Mr. Edward Mawley, responded on behalf of the National Rose Society, and briefly outlined the work the Society had accomplished from the commencement.

PERPETUAL-FLOWERING CARNATION SOCIETY'S RECEPTION AND DINNER.

A reception and dinner given by the Perpetual-flowering Carnation Society, in honour of the foreign visitors attending the Exhibition took place at the Holborn Restaurant on Thursday, May 23. Mr. J. S. Brunton occupied the chair. The visitors included Messrs. E. G. Hill, C. H. Totty, R. Vincent, Jun. (President of the Society of American Florists), and Mrs. Vincent, Mr. and Mrs. Bonnot, M. Dupuy, H. Bunyard, Mr. and Mrs. Tracey, the Dailledouze Bros., Nicholson, Paton, Evans, Papworth, Petersen, and W. A. Manda, U.S.A., Messrs. Baer and Moll, Germany; Peter Crovetto, Italy; and Messieurs Maumene and Richon, France.

The chairman, in proposing the toast of "Our Guests," referred to the hospitality which had been shown to English visitors to the United States in 1911, for which many of the guests present were in no small degree responsible. Mr. Richard Vincent, Jun., responded.

"The Perpetual-flowering Carnation Society" was proposed by Mr. E. G. Hill, who is well known on both sides of the Atlantic. Mr. W. H. Page, Chairman of the Floral Committee, responded.

Several friends from the Continent made short speeches concerning the Carnation in their own countries and stated their impressions of the International Exhibition.

FIG. 28.—FIRST PRIZE COLLECTION OF VEGETABLES SHOWN BY THE HON. VICARY GIBBS.

(See p. xxix.)

THIRD

EXHIBITION SUPPLEMENT

THE ROYAL INTERNATIONAL HORTICULTURAL EXHIBITION, 1912.

The large tent and others as seen from the roof of the Royal Hospital.

THE EXHIBITION.

ROSES.

In the open class for 100 Roses of the five varieties of the dwarf Polyantha section, 20 plants of each, in pots, the latter not exceeding 6 inches in diameter, the 1st prize was won by Messrs. PAUL & SON, Cheshunt, who arranged a triangular group to which the white Jeanne d'Arc formed an admirable centrepiece. Orleans Rose formed a back line, and Maman Levavasseur and Mme. N. Levavasseur were grouped on either side of the variety Mrs. Cutbush. 2nd, Mr. CHAS. TURNER, Slough. In this exhibit, around a centrepiece of the white Katharine Zeimet, were arranged Aennchen Müller, Jessie, Mrs. Cutbush, and Mme. N. Levavasseur. Pteris major was used as a ground-work. 3rd, Messrs. FRANK CANT & Co., Braiswick Rose Gardens, Colchester, who formed a centrepiece of Mrs. W. Cutbush and bands of Jessie and Orleans Rose. Aschenbrödel and Eugènie Lamesch were placed around the centrepiece.

There was a good competition in the class for a group of pot Roses and cut blooms combined in a space not exceeding 100 square feet. The 1st prize was won by Messrs. FRANK CANT & Co., Braiswick Rose Gardens, Colchester, who arranged a background of pink and white ramblers, that set off well the large vases of Lady Roberts (magnificent flowers), Mme. Abel Chatenay, and Theresa. The yellow Scotch Rose gave a patch of bright yellow, and a number of special blooms were shown in exhibition boxes. 2nd, Messrs. G. MOUNT & SONS, Canterbury, who staged immense blooms of Frau Karl Druschki, Mrs. John Laing, and Ulrich Brunner. Lyon Rose, Juliet, Mme. Ravary, and Lady Hillingdon were also very fine, but the group lacked the variety and lightness of Messrs. Frank Cant's exhibit. 3rd, Messrs. W. & J. BROWN, Peterborough. Very fine columns of Kaiserin Augusta Victoria, Frau Karl Druschki, Caroline Testout, and Captain Hayward were staged, backed by taller masses of American Pillar and other ramblers, but the arrangement was a little formal. 4th, Mr. HUGH DICKSON, Belfast. The features of this group were the fine stands of Lady Pirrie, Souvenir de Gustave Prat, Marquise de Sinety, and Niphetos.

For a group of single-flowering Roses, in pots or as cut flowers, or both, in a space not exceeding 25 square feet, Messrs. FRANK CANT & Co., Braiswick Rose Gardens, Colchester, were the only competitors, and were awarded the 1st prize. A centrepiece was made by the Wichuraiana Paradise, Austrian Yellow, and Austrian Copper, whilst Delight and American Pillar gave fine patches of colour. The other varieties included Sinica Anemone, Seashells, Coquina, Princess Ena, Horace (Scotch), Paul's Carmine Pillar and Nuttaliana (very free-flowering).

NURSERYMEN'S CLASSES.

For 36 Roses, distinct, in pots not exceeding 8 inches diameter, the 1st prize was won by Messrs. G. MOUNT & SONS, Canterbury. A central band of ramblers was surrounded by pots of new Hybrid Teas.

For 36 standard Roses, distinct, weeping varieties excluded, Mr. CHAS. TURNER, Slough, excelled. He arranged the plants above a groundwork of Pteris tremula. The best Roses were Souvenir de Pierre Notting, Mrs. Ed. Mawley, Dean Hole, Lady Ashtown, White Maman Cochet, Mme. Jules Grolez, Lyon Rose, Mrs. John Laing, Frau Karl Druschki, and Caroline Testout. Niphetos, one of the few surviving Roses from the show of 1866, was also included and all were finely flowered. 2nd, Messrs. PAUL & SON, Cheshunt, who arranged their group in a triangular space. The blooms were unsupported, and plants of Lieut. Chauré, Frau Karl Druschki, Arthur R. Goodwin. Juliet, and La France, were flowering with freedom.

FIG. 29.—GROUP OF ROSES EXHIBITED BY MESSRS. GEORGE MOUNT AND SON.
(Awarded the Rose Bowl presented by Messrs. Clay and Son.)

For 12 Roses, distinct, put into commerce since January 1, 1909, as evidenced by the National Rose Society's lists, climbers excluded, the 1st prize was won by Messrs. W. PAUL & SON, Waltham Cross, with Viscountess Enfield, Margaret, Lady Pirrie, Lieut. Chauré, Souvenir de Gustave Prat, Lady Hillingdon, Mrs. Foley Hobbs, Ethel Malcolm, Frances C. Seton, Georg Arends, Mrs. Hubert Taylor, and Portia. 2nd, Messrs. FRANK CANT & Co., Braiswick Rose Gardens, Colchester, with good plants of Mrs. Wakefield. Christie Miller. Lieut. Chauré. Mrs. Foley Hobbs, My Maryland, and Nita Weldon.

In the similar smaller class for six climbing Roses, distinct, sent out since January 1, 1909, as evidenced by the National Rose Society's lists, Messrs. G. PAUL & SON, Cheshunt, were placed 1st for the varieties Dorothy Dennison, Christian Curle, Excelsa, Lyon Rambler, Shower of Gold, and American Pillar. 2nd, Messrs. W. PAUL & SON, Waltham Cross, with Philadelphia Rambler, Aviator Bleriot, Eisenach, Kalmia, Lyon Rambler, and Goldfinch.

For nine standard Roses, distinct, of weeping varieties, the 1st prize was awarded to Messrs. PAUL & SON, Cheshunt, for Lady Gay, Hiawatha, Eisenach, Minnehaha, American Pillar, White Dorothy, Casimir Moullé, Lady Godwin, and Excelsa. 2nd, Messrs. W. PAUL & SON, Waltham Cross, with Tausendschon, Mrs. F. W. Flight, Lady Gay, Hiawatha, Waltham Bride, Dorothy Perkins, Crimson Rambler, Lyon Rambler, and Goldfinch.

In the class for 10 Roses, distinct, climbers excluded, the 1st prize was awarded to Mr. CHAS. TURNER, Slough, for a group of very freely-flowered plants in large pots. The varieties comprised Mrs. John Laing, Ulrich Brunner, Mrs. Sharman Crawford, Captain Hayward, Frau Karl Druschki, Edith Turner, Marie Baumann, La France, Mrs. Ed. , Mawley and Souvenir de Pierre Notting. Messrs.

G. PAUL & SON, Cheshunt, showed Hybrid Teas in pots, which formed the basis of the group. Mme. E. Metz, J. B. Clark, Souvenir de P. Notting, Frau Karl Druschki, Mrs. H. Brocklebank, Rev. A. Cheales, John Ruskin, and Cherry Ripe, Victor Verdier, H.P. and Aschenbrödel (polyantha), completed the group.

AMATEURS' CLASSES.

The King's Acre Nurseries' Cup was offered in the class for a group of Roses, arranged in a space not exceeding 50 square feet, and was won by J. BROWN, Esq., J.P., Longfield, Heaton Mersey, near Manchester (gr. Mr. J. W. Smith). Blush Rambler and Hiawatha formed a background to a group composed mainly of Hybrid Teas. The best of the latter included Molly Sharman Crawford, Beauté de Lyon and Lyon Rose. Dot plants of Crimson Rambler and Dorothy Perkins relieved the flatness of the pot plants.

In a class for 20 Roses, distinct, in pots not exceeding 8 inches in diameter, the 1st prize was awarded to J. BROWN, Esq., J.P., Longfield, Heaton Mersey, near Manchester (gr. Mr. J. W. Smith). The best flowers were of Mrs. J. Laing, Catherine Mermet, White Killarney, Avoca, Capt. Hayward, W. R. Smith, and Blush Rambler. Some of the blooms were a little past their best condition, but the colours were good considering that the plants had been grown within four miles of Manchester Town Hall. 2nd, G. A. HAMMOND, Esq., Cambrian House, Burgess Hill, who included some excellent blooms of Gloire de Chédane Guinoisseau, Mme. Jules Gravereaux, Dean Hole, Mrs. E. Mawley, Lady Alice Stanley, and Molly Sharman Crawford.

The 1st prize in the class open to amateurs for 10 Roses, climbers excluded, was won by G. A. HAMMOND, Esq., Cambrian House, Burgess Hill, who showed Lyon Rose, Mrs. John Laing, Mildred Grant, White Maman Cochet, W. Shean Bessie Brown, Molly S. Crawford, Vacherot, Mrs. Cocker, and Mrs. E. Mawley.

For six Roses, distinct, climbers excluded, the 1st prize was awarded H. R. DARLINGTON, Esq., Park House, Potters Bar. He showed the dwarf Polyanthas Mrs. W. H. Cutbush, Orleans, and Jessie, together with Suzanne de Rodocanachi, Ulrich Brunner, and Marchioness of Downshire.

For six Roses, distinct, of Pillar varieties, the only exhibitor, J. BROWN, Esq., Longfield, Heaton Mersey, near Manchester (gr. Mr. J. W. Smith), was placed 1st. He showed Crimson Rambler, Dorothy Perkins, Helene, Shower of Gold, White Dorothy, and Hiawatha.

FIG. 30.—ROSE MME. EDOUARD HERRIOT.

(Awarded the *Daily Mail* Gold Cup. See "New Roses," p. xxxviii.)

CUT BLOOMS.

OPEN CLASSES.—For six Roses of any variety sent out since January 1, 1909, as evidenced by the National Rose Society's lists, Messrs. A. DICKSON & SONS were successful; 2nd, Messrs. G. MOUNT & SONS; and 3rd, Messrs. B. R. CANT & SONS.

For a group of Roses in a space not exceeding 50 square feet, Messrs. FRANK CANT & Co., Colchester, received the 1st award.

NURSERYMEN'S CLASSES.—For a group of Roses in a space not exceeding 100 square feet, the 1st prize was won by Messrs. G. MOUNT & SONS, Canterbury, who staged the only exhibit with flowers of great size and splendid stems. The variety Mrs. John Laing formed a beautiful centre-piece, from which the corner pieces of Frau Karl Druschki and Ulrich Brunner were separated by columns of Mme. Melanie Soupert. Juliet, Mrs. Geo. Shawyer, Killarney, White Killarney, and other varieties, with a box of new unnamed seedlings.

For 36 Roses, in not fewer than 24 distinct varieties, the 1st prize was secured by Messrs. G. MOUNT & SONS; 2nd, Messrs. FRANK CANT & Co.

There was a good competition in the class for 12 varieties of Roses, nine blooms of each, with long stalks, displayed in vases or long glasses. The feature of the class was the number of new Roses included. The blooms were in magnificent condition. The 1st award was made to Messrs. GEO. MOUNT & SONS, Canterbury, who staged blooms of great size and magnificent condition. The varieties were Mrs. John Laing, Lyon Rose, Mme. M. Soupert, Mme. Abel Chatenay, Mrs. E. Alford, Frau Karl Druschki, Liberty, Edith Malcolm, Caroline Testout, White Killarney, Margaret, and Ulrich Brunner. 2nd, Messrs. A. DICKSON & SONS, LTD., Newtownards, who showed Mrs. Foley Hobbs, Alex. Hill Gray, Countess of Derby, Lady Greenall, Mabel Drew, Mrs. Cornwallis West, Carine, Duchess of Westminster, Lady M. Boscawen, Mrs. Geo. Preston, C. W. Cowan, and Frau Karl Druschki. The weakness of this exhibit was the absence of reds, with the exception of the variety C. W. Cowan. 3rd, Messrs. FRANK CANT & Co., Colchester.

For 12 varieties of Roses, three flowers of each, Messrs. GEO. MOUNT & SONS were successful. Messrs. G. & W. H. BURCH were placed 2nd, and Messrs. F. CANT & Co. 3rd.

AMATEURS' CLASSES.—For six varieties of Roses, five flowers of each, with long stalks, in vases or long glasses, the 1st prize was secured by Mr. DARLINGTON, the only exhibitor, who showed Kaiserin Augusta Victoria, My Maryland, Richmond, Countess of Derby, Mrs. John Laing, and Mme. Abel Chatenay.

In the class for 18 Roses, not fewer than 12 distinct varieties, Mrs. ALEXANDER excelled; 2nd, F. H. FIELDGATE, Esq.

For six varieties of Roses, three blooms of each sort, the 1st prize was won by Mr. DARLINGTON, who staged the only exhibit. His varieties were Caroline Testout, Lyon Rose, Frau Karl Druschki, Bridesmaid, Etoile de France, and Richmond.

In No. 6 tent Messrs. R. J. BARNES & SON, Wyche Road, Malvern, exhibited many excellent Rambler Roses growing in relatively small pots. The well-grown examples of these decorative Roses were smothered with fresh blooms, which attracted many admirers.

GROUPS AND PLANTS IN POTS OR TUBS.

For a group of Roses, in a space not exceeding 500 square feet, the 1st prize was awarded to Messrs. PAUL & SONS, Cheshunt, who arranged a rich collection of Teas and Hybrid Teas with Ramblers and Weeping Standards rising above them to a height of from 8 to 12 feet. Edward Mawley, Geo. C. Waud, Mildred Grant, Queen of Spain, Mrs. Jardine, Freda, Mme. Segond Weber, Magnolia, Mrs. H. Stevens were finely represented. American Pillar and Climbing Frau Karl Druschki were also exceptionally good. 2nd, Messrs. W. PAUL & SON, Waltham Cross, who arranged a triangular group, of which the best features were the Ramblers, tall Weeping Standards and Hybrid Teas in pots. Beautiful specimens were shown of Paradise, Blush Rambler, White Tausendschön, American Pillar, Elsie, Milky Way and others. Hiawatha was trained around the pillars of the tent. Hybrid Teas, grouped to form an undulating groundwork, included Geo.

C. Waud, Margaret, Mrs. Chas. Hunter, Lady Downe, Nerissa, Jean Note and others. Mme. Abel Chatenay, Le Progrès and Cynthia were shown as standards, whilst Edward VII, Jessie, and Aennchen Muller represented the dwarf Polyanthas. 3rd, Mr. CHAS. TURNER, Slough, who showed a very effective circular group.

NON-COMPETITIVE EXHIBITS.

Messrs. HOBBIES, LTD., Dereham, arranged a group of decorative Roses in pots in a style that has become characteristic of the firm in recent shows. A central Rose temple was reached from the west by a pergola, and from north and south by arches covered with Wichuraiana ramblers. Excelsa, Coquina, and American Pillar were conspicuous varieties. Tall budded standard weeping Roses were a feature of the group, the white Waltham Bride looking especially well. Blooms on standards of Juliet gave wonderful colouring. The group also included four new dwarf Polyantha Roses raised at Dereham and not yet distributed, Baby elegans (single), Dewdrop (pink), Bonnybelle (cream), and Meadow Sweet (salmon-flesh), together with Pink Pearl, a new rambler derived from Una and Irish Elegance.

Messrs. WM. CUTBUSH & SON, Highgate, arranged a delightful triangular group of Polyantha Roses. From a carpet of dwarfs were raised trophies of Mrs. Flight, Dorothy Perkins, Hiawatha, Tausendschön, and other ramblers. American Pillar was especially good. The carpeting Roses included the new Baby Tausendschön (with the colour of its namesake, but with smaller and more cup-shaped blooms and neat distinct foliage), Orleans Rose, Joan of Arc (white), Jessie (bright crimson), and White Pet. Newport Fairy was also shown: this new Rose has a bright pink single flower with a distinctive white eye.

Messrs. STUART LOW & Co., Bush Hill Park, arranged a collection of rambler and dwarf Polyantha Roses in a triangular bed. Hiawatha, as a standard, was unrivalled for freedom and brilliance. Newport Fairy was also exceptionally free and pretty. Other good varieties were Excelsa, Lady Gay, Dorothy Perkins, and Mrs. Flight, while the best of the dwarf Polyanthas were White Pet, Eileen Low, Mrs. Taft, and Mrs. Cutbush.

Messrs. D. PRIOR & SON, Colchester, arranged a group of Roses on about 250 square feet of tabling. The background was formed by Wichuraiana ramblers with a few standards of Lady Gay. In the foreground were placed boxes of exhibition blooms of Frau Karl Druschki and Mrs. John Laing, the outline broken by pots and baskets of Polyanthas, including Jeanne d'Arc and Jessie; vases of Mme. Abel Chatenay and columns of Frau Karl Druschki and Bridesmaid.

Messrs. BEN. R. CANT & SONS, Colchester, staged a group occupying 200 square feet on narrow tabling with excellent effect. In the centre a lovely piece of Rose du Barri, with stands of their other new varieties, Elizabeth, Colcestria, and Sunbeam, had a background of Blush Rambler, and side columns of Austrian Copper and Yellow. Claudius, Lady Reay and St. Helena were shown finely in bamboo stands. The remainder of the group was composed mainly of sprays and plants of American Pillar, Hiawatha, Graf Zeppelin, Lady Godiva, and other ramblers.

Messrs. GEO. MOUNT & SONS, Canterbury, arranged an irregular four-sided group of Roses covering about 750 square feet. The centre was filled with ramblers, many of them finely coloured, but the feature of the group was the size and quality of the specimen cut blooms, which were arranged boldly massed in bamboo stands. Frau Karl Druschki, Mrs. John Laing, Lady Hillingdon, and Mrs. Geo. Shawyer were the best. The groundwork was filled with vases of cut blooms, and a finish to the group was given by an edging of Flower of Fairfield.

The formal Rose garden (see fig. 31), designed and made by Mr. R. C. NOTCUTT, Nurseryman, Woodbridge, with its old-world sundial in the centre of the paved paths, attracted the admiration of the visitors who prefer a quiet, restful garden. The Roses were mostly disposed in four sunken beds, which were carpeted with Pansies and Violas. On each side of the cross-walk there were weeping standards of Dorothy Perkins, Hiawatha and other varieties. The irregularly-paved paths were planted with sweet-smelling little herbs, which, alas! were soon worn away by the thousands of visitors who traversed them.

Monsieur A. NONIN, 20, Avenue de Paris, Chatillons sur Bagnôt, France, showed a collection of new Wichuraiana ramblers. Caroubier (a dazzling light crimson), and Mme. A. Nonin and Petit Louis (light pink) are a selection.

Messrs. MÜNCH & HAUFE, Leuben, Dresden, Germany, staged in a corner of the Belgian tent a small group of the new pink Frau Karl Druschki, with the large, full flowers of the type.

FIG. 31.—ROSE GARDEN ARRANGED BY MR. R. C. NOTCUTT.

CARNATIONS AND PINKS.

COMPETITIVE EXHIBITS.

For a group of Souvenir de la Malmaison Carnations arranged in a space not exceeding 150 square feet, in a class open to all, C. F. RAPHAEL, Esq., Potters Park, Shenley (gr. Mr. A. Grubb), received the 1st prize for an admirable exhibit of well-known varieties.

For a group of Perpetual Carnations, Malmaisons excluded, arranged in a space not exceeding 150 square feet, the 1st prize was won by Sir RANDOLF L. BAKER, Blandford (gr. Mr. A E. Usher), whose exhibit was effectively arranged; 2nd, Messrs. G. MOUNT & SONS, Canterbury.

Mr. CHARLES BLICK, Warren Nurseries, Hayes, showed the finest exhibit of 20 border varieties, in not fewer than 10 distinct sorts. It comprised fine blooms of John Ridd, Mrs. Penton, Virginia

and Renown, and (Picotees) Her Majesty and Margaret Lennox, both broad-edged flowers. 2nd, Mr. CHAS. TURNER, Slough.

For 12 Pinks, in not fewer than six varieties, the 1st prize was won by Mr. C. H. HERBERT, The Nurseries, Acocks Green, with the perpetual-flowering Pinks Progress, Bertha, Princess Christian, Fair Maiden, Princess Mary, Iona, Ida and Rosebud; a very clean, vigorous batch. 2nd, Mr. J. DOUGLAS, Edenside, Gt. Bookham, with flowers not so well timed. His best varieties included Simplicity, Jean Douglas, Ruby, Emperor, and White Queen.

In the open class for a group of cut Carnations of perpetual-flowering varieties, in a space not exceeding 100 square feet, the premier exhibit was staged by Mr. BERTEÈ E. BELL, Guernsey; 2nd, Messrs. ALLWOOD BROS., Haywards Heath; 3rd, Mr. C. F. WATERS, Balcombe.

Mr. A. F. DUTTON, Iver Nurseries, Buckingham, excelled in the open class for six varieties of perpetual-flowering Carnations, "Malmaisons" excluded, distinct, 50 flowers of each sort, displayed in six vases, arranged with any foliage. 2nd, CLURY NURSERIES.

In the class for 12 border Carnations and Picotees, undressed, distinct, three flowers of each, in 12 vases, the 1st prize was won by Mr. J. DOUGLAS, Edenside, Gt. Bookham, who showed flowers of large size and uniform excellence. Ten of the varieties had been raised by the firm. The selfs were Hercules (crimson), Elizabeth Shiffner (buff), Gros (yellow), Mrs. Henwood and Kate Nickleby (white), Jean Douglas and Miss Willmott (red), and Mrs. Robert Gordon (pink), John Ridd, Mrs. Penton, Virginia and Renown represented the fancies, and Her Majesty and Margaret Lennox the broad-edged Picotees. 2nd, Mr. C. BLICK, Warren Nurseries, Hayes, with flowers of fine form, but smaller and weak in yellows. His varieties were Black Douglas, King George, Lady Bury, Miss Willmott, Richard, Capt. Scott, Hermione, Donald McDonald, Her Majesty, Victory, Daisy Boston, and Thos. A'Beckett.

The foregoing classes were open to all competitors.

Messrs. GEO. MOUNT & SONS showed best in the class, open to nurserymen only, for a group of perpetual-flowering Carnations, arranged in a space not exceeding 50 square feet, with any suitable foliage. 2nd, Messrs. G. and W. H. BURCH, Peterborough.

In the amateurs' class for a group of perpetual-flowering Carnations, "Malmaisons" excluded, in a space not exceeding 25 square feet, any foliage, the 1st and 2nd prizes were awarded to Sir RANDOLF L. BAKER and Mr. J. S. BRUNTON, Westbourne Grove, Burnley, respectively.

NON-COMPETITIVE EXHIBITS.

Mr. LEOPOLD DE ROTHSCHILD, Ascott, Leighton Buzzard (gr. Mr. Jennings), showed one of the most telling groups in the show, although one of the simplest in design. A crescent of Statice profusa was relieved by five clusters of Souvenir de la Malmaison Carnations, of which the pink showed very finely against the rich violet of the Statice. Bold circular groups of such Carnations as Princess of Wales, Duchess of Westminster, and Old Blush Malmaison were surrounded by the Statice. The Carnations were exceedingly well-flowered, and the Statice bore masses of their violet flowers, making a very striking group. Isolepis gracilis was employed as an edging.

Messrs. STUART LOW & Co., Bush Hill Park, staged groups of "Malmaison" and perpetual-flowering Carnations. The former, arranged at a lower level, were in pots arranged simply but effectively against a background of Phœnix. The latter consisted of cut flowers in vases lightly arranged with Asparagus, Adiantum, and Nephrolepis. The best "Malmaisons" included Princess Juliana, Churchwarden, Princess of Wales, Baldwin and Lady Coventry. The perpetual-flowering varieties were best represented by Baroness de Brienen, particularly well shown, Lady Alington, Fairmount, Sunstar, Triumph, Cinnabar (scented), and Samuel Gratrix. The new Pinks, Gloriosa and Progress, were also shown.

Mr. C. ENGELMANN, Saffron Walden, made one of the most decorative exhibits of perpetual-flowering Carnations in a group of about 450 square feet in the large tent. A background of green silk showed to perfection vases, pillars and bouquets of the Rex. A central mass of the variety Electra (apricot) was splendid in an old bronzed Japanese basket. Glass vases of White Enchantress, Carola, Sunstar, Alma Ward, Triumph, &c., were also finely grouped. An interesting exhibit was the original plant of Carola, now eight years old.

Sir GEO. FAUDEL-PHILLIPS, Balls Park, Hertford, showed a tastefully-arranged group of "Malmaison" Carnations. The yellow Cecilia formed the centre with groups of the pale pink Blush and Princess of Wales on either side. The white Nell Gwynne was well shown with the richer reds of Carola, Lady Coventry and Churchwarden.

Mr. C. H. HERBERT, The Nurseries, Acock's Green, Warwick, showed a large and finely-flowered batch of the clove-scented Pink Progress. The colour is rosy-mauve, but its chief value is its perpetual-flowering habit. Some of the older plants were 6 feet high, and carried from 80 to 100 flowers.

Mr. J. DOUGLAS, Edenside, Gt. Bookham, showed a number of border Carnations and Pinks in vases. The varieties included Elizabeth Shiffner, Miss Willmott, Hercules as self, and many fine fancies.

Messieurs FORTIN & LAUMONNIERE staged a group of cut Carnations in the French section. The varieties included the yellow Canari and the purple Maroc, a novelty, but the blooms were past their best.

Monsieur VACHEROT, Boisy St. Leger, France, showed several large vases of perpetual-flowering Carnations. The flowers were unusually large and bore evidence of "Malmaison" parentage, but were scentless. Jupiter (red), Diane (flesh), and Perle Rose (pink) were the best, but the strain is to be obtained from seed.

FOREIGN SECTIONS.

Ample provision was made for foreign exhibitors, four spacious courts being reserved for them, besides a special tent for Japan. Though the exhibits were not very numerous, they were sufficient to give an international character to the exhibition, and added decidedly to the interest and attractiveness of the show. Beside Japan, the countries represented were Holland, France and Belgium.

FIG. 32.—VIEW IN THE TENT CONTAINING THE EXHIBITS FROM HOLLAND.

HOLLAND.

The Dutch section was the admiration of everyone, and formed one of the most artistic features in the whole exhibition. On entering one had to verify the fact that it was the Dutch section and not the French so Parisian was the effect in every detail. The arrangement was very simple, but characterised by that subtle touch that proclaims the artist skilled in the display of flowers for the best effect. Around the sides of the court was a white-painted arched trellis, garnished here and there with light sprays of Asparagus plumosus, and depending from each arch was a basket of Begonia Gloire de Lorraine flowering profusely.

In the centre was a raised daïs, on which were set at wide intervals huge gilded baskets of elegant form holding sheaves of Lilac. The colours were white (apparently Marie Le Gray) and purple (Souvenir de L. Späth and other beautiful varieties). Smaller baskets of similar shape contained tall flower shoots of Roses of various colours, whites, pinks, and crimsons, cut with

long stems, so as to display the blooms to the fullest advantage. There was no crowding of the baskets—each displayed in an exquisite way the flowers it contained. The exhibit was shown by the AALSMEER FLORISTS' ASSOCIATION.

Around the sides of the court were cut flowers, conspicuous amongst them being great sheaves of spikes of Eremurus robustus, E. Elwesii and E. himalaicus, and as a carpet were masses of different kinds of pink Spiræas, Irises and double Anemones of various shades of reds and crimsons. The season was apparently too late for Tulips and other early-flowering bulbs, or we should have seen more of the glories of the Dutch bulb farms.

In another part was a great array of uncommon species of Allium, with stems a yard high, with large drumstick-like heads of purple flowers. The more noteworthy of these were A. stipitatum, A. karataviense and A. Rosenbachianum, and never before had we seen the decorative value of these somewhat obscure species of Allium.

At one end of the court was a fine group of Azaleas from Messrs. KOSTER, beautifully arranged with an intermixture of purple-leaved Japanese Maples—a charming combination, as all the tones of the Azaleas harmonised so well with the Maple foliage. All the finest of the sinensis hybrids were included in the group. The new hybrids from A. occidentalis show a great advance; this later-flowering species will extend the flowering period.

At the other end of the court was a large array of vegetables arranged as a trophy. Huge pyramidal stacks of Cucumbers, Cauliflowers and smaller piles of all kinds of other vegetables of high quality afforded evidence that the Dutch grow to perfection vegetables as well as flowers.

FRANCE.

The French section, compared with the Dutch, was somewhat disappointing in its general effect, considering the charming arrangements one sees at the shows in Paris. There was a monotonous flatness about the whole scheme which could have easily been relieved by a few groups of tall plants. But notwithstanding this, it was bright, and contained much of interest. In the centre was a large group of many different and bright annuals, well grown and interesting, though lacking novelty. On either side was a large square mass of vegetables on the floor, one being from Messrs. VILMORIN, AUDRIEUX & Co., Paris, the other from the SYNDICATE DES MARACHIERS, Paris. Four corner groups comprised Roses, Carnations, Hydrangeas, Gerberas, which gave the brightness to the grouping, and around the sides were cut-flowers and stages of vegetables and fruits.

The individual arrangements were excellent in their way, but there was an absence of those exquisite artistic combinations of flowers which the French know so well how to create. Roses from M. PERNET-DUCHER, Lyons, contributed much to the attractiveness and interest of this section. They were all in pots, arranged as a large, low mass, and with the sorts grouped separately they lent themselves to inspection most conveniently. The collection comprised many of the new "Pernetiana" Roses for which this raiser of new Roses has made himself famous. These Hybrid Briar Roses will form a most valuable class of garden and exhibition Roses, not only as regards their subtle and distinct shades of colour, but also on account of their vigorous growth and floriferous tendency.

NEW ROSES.

Among the new Roses, the gem of the group was Mme. Edouard Herriot (see fig. 30). The colour is a deep salmon-pink, more apricot in tone than that of the Lyon Rose. The flowers are large, of good substance, and the growth vigorous. Mrs. George Beckwith is a novelty, somewhat similar to the older Beauté de Lyon, but with well-formed flowers of a rich canary-yellow. Constance is a splendid rich yellow, large in flower and vigorous in growth, finer than the Rayon d'Or of the same raiser, and of which there was a fine group.

In Sunburst we have a new Rose that excels Lady Hillingdon, to which it can best be compared, the flowers being of better form and the colour richer. A singular instance of how a Rose changes colour in various stages of growth is afforded by plants with flowers so much paler in colour that one would think it was a different Rose. These plants were stated to be the "first growths." Mme. Charles Lutand, which appears to be an improvement on Marquise de Sinety, is coppery-red, suffused with yellow. President Vignet is a deep crimson in the way of Richmond, but more vigorous, and from its growth is likely to be first-rate for massing. Another fine crimson is Lieut. Chauré, also a promising bedding variety with fine foliage.

The finest white variety was Souvenir de Gustave Prat, a Hybrid Tea of vigorous, erect growth and very floriferous—just the variety for bedding. Some flowers are white, some suffused with yellow.

Other notable varieties in the group were Cissie Easlea (white and yellow), Sir John Duncan (pale flesh tint), and Viscountess Enfield (coppery tint and dwarf).

The Polyantha Roses from MM. TURBAT ET GOUCHAULT, Orleans, included a few remarkably fine novelties that are sure to be valuable additions to garden Roses. The dwarf, bushy Yvonne Rabier reminds us of the old Mme. Plantier or Aimée Vibert, so white and profuse are the flowers. Mme. Jules Gouchault is a lovely deep pink colour, and the somewhat paler Maman Turbat are both first-rate varieties, and will be of great value in masses. The Pillar Roses in this section were not so remarkable, the new sorts being too much like Dorothy Perkins and Lady Gay, excepting Caroubier, which is like Hiawatha, but deeper and richer in colour. Petit Louis and Mons. A. Nonin are new sorts, but not very distinct from older kinds.

Hydrangea hortensis, one of the favourite flowers of the French, were shown splendidly, the plants being in 6-inch pots and about 2 feet high, with flower-heads a foot or more across. All the specimens exemplified perfection in culture. The colours ranged from the purest whites to delicate shades of pink to deep pink, and from very pale to the deepest blues. Among the blues the finest were Mme. Chautard, Vicomtesse de Vilbrage and Mme. A. Reverain. Of the pinks the best were Souvenir de Mme. Chautard and Mousseline (very pale pink), and the best white, Mdlle. Agnes Barillet.

The vegetable exhibits were on the whole very fine, particularly that shown by Messrs. VILMORIN, AUDRIEUX & Co., Paris.

Vegetables and herbs unfamiliar in English gardens were seen in all the collections and attracted the attention, while the mammoth

FIG. 33.—SWEET PEA DOBBIE'S TRUE LAVENDER.

(See p. xxiii. of Second Supplement.)

Asparagus and Globe Artichokes evoked surprise from visitors.

Fruits were not remarkable, except the Cherries, and were not comparable with English produce.

BELGIUM.

The section for Belgium, which may be considered the headquarters of Continental horticulture, was very disappointing, but owing to some mischance many intending exhibitors were prevented from contributing to their section. As it was, the court was poorly furnished with exhibits, there being only one group of greenhouse Azaleas, that particular class of spring flowers for which the Belgian growers are famous. Among the most noteworthy of the exhibits was a very fine group of seedling Adiantum farleyense from the nurseries of M. DRAPS, Brussels. These seedlings comprised some beautiful forms, differing more or less from the type; one named Glory of Moordrecht (illustrated in our issue for February 4, 1911, p. 73), represented by finely-grown plants 3 or 4 feet across, was the pick of the collection. The group was the more remarkable as seedlings of this Fern are so uncommon. This group showed well what a lovely Fern this is with its tinted fronds when so admirably grown.

A group of about a score of variegated Aspidistras from M. BOUDRY DRAPS, comprised of plants more than 3 feet high, with effective variegation, afforded an example of the results of high cultivation achieved by our Belgian friends.

Primula obconica appears to be receiving a great deal of attention in Belgium in the way of selection, as there was a large group of named varieties of this flower, ranging from the purest white through delicate shades of pinks and purples to the richest crimsons bordering on to scarlet. These formed a most attractive group, and standing out conspicuously was a double-flowered variety, which no doubt will be the forerunner of a race of doubles; but whether the doubling of the flowers of this beautiful Japanese Primrose is an advantage is doubtful. Another group of seedling varieties of Phlox canadensis and pilosa was also interesting, as it comprised all shades of colours of deep pinks and mauves, besides the more familiar tones in the variety Laphamii.

Bromeliads, for which the Ghent nurseries are famous, were represented only by a small group of Tillandsia splendens, with a few variations from the type.

Pteris Parkeri was noted as a robust though elegant greenhouse Fern, which may prove valuable for room decoration.

JAPAN.

The Japanese section, for which a special tent was provided, attracted many admiring visitors, for whom the weird little dwarfed trees have a fascination.

The chief exhibitors in this section were the YOKOHAMA NURSERY Co., Yokohama, who made a special display of dwarfed trees, which were sent to this country in excellent condition by the Canadian route, so as to shorten the period of transit. They constituted the finest display yet seen in this country, and comprised marvellous specimens of very old, pigmy trees; one particularly, of Thuya obtusa, stated to be 130 years old, and its thick, gnarled stems seem to justify its alleged age. All the kinds of trees that are subject to this dwarfing were represented, the chief being Pinus pentaphylla, P. parviflora and other Pines, Podocarpus, Oaks, Cherries, Cryptomeria, Larix leptolepis (very fine specimens), and Maples, which lend themselves to this treatment in a remarkable way. The tent was bright with flowering Japanese Lilies and Wistarias, the most remarkable among which was the white W. brachybotrys, which is apparently a variety of W. chinensis. The racemes are short, the flowers large and of snowy whiteness. W. multijuga and its white variety were well represented. The fantastically-trained Japanese Fern (Davallia Mariesii) was represented in all forms simulating animals, from monkeys, birds, turtles, fishes, to other quaint conceits that the Japanese love to fashion from the pliable rhizomes of this Fern.

The porcelain vases were scarcely less remarkable than the plants they hold, and some are beautiful in shape and colour

A feature was made of screens composed of Bamboo stems of varied and curious shapes, and there were poles of Bamboos over 20 feet high suitable for pergolas and tea houses.

The JAPANESE HORTICULTURAL SOCIETY had a good display of similar dwarf trees and samples of dried fruits, remarkable among which were dried Kaki fruits, which are very nice eating, like a mixture of Dates and Figs, a good addition to preserved dried fruits. This society also showed very fine photographs of Japanese gardens and scenery, which were much admired.

BRITISH MOSSES.

Lovers of these minute forms of vegetable life were especially pleased with the collection exhibited by Mr. HUGH DANTON, Beninghoe, Hertford. The 33 pans of growing mosses shown included some of the more interesting species and varieties. Torluta angustina, the narrow-leaved screw Moss, which grows on clay banks in shady places, was alongside T. subulata, which is very similar, but differs in that it has slightly broader leaves, and grows in sunny spots. T. muralis is common on all kinds of walls, and was here shown on rock chippings. The Sphagnum-moss, so necessary to Orchid growers, which thrives luxuriantly in many of the western counties of our islands, is rare in Hertfordshire, and even imported specimens show their aversion to the climate, for no matter how he may coax it, Mr. DANTON cannot induce the Sphagnum to grow robustly. Physcomitrium pyriforme bore numbers of its interesting capsules, which are so like tiny inverted Pears. Whilst this Pear-shaped Moss grows on the banks and ditches, the species affine flourishes on the bark of trees and has not been found on the ground. There were also healthy examples of Fumaria hygrometrica, which so frequently carpets the site of bonfires, and is interesting in that the stalk becomes erect on the approach of rain; Hypnum molluscum, which loves lime, stone, or chalk; Aulacomnion palustre, which but rarely produces spores, and is-

FIG. 34.—A CORNER OF AN OUT-DOOR EXHIBIT BY MESSRS. W. CUTBUSH AND SON.

(See p. xiv. of First Supplement.)

propagated by gemmæ (the buds which form on the tops of the shoots). In addition to his collection of Mosses, which deservedly received a Silver Medal Mr. DANTON exhibited a collection of wild flowers which had been cultivated in his garden for the purpose of supplying specimens for scholastic work.

HORTICULTURAL SUNDRIES.

The sundries section included exhibits of garden implements, glass-houses, frames, heating appliances, garden furniture, pergolas, arches, summer-houses, sprayers, hoses, washes, cutlery, and the thousand and one other appurtenances which find a use in horticulture. The exhibits were very numerous, and a large tent was devoted to them; whilst plant-houses, frames, boilers, and numerous other things which could be placed in the open with safety were accommodated in the grounds.

STRUCTURES, BOILERS, &c.

Messrs. WM. DUNCAN TUCKER & SONS, LTD., 27, Cannon Street, London, had on view a big series of glass structures for every purpose. A very elaborate ornamental conservatory, with verandah frontage, Orchid houses fitted with the latest appliances, plant houses, garden lights and pits, boilers and boiler fittings, garden treillage, tubs for shrubs, roller lath blinds, and various details of glass-houses were all well exhibited.

Messrs. JAS. CRISPIN & SONS, Nelson Street, Bristol, exhibited Robin Hood boilers of various powers, the "Mona" boiler, Beeston radiators, a series of hand-lights, lightly yet strongly constructed, a system of staging with iron standards and stays, and garden frames and lights, fitted with devices for detachment for storage. The span-roof frame has iron girders and bars fixed therein for keeping the lights in position when lifted.

THE TWELVE HOURS STOVE SYNDICATE, 258, Vauxhall Bridge Road, Westminster showed their patent greenhouse boilers, of powers ranging from 40 feet to 700 feet of piping. These boilers are designed for long burning without attention, and are specially serviceable for isolated glass buildings. This firm showed the old Loughborough boiler, provided with a new feed-funnel to ensure continued feed of fuel without attention, and a new draught door by which combustion can be regulated.

Messrs THE THREE C.'S Co., 67. Dale Street, Liverpool showed the Chase continuous clôche, a device by which twin sheets of glass are suspended and held in position by wire contrivances. The glass is of uniform height, and forms continuation clôches without woodwork or attachment. The device is very simple, and will prove of service in intensive and amateur gardening.

Messrs. HÖNTSCH & Co., Niedersedlitz, Dresden, exhibited models of greenhouses of their own design, and a new boiler with water-way fire-bars, sides and top, the fire being directed to fire-heating surfaces before it escapes. The design is simple, very cleanly, and the range

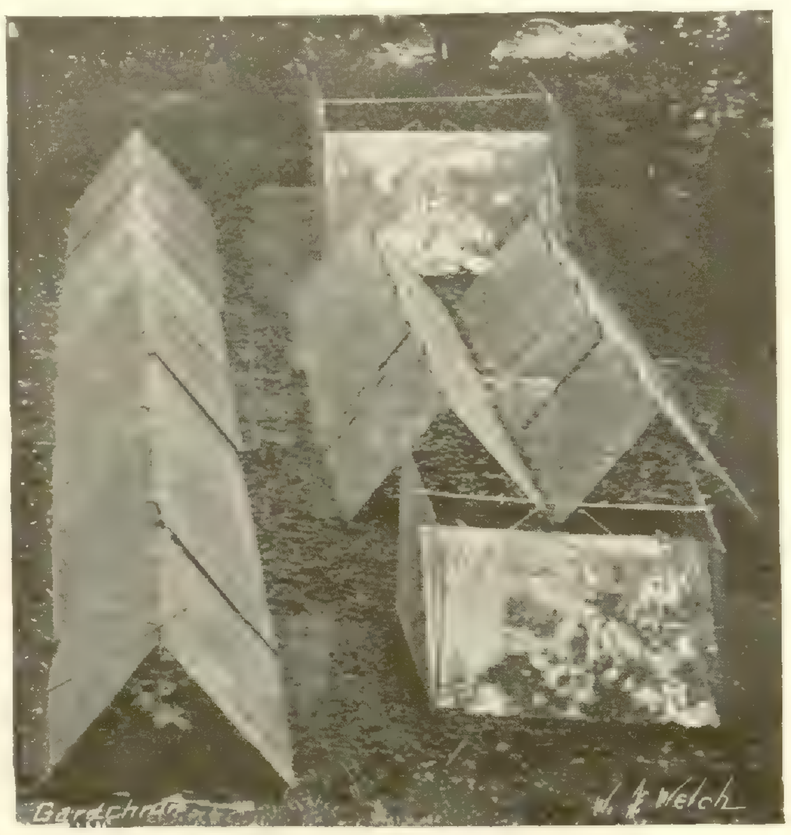


FIG. 36.—THE "CHASE" CONTINUOUS CLÔCHE.

of power is from 400 feet of piping to 8,000 feet. A system of glass-house construction with reinforced roofs was also on show.

Messrs. SKINNER, BOARD & Co., horticultural builders, Bristol, displayed two examples of their patent wire tension greenhouses, fitted with curvi-linear roofs supported by this system. They had also boilers of three patterns.

THE FOLDING SPAN-LIGHT Co., Slough, exhibited a series of their folding propagating cases, suitable also for Strawberries, salads, and other quick-growing plants. The frames are easily dismantled by thumb-screws, and may be stored in the smallest compass. The glass being slotted in grooves is easily removed for admitting fresh air or for storage.

THE QUAKER CITY MACHINE Co., Richmond, Indiana, U.S.A., illustrated by a model greenhouse framework the effectiveness of their ventilating gear. The system is controlled by a pair of cog-wheels with bicycle chain, and the extension of the lifting rods is on the Venetian blind system of extension and reduction. The system is rigid and easily controlled by the wheel.

W. A. OVEREND, horticultural builder, High Road, Streatham, exhibited a stand of glass propagating cases and plant protectors, simply constructed by a series or grooved clamps: a very effective and novel as well as cheap article that should find abundant use in outdoor gardening. The lights are available as low glass cases, and are also made in column form for the protection of tall plants.

Messrs. J. WEEKS & Co., 72, Victoria Street, Westminster, showed their Robin Hood boilers, Beeston radiators in various sizes of these well-known makes, and a large specimen of their greenhouse construction, with channelled and capped drip-proof bars. The building was fitted with the Quadrant system of ventilating gear and a detachable system of staging of iron throughout.

THE THAMES BANK IRON Co., LTD., Upper Ground Street, London, S.E., exhibited a large series of boilers, including the Waltham tubular boilers, the Economic boiler, and the Crown boiler, all of high power and economic use. Pumps of varied design and utility and samples of hot-water piping were shown by this firm.

Messrs. CHAS. P. KINNELL & Co., LTD., Southwark Street, London, displayed their Anglian boiler, fitted with rocking-bars for the better cleaning of the fire-bed. The Rochford horizontal tubular boilers of various powers, boilers for the amateurs and small gardens, and a new petrol engine, of value in general estate use, ranging from 1½ h.p. to 8 h.p., an ingenious and useful small-compass engine. A very simple ventilating gear was on view, and a series of semi-rotary pumps.

The PWLLBACH COLLIERY Co., LTD., Swansea, had on view an enormous block of their Anthracite coal, together with grades of hard furnace coals for greenhouse heating. This coal has high calorific power, lasts long in combustion, and is free from shale.

Messrs. PILKINGTON BROS., LTD., 10, Upper Thames Street, E.C., made an interesting exhibit of ribbed and coloured glass for greenhouse and conservatories. They had also sheet-glass with wire-netting embedded, anti-drip system of greenhouse glazing, clôches, Cucumber tubes, and other glass requisites.

GARDEN FURNITURE.

Messrs. LIBERTY & Co., Regent Street, London, made a large and imposing display with a great variety of Japanese garden ornaments. In an appropriate structure, which may be described as a very long summer-house, we noted fine old bronze lanterns 6 feet high, of splendid workmanship; arches and gate-posts of granite, bearing Japanese inscriptions; quaint and grotesque figures, such as are associated with Japanese gardens; bronze storks, with every feather delicately chiselled; bungalows and gates made of bamboo; and here and there healthy dwarfed Cupressus obtusa growing in very old-looking vases; from the roof quaint lanterns were suspended, and after dusk the various lanterns in this interesting arrangement gave it a very Oriental effect.

Messrs. GEO. TROLLOPE & SONS, West Halkin Square, Belgrave Square, S.W., exhibited Italian well-heads exquisitely chiselled, some complete with plinth and lifting gear (see fig. 37). They were of genuine antiquity, one magnificent red Verona specimen of ample dimensions was the best we have seen. In the foreground there was a pair of elegantly-designed, hammered iron gates with old columns and superfigures complete—a distinguished-looking garden ornament. Some of the old garden vases were finely ornamented, and along the back a row of large oil jars planted with suitable species made a very attractive display.

Messrs. B. MAGGS & Co., Bristol, displayed elaborately-made garden seats in teak, various tables, and other garden furniture, tents, and garden rests. Most of these articles are manufactured from disused ships, and the materials are practically impervious to rain.

Messrs. H. W. CASHMORE & Co., 96, Victoria Street, London, showed statuary in lead and other metals, and casts ready for forming of various models, old stone pillars of genuine work, garden screens, and a series of elaborate photographs.

FIG. 35.—MESSRS. W. DUNCAN TUCKER AND SONS' EXHIBIT IN THE SUNDRIES SECTION.

Messrs. C. H. Glover & Co., The Hatcham Horticultural Box Works, Old Kent Road, London, made a good display with a great variety of light and strongly-made boxes suitable for despatching garden produce by rail or parcels post. The boxes are available in various sizes. A punt-shaped gathering tray of light, clean-looking wood for Strawberries seems to be just what has been wanted, and a specially-designed box for the transmission of Cucumbers is well worth the attention of growers; the arrangement of boxes will prevent friction and damage to the Cucumbers. There were fruit-trays (see fig. 39), for gathering and storing Apples, of good design, and an excellent box (see fig. 40) for despatching bouquets in perfect safety.

Fig. 37.—OLD ITALIAN WELL-HEAD WITH PULLEY, EXHIBITED BY MESSRS. G. TROLLOPE AND CO.

Messrs. Vipan & Headley, Leicester, had garden seats and other furniture in various designs in untreated teak wood, also painted and varnished examples. Some of the semi-circular seats for the termini of garden walks, or formal gardens, were well designed.

The Castles Shipbreaking Co., Ltd., Baltic Wharf, Millbank, Westminster, S.W., exhibited garden furniture in teak—a long range of design, rigidity of make, and lasting qualities characterised the exhibits. The Quartette table and chairs is a very attractive arrangement; the chairs when not in use form corners apparently of the table's structure.

Messrs. T. Crowther & Son, 282, North End Road, Fulham, had a very attractive stand of old garden ornaments, temples of stone, wrought figures, old garden seats, statuary, vases, dials, plant stands, well-heads, balustrading, and other examples of garden architecture and ornament.

Messrs. W. Walters & Co., Amberley Works, Croydon, Surrey, filled a stand with garden treillage, garden seats, arches, and tubs in light and elegant designs.

Messrs. Abbott Bros., Southall, displayed elegant folding tables, trays, and magazine stands for use in the garden.

The Dryad Cane Works, 42, St. Nicholas Street, Leicester, had a stand of garden furniture in cane. Wind-screened chairs, deck chairs, garden chairs and lounges, invalid chairs, and magazine rests were all included.

The Leyton Timber Co., New Cross, London, S.E., exhibited a series of rustic arches, fencing, rest-houses, summer-houses, stands for growing plants, pillars of rustic design, and gateways chiefly in peeled and varnished oak.

The Potters' Arts Guild, Compton, Guildford, made an attractive exhibit of garden pottery in grey ware. Urns, vases, dials, and other earthenware ornaments were exhibited. A novel birds' feeding table consisted of plinth and column supporting "ware" trays and a tripod, from which depended bird's food. The statuary—about one-third life size—was excellent.

The Coldrum Pottery, 10a, College Street, Chelsea, erected a large bungalow, and filled it with examples of pottery in various colours and an infinity of design. All were hand made. Many of the exhibits were of value for use in terrace and pillar decoration.

Garden Implements.

Messrs. E. A. White, Ltd., Paddock Wood, Kent, showed "Abol" syringes of all sizes, knapsack sprayers, and the noted Abol insecticides.

Messrs. Corry & Co., Ltd., London, displayed garden cutlery and other appliances, bulb bowls in many artistic designs, sprayers and powder diffusers; glass flower vases and tubes, and a big collection of florists' sundries. Hedging and gardening gloves, a preparation named Tenax, for use as a styptic, Elliott's improved Summer Cloud shading, Corry's Quassia Extract, and the Lethorian Vapour Cone (a simple means of fumigating greenhouses, large and small), and Niquas, a non-poisonous fluid insecticide were also on view.

Mr. J. Haws, Clapton, showed his well-known patent watering pots. He had also a small sprayer, for use by exhibitors and others, in the form of a blower, to be applied to the lips, and a device for straining impure and manure water to prevent the clogging of the spray rose by the impurities. Soot-water fertilisers and other matter of suspension is retained by this screen in the body of the pot.

The Halliford French Garden, Shepperton, Middlesex, showed clôches, Cucumber tubes, metal-mounted dibbers, and other appliances of use in intensive vegetable culture; also Bussell's paints, recommended for general garden use.

Dr. A. C. Harris, Howard Road, Leicester, exhibited the Grippee garden tool, a walking stick device for lifting weeds, cutting flowers and foliage, and returning the cut portion. The tool is elegantly finished, and is effective for use as a "casual" weeder and pruner.

Messrs. Barr & Sons, 11-13, King Street, Covent Garden, W.C., exhibit a large collection of gardening tools of all descriptions, secateurs, flower-gathering scissors, knives, and other pruning tools, labels of the several materials, Barr's bulb planter and bulb dibber (see fig. 38), effective in boring holes in the hardest soil effectively and cleanly, a very handy hoe for use in flower borders, &c. (see fig. 38), a complete set of ladies' gardening tools, and various gardening requisites were included in this exhibit.

The French Clôche Co., Caxton House, Westminster, exhibited novel tools used in intensive cultivation, in addition to glass and

other appliances. They had models of cheaply-constructed frames; lattice-work packing cases, these being light but strong, suitable for railway transit; clôches, with and without lifting-knobs, scarifiers; long-tongued spades for deep tillage; straw mats, of a light, warm, and lasting nature; and broad-rosed, full-way water-pots, enabling watering to be accomplished in quick time, were on exhibition.

Mr. H. C. SLINGSBY, Bradford and Liverpool, had a collection of "Slingsby-Steelback" extension ladders, trolleys and trucks, barrows and other garden requisites.

THE PATENT SAFETY LADDER Co., Peterborough, exhibited a series of ladders on the extension system, and ladders that are convertible into steps. Others have light, safety hand-supports for the security of the user in fruit gathering and when carrying weights.

THE ACME PATENT LADDER Co., Earlsfield, London, exhibited extension and platform ladders, folding ladders, steps and ladders with adjustable platforms of good strong design. The extension ladders are provided with a device for release of the "extension" by a single cord.

Messrs. THE "HARDY" PATENT PICK Co., LTD., Sheffield, showed a big collection of excavatory and garden tools, some of the spades and other digging implements exhibiting much ingenuity.

Messrs. DREW, CLARK & Co., Diamond Ladder Works, Leyton, London, had a large stand of their makes of ladders and steps, travelling ladders for street use, extension ladders, and auto-folding platform steps.

Messrs. DAVID ROWELL & Co., engineers, Westminster, S.W., showed fencing of steel

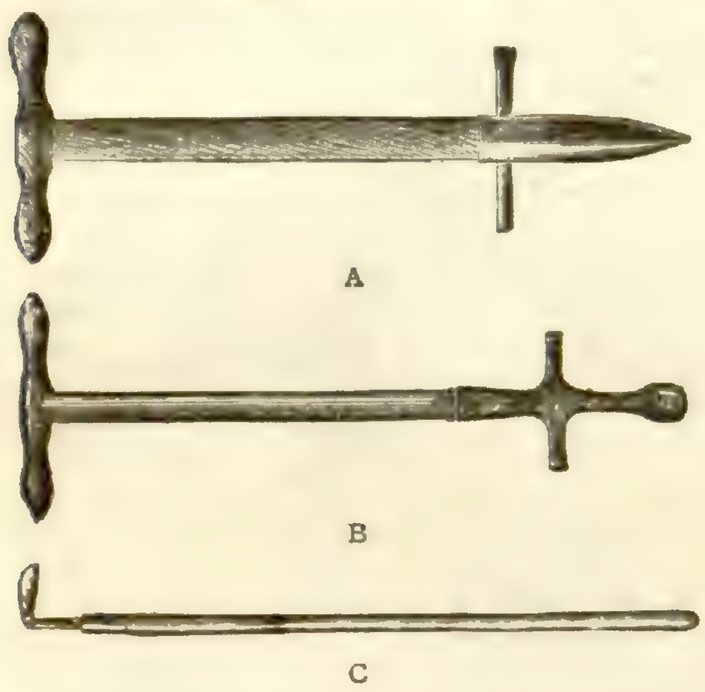


FIG. 38.—IMPLEMENTS SHOWN BY MESSRS. BARR AND SONS.
A and B, Bulb Planters; C, Garden Hoe.

wire for parks and gardens, steel pergolas and arches, various designs in fences for gateways, iron tree-guards, cattle hurdles, and other fencing.

THE FERNDEN FENCING Co., 31, Tothill Street, Westminster, displayed garden treillage, gates, in a great variety of design, garden seats, park fencing, wire-strung fencing and pergolas.

Mr. GEO. BLAY, fencing contractor, New Malden, Surrey, put up a stand of lych gates in English oak, with oak shingle roof, various gates in Japanese oak and teak, and the "Hercules" wire fencing, square-meshed, for various purposes of utility.

SPRAYING IMPLEMENTS, WASHES, &c.

THE FOUR OAKS SPRAYING MACHINE Co., Sutton Coldfield, Birmingham, exhibited, among various syringes and spraying implements, a new syringe for insecticides, having a twin barrel, by the agency of which insecticide and water are propelled, in the form of spray, in any degree of mixture, the infusion being adjusted as to strength by an indicator. By shutting the indicator "down" the insecticide barrel is put out of action, and the syringe is available for clean water. This firm also exhibited their new Knapsack sprayer, possessing an inner jacket for cleansing purposes, and an agitating device to ensure perfect mixture of the spraying fluid. The sprayer is fitted with collapsible foot-plates for use as a ground sprayer. The Daisy lawn sprinkler, a disc supporting the spraying nozzle, gives rain-like spray of similar strength to natural rain, and is attachable to any hose. The new cleft-edged Dreadnought easy-working garden tools, and a device for attaching to edging shears, for collecting the cut grass, a novel, labour-saving, cleanly scheme, were also on view.

Messrs. DRAKE & FLETCHER, engineers, Maidstone, exhibited power and hand sprayers

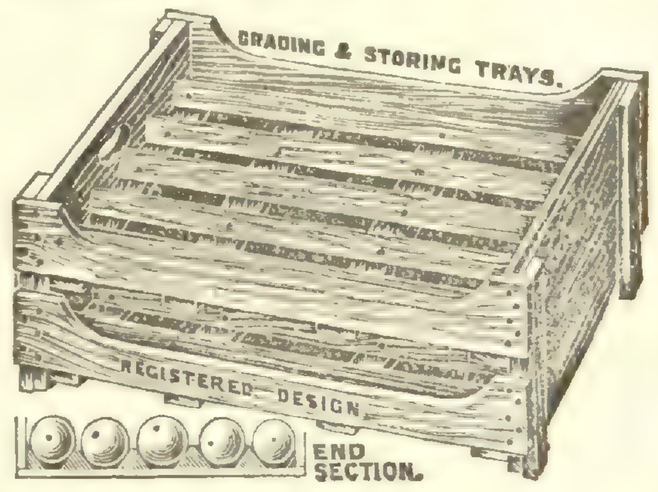


FIG. 39.—FRUIT TRAYS SHOWN BY MESSRS. C. H. GLOVER AND CO.

in many effective designs. Machines ranging from petrol motor spraying-pumps, which feed 6 to 8 sprays at one time, to handy sprayers for the amateur, were on view. One ingenious machine, with spring gates attached to the sides, enables the machine to pass through dense growth without damage. All the machines are fitted with the "Mistifier Junior" spraying nozzle, the wearing parts of which are readily renewable.

Mr. C. A. CHRISTIANSEN, Norwood Green, Southall, had rotary pumps of full waterway bore, examples of the Ideal boiler, fitted with levered rocking bars and other new devices, together with examples of tubing, piping, and other engineering materials.

Mr. W. F. G. EDWARDS, Leeds, exhibited and illustrated the use of his patent cyaniding machine. The machine is a drum-like tank which contains the water and sulphuric acid, and a scoop trap which contains the cyanide. It is arranged by clockwork for the cyanide trap to empty itself into the tank just 50 seconds after the clockwork is started, thus enabling the operator to escape the fumes. Subtending the clockwork and operated thereby is a ventilating fan, which distributes the cyanide fumes regularly and rapidly in the atmosphere of the house. Excess of cyanide in any one part of the house is thereby impossible. The vibrating fan keeps the atmosphere moving and cools the gas as it is emitted.

Messrs. JOSEPH BENTLEY, LTD., Barrow-on-Humber, Hull, displayed a large number of their various insecticides, orchard spraying fluids, and Quassia extract. Noteworthy products of this firm are Spidacide, Sweet Pea manure, Daisy

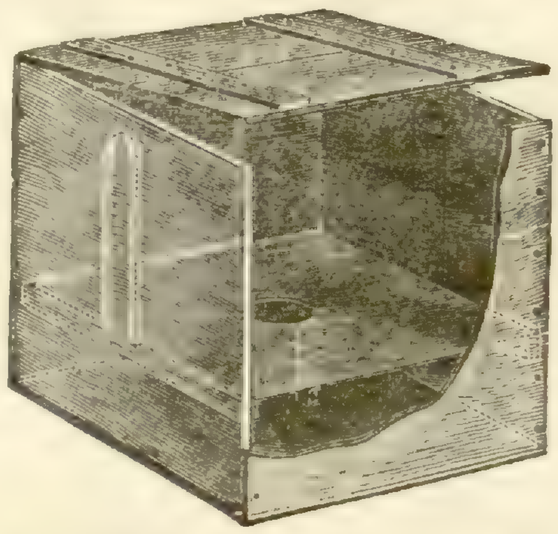


FIG. 40.—BOX FOR PACKING BOUQUETS SHOWN BY MESSRS. C. H. GLOVER AND CO.

Killer—a sand for the lawn, and Bentley's weed destroyers. A complete plant food named Vitalizer is of good report.

Messrs. WM. COOPER & NEPHEWS, manufacturing chemists, Berkhamstead, displayed various insecticides and fungicides, their V2K fluids for mildews and moulds, V2 fluid for summer spraying of fruit trees, Cooper's weedicide, and their improved Bordeaux mixture. The stand also contained several interesting biological specimens. A new spraying pump for attachment to barrels and tanks was exhibited fitted with a water agitator, thus ensuring perfect mixture of the spraying compound. This pump has been designated Cooper's Barrel Pump, and should find much use in orchard and wall spraying.

Mr. G. H. RICHARDS, 234, Borough High Street, London, displayed a big series of their various insecticides, plant and tree washes, manures and Quassia extracts. Their XL-All vaporising compound in cake form is a very useful insecticide, especially for the amateur. Mr. Richards has a non-poisonous XL-All Liquid Insecticide B, effective as an insecticide and quite safe to use. It mixes freely, leaves no sediment, and is as good as a non-poisonous insecticide can be. Richards's arsenate of lead paste, a preparation for biennial use, is an effective destroyer of caterpillars, leaf miners and their grubs.

Messrs. PRICE'S CANDLE Co., LTD., Battersea, showed Gishurstine, a well-known garden insecticide, and a preparation of soft soap and Quassia. This substance, which is a very effective cleanser and insecticide, is prepared by mixing with boiling water, allowing it to stand for 24 hours before use.

JEYES SANITARY COMPOUNDS Co., LTD., 64, Cannon Street, London, E.C., illustrated the use of their well-known horticultural wash in the eradication of green fly, red spider, caterpillar and

FIG. 41.—THE "BECHER" FRUIT-CLEANER AND GRADER.

mite. They had a new preparation termed Jeyes Horticultural "Winter" Wash, for use as a bark caustic wash for trees at rest. Jeyes Spray Disinfector, a simple device for diffusing spray, and within the reach of every amateur, should find many users among small holders.

Messrs. ALEXANDER CROSS & SONS, LTD., 19, Hope Street, Glasgow, showed their invaluable Clubicide, a preparation for cleansing the soil of destructive germs. It is in fluid form, and is recommended for the destruction of eel-worm and other soil pests; for the cleansing and disinfection of buildings, pens, and drainage. Cross's Mildew and Insect Destroyer was also exhibited. This is recommended for mildew and insect pests generally. Lunt's Chrysanthemum Manure, and the Ballikinrain Ant Destroyer were also exhibited.

The stand of Messrs. LEWIS, BERGER & SONS, LTD., contained exhibits of various garden compounds and materials for the destruction of fungoid and other diseases by spraying, together with a very effective one-man spray pump, which compresses in a few minutes sufficient air to spray for 20 minutes. Berger's Lime-Sulphur preparation is recommended for the destruction of all sucker insect pests and for mildews. This firm also exhibited paints for horticultural use.

THE SANITAS Co., LTD., Limehouse, London, E.C., had a stand of their insecticides, weed destroyers, disinfecting fluids, and the Sanitas

Distemper, a composition of antiseptic properties, for colouring walls in all the art shades.

THOS. CHRISTY & Co., 4-12, Old Swan Lane, London, E.C., exhibited Cirengol, a Quassia compound in handy packages, for the eradication of common garden dipterous pests. It has non-poisonous properties.

WM. BULL & SONS, Kings Road, Chelsea, staged drums and small phials of their fumigating compound, and illustrated the method of use of same.

THE BON ARBOR CHEMICAL Co., Paterson, New Jersey, U.S.A., exhibited "Bon Arbor," a plant food soluble in water, and "Radix," a preparation for the eradication of soil pests, recommended for grassland and growing crops.

DANYSZ VIRUS, LTD., 52, Leadenhall Street, London, illustrated their speciality for the destruction of vermin of all descriptions trouble-some in the garden, such as rats, mice, beetles, and ants.

Messrs. ROBINSON BROS., LTD., West Bromwich, Staffordshire, made a display of "Velvas" Lawn Sand, a preparation for destroying weeds on lawns. They also showed Clift's manurial insecticides, a preparation to kill insects and fertilise the soil, also various manures, the "Alpha" sprayers and many other specifics.

Messrs. WALTER VOSS & Co., LTD., Millwall, London, showed their various specialities, and a new composition, "Nicotyl Fruit-tree Glaze," for the covering of wounds and cuts of large trees. "Creol" is a liquid preparation used mixed with a great proportion of water for the prevention of "damp" among seedling Lettuce, creepers and other plants that commonly suffer from this disease. The preparation is cleanly to use, and cheaper than steaming and firing soil.

THE GERMAN POTASH SYNDICATE, 117, Victoria Street, Westminster, illustrated, by growing plants and an exhibit of fruits, the results of using their fertiliser specialities. The exhibit included fruits from English growers grown with and without these manures.

LAWES' CHEMICAL MANURE Co., LTD., 59, Mark Lane, London, had a stand of Lawes' garden manure—a dry powder—and Lawes' Fertiliser, for growing crops, and Lawes' Fluid, a preparation for purifying soil under glass.

Messrs. PLANTS PLANTOIDS, LTD., London, showed "Plants Plantoids," a plant food of recent introduction, put up in tabloid form.

Messrs. WAKELEY BROS. & Co., LTD., Bankside, London, S.E., exhibited "Wakeley's Hop Manure," being spent Hops chemically treated as a manurial preparation. They are described as cleanly in use, sweet-smelling, and an effective substitute for stable manure, supplying a valuable form of humus, being of great service as a substitute for peat in the cultivation of Ericaceous plants.

Mr. H. BECKER, Jersey (manufacturers Messrs. Drake & Fletcher, engineers, Maidstone), showed the "H. Becker" hygienic fruit-cleaner and grader (see fig. 41), a machine specially invented for growers in the Channel Isles engaged in the export Tomato trade. The mechanism is on the principle of an old printing machine. The fruit is graded as it falls into the packing cases. The machine cleans at the rate of 1 to 3 tons of Tomatos per hour, and may be used for Hyacinths and other bulbs, and such soft fruits as Strawberries. The "feed" hopper is a flat table, enabling the operator to scan the fruit as it passes into the machine. Various makes of this machine are adapted for the softest and smallest fruits, and the larger makes clean, grade and render fit for market Potatos by the ton. Some Tomatos that had been through the machine several hundred times in one day were sound and free from blemish. This machine appears invaluable in Colonial fruit-grading of all descriptions.

Messrs. J. PITHER, LTD., Cowley Road, Uxbridge, staged excellent Mushrooms, cut and growing, illustrating the growth and produce of the virgin spawn. The exhibit contained all stages of Mushroom growth.

Mrs. F. A. JONES, Lincombe, Sutherland Avenue, Bexhill-on-Sea, showed very artistic flower-plant receptacles for the dwelling in copper repoussé work.

THE BOUNDARY CHEMICAL Co., LTD., Cranmer Street, Liverpool, exhibited "Simplicitas" netting suitable for the effective support of culinary and garden Peas. Pillars of Sweet Peas are possible by the use of the netting tubes, which readily take the place of stakes. Plant fertilisers, vine manures, and crude (unmixed) chemical manures, "Climax" lawn sand, knapsack and hand sprayers were also on view.

Messrs. BLAKE & MACKENZIE, LTD., Islington, Liverpool, filled a stand with garden pots of various sizes and shapes for the reception of quick-growing plants and seedlings as of annuals. These pots are of prepared cardboard and find good use in transmitting plants by post and rail. They are unbreakable and last in condition for a reasonable time whilst in use.

Mr. G. O. HENNINGER, 11, Gt. James Street, W.C., showed the "Rex" fruit-preserving jars and bottles. The system is of the usual vacuum method, and there are no clips or capsules of metal. Included in this exhibit was the "Rex" fruit-juice extractor, a boiler for the extraction of fruit juices by steam without pressure or subsequent filtering.

FIG. 42.—MESSRS. EDWARD WEBB AND SONS' EXHIBIT OF INDOOR FLOWERING PLANTS.

(See p. xi. of First Supplement.)

Mr. JAMES GEORGE, 14, Redgrave Road, Putney, displayed peat suitable for growing Orchids and Mushroom spawn, and various fertilisers and manures.

Messrs. R. A. LISTER & Co., LTD., 188, Gray's Inn Road, Holborn, showed tubs for shrubs and a series of designs of garden furniture in various woods.

Messrs. AMBROSE PALMER & Co., 87, Mount Street, Mayfair, gave an excellent display of their "Simplicity" fruit-packing boxes. The system is one of felt-lined, slotted inner trays and effective rigidity of the casing.

The ROYAL SOCIETY FOR THE PROTECTION OF BIRDS, 23, Queen Anne's Gate, S.W., put up an interesting stand of birds' nesting-boxes cut out of natural wood logs. Feeding trays, seed bells, and other devices for the encouragement and preservation of birds, together with literature about them, were also on view.

Messrs. H. PATTISSON & Co., 4, Greyhound Lane, Streatham, S.W., showed their well-known horse boots for use on lawns, &c., also a series of tools for removing weeds from grass areas, cutting instruments for turf renovation and laying, and the "Max" water distributor, a tripod form of hose spraying nozzle, self-supporting and rigid once in position.

Messrs. JAMES GREEN & NEPHEW, LTD., 107, Queen Victoria Street, London, filled a large and attractive stand with the Munstead flower glasses in many artistic designs and cutting. The ware is in white and soft green shades and flower holders are placed inside for the better arrangement of the contents.

Messrs. JAMES CARTER & Co., Raynes Park, London, displayed an interesting series of cases showing the germination of seeds in their system of test of fertility.

Messrs. ELIOTT BROS. & Co., Beauchamp Place, Chelsea, exhibited their greenhouse shading, a preparation in fine powder for mixing with cold water. It affords a light-green shading, and, besides the advantage of being mixed with cold water, the shading has lasting qualities.

Messrs. LLOYD, LAWRENCE & Co., 29, Worship Street, London, E.C., had specimens of the Pennsylvania lawn-mowers in all sizes, Planet Jr. hoes and lawn-sweepers.

The ARMY & NAVY AUXILIARY CO-OPERATIVE SUPPLY, LTD., filled a large bungalow with garden machines and requisites. Tools of all the leading makes were displayed in large numbers.

ROBERT SYDENHAM LIMITED, Tenby Street, Birmingham, showed silver-plated flower stands and holders for table decorations.

Mr. JOHN PINCHES, 3, Crown Buildings, Crown Street, Camberwell, S.E., exhibited their Acme labels and examples of practically every article of utility to the exhibitor. Exhibitors' boxes, trays, ticket holders, and flower supporters, also a series of wire frame for weeping Rambler Roses were included in the exhibit.

Messrs. G. F. BRAGGINS & Co., Banbury, Oxon, showed models of drive gates, articles of turnery, and Braggins' patent kit-carts, suitable for fruit gathering and other light garden traction. The structure of this vehicle is extremely light, yet strong. The sides, when detached, form a ladder, and the platform a stretcher or hand-barrow.

Miss HELEN COLT, 25, Ferncroft Avenue, Hampstead, exhibited models of gardens, showing styles and furnishing of town areas and villa gardens.

Messrs. GEO. JACKMAN & SONS, Woking, displayed park and garden designs and photographs of wall and water gardens, Rose gardens, rockeries, and pools.

The SELBORNE SOCIETY, 42, Bromsgrove Square, staged a variety of nesting-boxes for various species of birds.

The AGRICULTURAL & HORTICULTURAL ASSOCIATION, LTD., London, showed seed-cleaning and winnowing machines in various sizes.

The JOHN GROOM'S FLOWER GIRLS' MISSION, Sekforde Street, Clerkenwell, exhibited some astonishingly realistic flowers made by the blind and crippled inmates.

Mr. C. ENGELMANN, Saffron Walden, showed photographs and plans of many types of garden design.

S. & E. COLLIER, LTD., Reading, exhibited Reading hand-made pottery and the Silchester art pottery in various designs.

The COLDRUM POTTERY Co., 10a, College Street, Chelsea, exhibited art pottery in various shades and shapes.

THE SCIENTIFIC EXHIBITS.

THE experiment of forming a scientific section to the Exhibition was amply justified by the results. Upwards of 30 exhibits were staged in the section, and, though they were not all equally well arranged, they provided the attentive visitor with a striking demonstration of the many ways in which science is seeking to solve horticultural problems. Indeed, the variety of the scientific and educational exhibits was even more noteworthy than their numbers. As was to be expected, exhibits dealing with plant pests were more numerous than any others, though, as will be seen from the following list of subjects, many other important aspects of scientific horticulture were represented. The exhibits may be classified thus:—

1. Phytopathological (plant pests).
2. Methods of plant-cultivation and propagation.
3. The relation of plants to soil.
4. The general physiology and chemistry of plants.
5. Plant-breeding and the history and origin of cultivated plants.

The first section—that of plant pests—included some 13 separate exhibits. Among the exhibitors in this group were the BOARD OF AGRICULTURE, which showed large coloured maps, illustrating the distribution of the American Gooseberry mildew and of wart disease of Potatos, and also maps showing the areas devoted to fruit-growing in the different parts of England.

The DEPARTMENT OF AGRICULTURE AND TECHNICAL EDUCATION (IRELAND) exhibited an interesting collection of the principal diseases affecting the Potato, viz., Spongospora scab, black stalk rot, collar fungus, black pit, &c.

The HARPER ADAMS AGRICULTURAL COLLEGE, Newport, and the R.H.S. GARDENS, Wisley, also sent exhibits of Potato diseases, the former showing the life-history of wart disease, and the latter exhibiting specimens affected by various important, though obscure, diseases, including canker tumour.

A very complete series of specimens in cases, illustrating the pests of fruit trees and bushes, was sent by the SOUTH-EASTERN AGRICULTURAL COLLEGE, Wye, and a most interesting exhibit by Mr. SPENCER PICKERING, F.R.S. (Woburn Experiment Station), displayed trees attacked by silver-leaf disease and mussel scale, and also cages containing caterpillars of some of the following pests of fruit trees:—Magpie moth, Gooseberry and Currant sawfly, Apple sawfly, lackey moth, and winter moth.

Silver-leaf disease of Plums and other plants was illustrated by the exhibits sent by Professor PERCIVAL (Agricultural Department, University College, Reading) and Mr. BROOKS (Botany School, University of Cambridge). Mr. BROOKS's exhibit included also specimens showing the life-history of Plum-rust, the æcidial stage of which was exhibited on the leaves of Anemone coronaria.

Mr. GEORGE MASSEE exhibited a fine series of coloured illustrations of fungi, and Mr. HERM EICKE, Frankfurt-on-Maine, sent dried specimens of fungi parasitic on fruit trees.

Mr. F. ENOCK showed specimens and drawings of British mymaridæ (egg-parasites), and Prof. R. NEWSTEAD, Liverpool School of Tropical Medicine, exhibited injurious scale-insects. M. GEORGES TRUFFAUT showed a wonderful series of life-histories of insects which damage horticultural and other crops.

In the second section—that illustrating methods of cultivation and propagation—Mr. DREW (Horticultural Department, University College, Reading) showed a very complete and instructive series of specimens illustrating the various stocks used in the propagation of the larger fruits, and the best methods of treatment in the early stages of training.

Professor BAYLEY BALFOUR (Royal Botanic Gardens, Edinburgh) showed preserved specimens illustrating modes of propagation of plants and the stages in the rooting of cuttings.

Messrs. JAMES VEITCH exhibited a large number of cross-grafted plants, including various Conifers, Cupressus on Thuya, Libocedrus on Thuya, &c.

In the third section—that dealing with the relation of plants to soil—the ROTHAMSTED EXPERIMENT STATION exhibited in a most striking manner the effects of "soil sterilisation" on the growth and yield of crops (Tomatos), as discovered by Drs. Russell and Hutchinson. Miss BRENCHLEY, of the same institution, exhibited "water-cultures."

The WOBURN exhibit, referred to above, included specimens to illustrate the effect of grass on trees. The Pears, Plum, Spruce and Fir planted in 1909, in sandy soil, some in tillage, others in grass, showed in striking manner the effect of the grass on growth.

In the section devoted to general physiology and chemistry, apparatus used for accurate investigation of transpiration and other processes in plants was exhibited by the IMPERIAL COLLEGE OF SCIENCE AND TECHNOLOGY.

Professor ARMSTRONG, F.R.S., showed specimens and experiments illustrating the chemical differences between allied plants, e.g., Lotus corniculatus, which contains prussic acid, and L. major, which does not.

An exhibit, illustrating how much may be done without any facilities whatsoever to cultivate plants in rooms of dwelling-houses for the purpose of Nature study, showed that the exhibitor is a true enthusiast in botanical study.

The fifth section—that concerned with plant breeding—contained a number of interesting exhibits, notably those sent by the JOHN INNES INSTITUTE and by Messrs. SUTTON & SONS, Reading. In the Innes exhibit were Tropæoleums, bred by Mr. W. BATESON, F.R.S., illustrating Mendelian re-combinations. Mr. BACKHOUSE sent Plum trees, hand-pollinated, showing self-sterility and self-fertility in different varieties. Washington and Pond's Seedling had set no fruit (self-sterile varieties); Ickworth Imperative and Golden Transparent were bearing good crops, showing that they are self-fertile.

Mr. COMPTON'S exhibit illustrated dominance of self-fertility in Resedas.

Dominance of the runnered form of Alpine Strawberry was illustrated in an exhibit sent by Mr. C. W. RICHARDSON; and Miss PELLEW showed specimens demonstrating that cross-fertilisation of the Pea Early Giant with the Vetch-like rogue commonly associated with it gives complete dominance of the rogue form. Hence it is to be inferred that the rogues do not come from the type as generally supposed, and that by cultivation of a pure line they could be eliminated.

Messrs. SUTTON'S exhibits were two in number, and among the most attractive of the section. In the first, specimens of old and new vegetables were staged to illustrate the progress which has been made in vegetables since 1866. The exhibit included Peas, Dwarf Beans, Tomatos, and Cucumbers. Wild Kale, grown from seed gathered on sea-cliffs, was exhibited as the probable progenitor of cultivated Cabbages.

Messrs. SUTTON & SONS' second exhibit (illustrated in fig. 44) dealt with the Potato. In it were shown original wild species of tuber-bearing Solanums, hybrid seedlings, raised by crossing the wild species, and also commercial types.

Major HURST (Burbage Experiment Station, Leicestershire) exhibited the hybrid Berberis stenophylla, supposed to be derived from the natural cross B. Darwinii × B. empetrifolia; 50 plants of the F_2 generation were also shown, to illustrate the multiplicity of forms obtained in the second generation.

Professor WINKLER (Tubingen) exhibited graft-hybrids of Nightshade and Potato.

Mr. CUTHBERTSON (Messrs. Dobbie & Sons, Edinburgh) showed coloured drawings illustrating the parentage and mode of origin of some of the best-known varieties of Sweet Pea.

Mr. MAY'S exhibits, which proved very attractive to Fern lovers, contained Nephrolepis sports and varieties of Osmunda palustris.

Mr. F. SANDER, St. Albans, sent volumes of *Reichenbachia*, containing beautiful illustrations of Orchids, and Professor KEEBLE (University College, Reading) exhibited plants of Primula sinensis, to illustrate the history of the evolution of the cultivated varieties of the plant.

EXHIBITION ITEMS.

THE "GATE" DIFFICULTY ON THE OPENING DAY.

Sir,—The Directors feel it incumbent upon them to explain the delay in opening the gates at the east entrance on the first day of the Exhibition, and to express their regret at the inconvenience and discomfort to visitors caused thereby.

The fullest investigation has been made and the omission to open the gate appears to have been due to a misunderstanding of instructions by one of the subordinate officials, who, unfortunately interpreted the order given not to open the main entrance until after the departure of the Royal party as applying to his gate also.

To save any inconvenience care was taken that the public should be directed to entrances other than the main one until it was open.

The Directors wish to offer this explanation, and are sorry they can now do no more than express their sincere regret at the unfortunate occurrence, which was due to a misunderstanding and not to any order given by a responsible official.

Yours faithfully,
J. GURNEY FOWLER,
Chairman of Directors.

TRADE ASPECTS.

MESSRS. JAMES CARTER & Co. write as follows:—"The question has been asked what are the trade aspects of the International Horticultural Exhibition? In other words, will it prove good for trade? If the reply is in the affirmative, the further question naturally follows, will the results be proportionate to the enormous sacrifices in thought, time and financial outlay which have been made? For great sacrifices have been made to ensure a great success, on the one hand by the Royal Horticultural Society, and on the other hand by the exhibitors.

"The Society will be sufficiently compensated by the stimulus which must inevitably follow in the further development of horticulture, by the application of improved scientific knowledge and æsthetic taste in the specialisation of its many branches, as a result of bringing together exhibitors from many countries emulating each other in presenting to the view of professional gardeners and horticultural students and amateurs the results of the great development and advance in horticulture since 1866. It will prove to be a landmark in horticulture, and a stepping stone to greater achievements in the future.

"But what of the exhibitors and the sacrifices they have made? Will a compensation accrue affording them satisfaction? We have no hesitation in saying that such will be the case. There is no finality in horticulture. This event which has brought together so many exhibitors from many countries in presenting before the public the very best, the most beautiful and the most perfect forms in flower, fruit and shrub will prove to be an education to the many thousands who passed the turnstiles and examined the exhibits. An educated appreciation of horticultural pursuits means a greater demand for the 'best,' and means in the long run 'better trade.' This is the return which we anticipate will come to exhibitors, and which, in our opinion, is the best return possible."

THE ATTENDANCES.

The following are the official figures of the attendances:—

Wednesday, May 22	4,551
Thursday	11,714
Friday	15,485
Saturday	18,010
Monday	20,453
Tuesday	39,522
Wednesday	41,154
Thursday (estimated)	27,500
Total ...	178,389

A FINANCIAL SUCCESS.

There are no official figures at present respecting the surplus arising from the show, but it is rumoured that the amount may be something like £4,000 to £5,000.

HEATING THE ORCHID TENT.

The heating arrangements of the Orchid tent were carried out by Messrs. Mackenzie & Moncur, Ltd., free of charge. This firm also supplied an apparatus for providing tepid water for watering the plants.

Sir Harry J. Veitch has elected to substitute cups in place of the Gold Medals he won at the Show, so that he may present one to each of his foremen as mementoes.

With his characteristic generosity, Mr. Leopold de Rothschild gave the fruit from his magnificent collection to the pensioners of the Chelsea Hospital.

The new system of ventilating and the adequate lighting of the tents have been so successful that the general public will no longer tolerate the old conditions, and in future will expect to be able to view the exhibits in a comfortable atmosphere.

Messrs. J. Waterer & Sons, Ltd., met with exceptional success, being awarded no fewer than seven Gold Medals, one Silver-gilt Medal, two Silver Cups, the West of Scotland Cup, and the Belgian Trophy.

The Corporation of the City of Glasgow paid the expenses to and from the exhibition of five of the leading officials of the principal parks of the city.

Mr. C. Webster, gardener to the Duke of Richmond and Gordon, at Gordon Castle, N.B., was one of the judges at the International Horticultural Exhibition. His father was a judge at the International Exhibition of 1866, which opened on the corresponding day—May 22—exactly 46 years ago.

In the class for a collection of Tulips, occupying a space of 200 square feet, the 1st prize, the Netherlands Federation Cup, was awarded to Messrs. Alexander Dickson & Sons, Ltd., Newtownards.

OFFICIAL LIST OF AWARDS.

SPECIAL CUPS AND MEDALS.

H.M. The King's Cup	Offered for the most meritorious exhibit in the show (Orchids) — Sir George Holford.
H.M. Queen Alexandra's Cup ...	Offered for the best rock and water garden ... ... — R. Wallace & Co.
The Duke of Portland's Cup ...	Offered for the best exhibit, Orchids excluded (stove plants) — James Veitch & Sons, Ltd.
Sir Jeremiah Colman's Cup ...	Offered for the second best exhibit in the show (Roses) ... — G. Mount & Sons.
Gardeners' Chronicle Cup ...	The best new plant, Leptospermum scoparium var. Nichollii — Rev. A. T. Boscawen.
American Florists' Society's Silver Medals	For American Lilies ... ... — W. Cutbush & Son.
Ditto	For Silene Hookeri ... ... — M. Prichard.
Ditto	For a collection of American plants ... ... — W. A. Manda.
American Florists' Society's Bronze Medals	For Rhodostachys species ... — H. J. Elwes.
Ditto	For Carnation "White Wonder" — Allwood Bros.
Ditto	For Rose "Hiawatha" ... ... — Paul & Son, Cheshunt.
Belgian Trophy	Group of Conifers ... ... — J. Waterer & Sons, Ltd.
Birmingham Botanical Society's Medal	Olearia dentata ... ... — Capt. Dorrien-Smith.
W. Bull & Son's Cup	Best Odontioda "Coronation" — M. Firmin Lambeau.
Ditto	Best Hybrid Odontoglossum illustre "Europa" ... ... — J. Gurney Fowler.
Ditto	Best Hybrid Cattleya "Dirce" — Sir Geo. Holford.
Barr & Sons' Cup	Tulips ... ... — Sir G. Faudel-Phillips.
Ernst Benary's Memorial Gold Medal	Plants raised from seed ... ... — Sutton & Sons.
Bunyard & Co.'s Cup	Fruit ... ... — His Majesty the King.
National Chrysanthemum Society's Medal	Chrysanthemums ... ... — W. Wells & Co.
Charlesworth & Co.'s Cup ...	Orchids ... ... — Sir Jeremiah Colman.
Clay & Sons' Bowl	Best exhibit of Roses ... ... — Geo. Mount & Sons.
Lady Colman's Cup	Carnations ... ... — C. F. Raphael.
Perpetual Flowering Carnation Society's Medal	Carnations ... ... — Bertie E. Bell.
Daily Mail Cup	New Rose ... ... — M. Pernet-Ducher.
Duncan Tucker's Cup	Orchids ... ... — Mansell & Hatcher, Ltd.
Dobbie & Co.'s Cup	Sweet Peas ... ... — Sir R. Baker.
National Dahlia Society's Medals	Dahlias ... ... — James Stredwick & Son.
Jules Hye de Crom's Cup ...	Best Miltonias ... ... — Sir Geo. Holford.
Elkington's Cup	Rockery ... ... — M. Prichard.
French Horticultural Society's Bronze Statuette...	Fruit trees in pots ... ... — L. de Rothschild.
J. Gurney Fowler's Cup	Fruit ... ... — His Majesty the King.
Worshipful Company of Fruiterers' Cup	Pot fruit trees ... ... — T. Rivers & Sons.
J. J. Grülleman's Cup	Hippeastrums ... ... — Sir George Holford.
Worshipful Company of Gardeners' Cup	Group of Roses ... ... — G. Paul & Sons.
National Gladiolus Society's Cup	Gladioli ... ... — B. Hammond Tracy.
Mrs. Greene's Cup	Alpines ... ... — W. Artindale & Son.
Sir Geo. Holford's Cup	Best trade exhibit of Orchids... — Charlesworth & Co.
Horticultural Club Cup	Japanese garden ... ... — James Carter & Co.
Johnson, Walker & Tolhurst's Cup	Lilacs and Azaleas ... ... — James Veitch & Sons, Ltd.
King's Acre Nurseries' Cup ...	Group of Roses ... ... — James Brown, Heaton Mersey.
Sir Trevor Lawrence's Cup ...	Herbaceous plants ... ... — G. & A. Clark, Ltd.
Lady Trevor Lawrence's Cup ...	Alpine plants ... ... — Craven Nurseries.
Mons. Lambeau's Gold Medal ...	Hybrid Orchids ... ... — Charlesworth & Co.
Netherland Horticultural Federation Cup	Tulips ... ... — Alex. Dickson & Sons, Ltd.
Paul & Sons' Cup	Roses ... ... — J. Brown.
Royal Caledonian Horticultural Society's Gold Medal	Grapes ... ... — Marquis of Salisbury.

SPECIAL CUPS AND MEDALS—(*contd.*).

Scottish Horticultural Association's Gold Medal	New Roses	Pernet-Ducher.
National Sweet Pea Society's Medals	Sweet Peas	C. W. Breadmore. Lewis H. Hatting. Sir R. Baker.
A. E. Speer's Cup	Annuals and biennials	F. Smith & Co.
N. N. Sherwood's Cup	Sweet Peas	C. W. Breadmore.
Sander & Son's Cup	Orchids	F. Menteith Ogilvie.
Sutton & Son's Cup	Vegetables	Hon. Vicary Gibbs.
Baron Bruno Schröder's Cup ...	Orchids	Armstrong & Brown.
The Veitchian Cup	Best hardy trees and shrubs ...	Hon. Vicary Gibbs.
Van Waveren Cup...	Tulips	R. H. Bath, Ltd.
Yokohama Nursery Co.'s Cup ...	Mountain Pæonies	W. Artindale & Son.

COUNTY CUPS.

Bedford County Cup	Strawberries	Laxton Bros.
Cheshire and North Wales Cup...	Fruit	Duke of Westminster.
Cornwall Cup	Group of new plants	R. Veitch & Son.
Derby County Cup	Rock and water garden	J. Backhouse & Sons, Ltd.
Devon County Cup...	Lilacs in basket and miscellaneous group	Aalsmeer Florists' Association.
Dorset County Cup	Conifers and shrubs	L. R. Russell.
City of Glasgow Cup	Smoke-resisting plants	Jackman & Son.
Gloucester County Cup	Hard-wooded plants	J. Cypher & Sons.
Hertford County Cup	Orchids and Selaginellas ...	J. Gurney Fowler.
Hereford and Monmouth Counties' Cup	Carnations	Young & Co.
Irish Cup	Rockwork	Mr. J. Wood, Boston.
Irish Salver	Sweet Peas...	Dobbie & Co.
Lancaster County Cup	Ferns	H. B. May & Sons.
Leicester County Cup	Conifers	Jackman & Son.
Norfolk County Cup	Collection of vegetables ...	Netherland Horticultural Federation.
Shropshire Cup	Fruits	Bunyard & Co., Ltd.
West of Scotland Cup	Rhododendrons	John Waterer and Sons, Ltd.
Somerset County Cup	Alpines	Sir Everard A. Hambro.
South Wales Cup	New Chinese Plants	James Veitch & Son, Ltd.
Suffolk County Cup	Collection of hardy shrubs ...	Fisher, Son and Sibray.
Sussex (James Buchanan, Esq.) County Cup	Grasses	J. Macdonald.
Sussex (W. B. Bird, Esq.) ...	Crotons	Fisher, Son & Sibray.
Warwick County Cup	Rock and water gardens ...	Baker's.
Wiltshire County Rose Bowl No. 1	Orchids	Sander & Sons.
Wiltshire County Rose Bowl No. 2	Rock garden	W. Cutbush & Son.
Worcester County Vase	Carnations	C. Engelmann.
Yorkshire County Cup	Hippeastrums	Sir Geo. Holford.
Isle of Wight Cup	Scented Pelargoniums	L. de Rothschild.

SCIENTIFIC SECTION.

GOLD MEDALS

To Professor Winkler for graft hybrids; Professor Bateson for plant breeding exhibits; Professor Theobald for a collection of injurious insects; and F. I. Brooks for an exhibit of silver leaf and Plum rust.

SILVER-GILT MEDALS

To Professor Newstead for a collection of scale insects; Woburn Experimental Farm, per Mr. Pickering, for injurious insects; and Dr. Pethybridge for diseases affecting Potato.

SILVER MEDALS

To Dr. Berger for exhibit of scale insects attacked by fungi; Dr. Russell for soil sterilisation experiments; Professor Armstrong for exhibit showing chemical differences between allied plants; Miss Brenchley for water cultures; H. J. Veitch for bi-generic grafts; F. G. Drew for the educational value of exhibit showing the training and growth of fruit trees; H. B. May for exhibit showing origin of Fern varieties; A. W. Sutton for exhibit showing comparison between old and new types of vegetables; A. W. Sutton for species of Solanum; W. Cuthbertson for pictures showing origin of Sweet Pea varieties; Malthouse for exhibit of black scab in Potatos; and Hugh Barton for British Mosses.

BRONZE MEDAL

To Mr. T. Cheesman for tree seedlings in water.

DIPLOMAS

To Mons. Daniel for pictures of grafts, illustrative of effect of stock on scion; Professor Blackman for physiological experiments; Major Hurst for breeding experiments with Berberis; Mr. Enock for insect parasites of injurious pests; Dr. McDougall for illustrations of injurious insects; Mr. E. S. Salmon for fungus diseases of fruit trees; Professor Percival for exhibit of silver leaf in Plum; Mr. G. Massee for paintings of plant diseases; Herr Eicke for specimens of diseased plants; The Board of Agriculture for maps showing distribution of plant diseases.

FIG. 43.—GROUP OF FERNS SHOWN BY MESSRS. H. B. MAY AND SONS.

(See p. x. of First Supplement.)

FIG. 44.—EXHIBIT OF TUBER-BEARING SOLANUMS SHOWN BY MESSRS. SUTTON AND SONS IN THE SCIENTIFIC SECTION.

SUNDRIES.

EXHIBITS UNDER CANVAS.

Abbot Bros., large Silver-gilt Medal; Barr & Sons, Bronze Medal; J. Bentley, Ltd., large Silver Medal; Lewis Berger & Son, Ltd., large Silver Medal; Blake & Mackenzie, Ltd., small Silver Medal; Bon Arbor Chemical Co., small Silver Medal; Boundary Chemical Co., small Silver Medal; Wm. Bull & Sons, Bronze Medal; Jas. Carter & Co., large Silver Medal; Thos. Christy & Co., Bronze Medal; Miss Helen Colt, Bronze Medal; Wm. Cooper and Nephews, large Silver-gilt Medal; Corry & Co., Ltd., large Silver-gilt Medal; A. Cross & Son, large Silver Medal; Danysz Virus, Ltd., Bronze Medal; F. C. Edwards, small Silver Medal; Elsenham Jam Co., Bronze Medal; French Clôche Co., small Silver Medal; Jas. George, small Silver Medal; C. H. Glover & Co., Bronze Medal; J. Green & Nephew, Ltd., large Silver-gilt Medal; John Groom, small Silver Medal; Halliford French Gardens, large Silver Medal; Julius Hansen, Bronze Medal; Alex. C. Harris, small Silver Medal; J. Haws, large Silver Medal; Headley Bros., small Silver Medal; G. Henniger, large Silver-gilt Medal; Leslie & Greening, large Silver-gilt Medal; Geo. Jackman & Sons, large Silver-gilt Medal; Harry J. Jackson, Bronze Medal; Jeyes Sanitary Compound Co., large Silver Medal; Mrs. F. A. Jonas, large Silver Medal; Chas. A. Laws, Bronze Medal; Laws Chemical Manure Co., small Silver-gilt Medal; Frank F. Lemon, Bronze Medal; R. A. Lister & Co., large Silver Medal; H. Pattison & Co., small Silver Medal; Pilkington Bros., small Silver Medal; J. Pither, Ltd., Bronze Medal; Plant Plantoids, Ltd., Bronze Medal; H. M. Will (Potash Syndicate), Bronze Medal; Price's Patent Candle Co., Ltd., large Silver Medal; Michael Rains, Ltd., Bronze Medal; G. H. Richards, large Silver Medal; Robinson Bros., Ltd., large Silver-gilt Medal; Sanitas Co., small Silver Medal; Robt. Sydenham Limited, small Silver Medal; Walter Voss & Co., Ltd., large Silver gilt Medal; Wakeley Bros. & Co., Ltd., Bronze Medal; Mrs. M. Watts, small Silver-gilt Medal; Mark Wilfred Webb, Bronze Medal; E. A. White, Ltd., large Silver-gilt Medal; Preserved Flowers Co., large Silver Medal; Harry Cecil Burton, Bronze Medal; J. A. Evans, small Silver Medal; Edward W. Greening, large Silver Medal; International Supply Association, Bronze Medal; W. M. Poupart, Ltd., small Gold Medal; Pwllbach Colliery Co., Bronze Medal; Elliott Bros. & Co., Bronze Medal; Palmer Ambrose, large Silver Medal; Overend, Bronze Medal.

EXHIBITS IN THE OPEN AIR.

Acme Patent Ladder Co., Bronze Medal; Army and Navy Auxiliary Co-operative Supply, Silver-gilt Medal; H. Becker, Silver Medal; G. F. Braggins & Co., Silver-gilt Medal; Geo. Blay, Bronze Medal; S. & E. Collier, Bronze Medal; H. W. Cashmore, large Silver Medal; C. A. Christy & Son, Silver Medal; Coldrum Pottery Co., Silver-gilt Medal; Walter H. Cook, Silver-gilt Medal; Jas. Crispin & Son, large Silver Medal; T. Crowther & Sons, large Silver Cup; Drake & Fletcher, Silver-gilt Medal; Drew, Clarke & Co., Silver Cup; Hontsch & Co., Gold Medal; Fernden Fencing Co., Silver-gilt Medal; Folding Span-Light Co., Silver-gilt Medal; Four Oaks Spraying Co., Silver Cup (b); Hardy Patent Pick Co., Silver Medal; H. Hartjen & Co., large Silver Medal; Geo. Jackman & Sons, Bronze Medal; Chas. J. Kinnell & Co., Gold Medal; Lawrence Lloyd Co., Silver-gilt Medal; Leyton Timber Co., Ltd., Silver-gilt Medal; Liberty & Co., Silver-gilt Medal; Maggs & Co., Silver Medal; Patent Safety Ladder Co., Silver-gilt Medal; Harry H. Peach, large Silver-gilt Medal; John Pinches, large Silver Medal; Dd. Rowell & Co., Bronze Medal; Skinner Board & Co., Silver-gilt Medal; H. C. Slingsby, Silver Cup; Thames Bank Iron Co., Gold Medal; Geo. Trollope & Sons and Colls & Sons, large Silver Medal; Wm. Duncan Tucker & Sons, large Gold Medal; Twelve Hours Stove Syndicate, Ltd., Silver-gilt Medal; Vipan & Headley, Silver Medal; J. Weeks & Co., large Silver Medal; Watkins & Simpson, Ltd., Gold Medal; W. Walters & Co., Silver Medal; F. G. Wood, large Silver Medal.

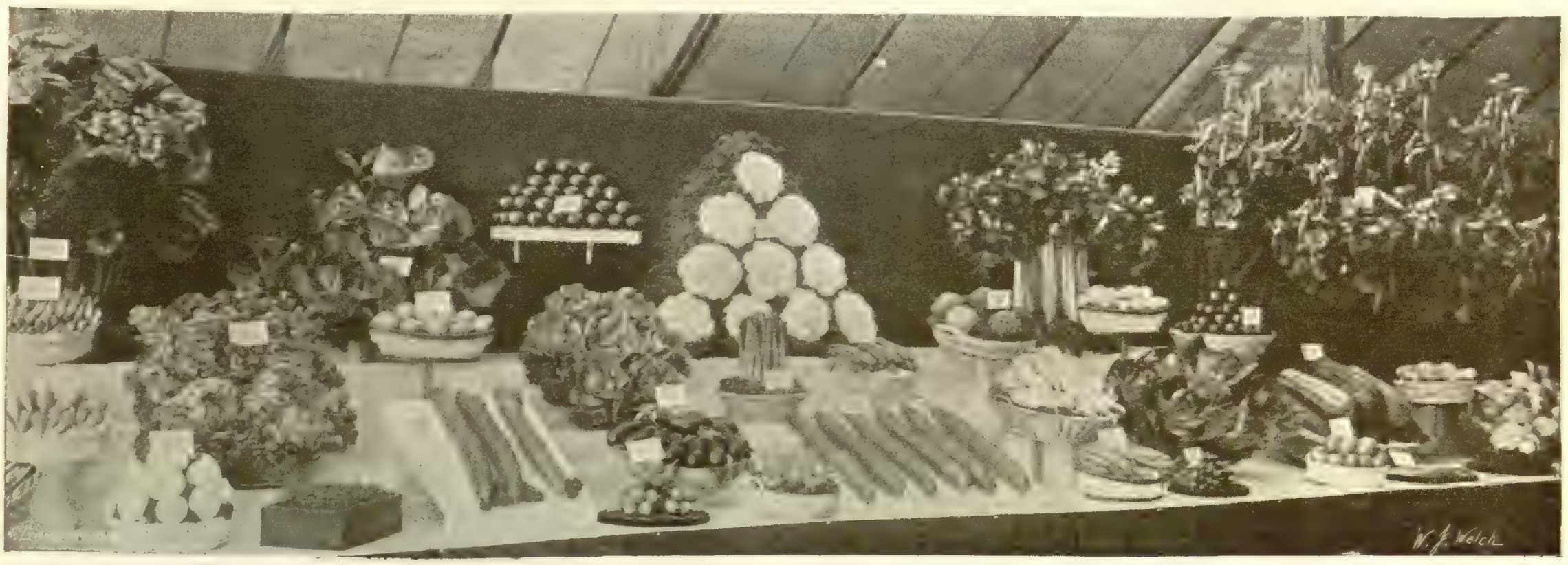


FIG. 45.—COLLECTION OF VEGETABLES SHOWN BY MESSRS. JAMES VEITCH AND SONS, LTD.

(See p. xxx. of Second Supplement.)

NON-COMPETITIVE EXHIBITS.

LARGE GOLD MEDALS.

Name.	Nature of Exhibit.
Australian Government ..	Fruit.
Canada	Fruit.
Cannell, H., & Sons	Greenhouse plants.
Carter, J., & Co.	Japanese Garden.
Carter, J., & Co.	Miscellaneous plants.
Charlesworth & Co.	Orchids.
Cutbush, W., & Son ..	Carnations, &c.
Cutbush, W., & Son ..	Roses and Azaleas.
Dobbie & Co.	Sweet Peas.
Dorrien-Smith, Capt. ..	New plants.
Fisher, Son & Sibray ..	Flowering trees and shrubs.
Gibbs, Hon. Vicary	Chinese trees and shrubs.
Holford, Sir Geo.	Orchids.
May, H. B., and Sons ..	Ferns.
Mount, G., & Sons	Roses.
Netherlands Horticultural Federation	Vegetables.
Perry, Amos	Alpines.
Rothschild, L. de	Fruit trees in pots.
Sander & Son	Orchids.
Sutton & Son	Miscellaneous plants.
Syndicat der Maraichiers de la Region Parisienne ..	Vegetables.
Veitch, J., & Sons, Ltd. ..	Chinese trees and shrubs.
Veitch, J., & Sons, Ltd. ..	Fruit trees in pots.
Veitch, J., & Sons, Ltd. ..	Miscellaneous greenhouse plants.
Veitch, J., & Sons, Ltd. ..	Stove plants.
Veitch, J., & Sons, Ltd. ..	Trained fruit trees.
Vilmorin-Andrieux & Co. ..	Annuals and vegetables.
Wallace, R., & Co.	Rock and water garden.
Waterer, J., & Sons, Ltd...	Rhododendrons.
Waterer, J., & Sons, Ltd...	Shrubs and Conifers.
Watkins & Simpson	Annuals.
Webb, E., & Sons	Miscellaneous plants.
Yokohama Nursery Co. ..	Japanese exhibit.

GOLD MEDALS.

Aalsmeer Associated Florists	Lilacs in baskets, &c.
Belgian Commission ..	Collection of fruit.
Boscawen, Rev. A. T. ..	New plants.
Bromsgrove Guild	Statuary, &c.
Burnett, H.	Carnations.
Engelmann, C.	Carnations.
Fargeton Fils	Hydrangeas.
Fowler, J. Gurney	Orchids.
Hambro, Sir E. A.	Alpines.
Iceton, W.	Lily of the Valley.
Ker, R. P., & Sons	Amaryllis.
Krelage, E. H., & Son ..	Eremurus, &c.
Lachaume, M.	Decorations.
Low, Stuart, & Co.	Carnations.
Macdonald, J.	Grasses.
Moos, S.	New fruits.
Neale, J.	Insectivorous plants.
Notcutt, R. C.	English Rose garden.
Piper, John, & Sons	Clipped Box trees.
Prichard, M.	Alpines, &c.
Producteurs de Cavaillon ..	Asparagus, &c.
Pulham & Son	Rock garden.
Rivoire et Fils	Pæonies, Pelargoniums, &c.
Robert et Vidal	Artichokes, &c.
Rothschild, L. de	Orchids.
Russell, L. R.	Ornamental trees.
Russell, L. R.	Stove plants.
Truffaut, George	Collection of insects.
Veitch, J., & Sons, Ltd. ..	Vegetables.
Wells, W., & Co.	Carnations, &c.

LARGE SILVER CUPS.

Barr & Sons	Herbaceous plants.
Bunyard, G., & Co.	Herbaceous plants.
Cant, B. R., & Sons	Roses.
Carter, J., & Co.	Vegetables.
Cocker, J., & Sons	Trollius, &c.
Cutbush, W., & Son ..	Climbers.
Deitrich, Chas.	Orchids.
Dicksons, Ltd.	Roses.

LARGE SILVER CUPS.—(Contd.)

Name.	Nature of Exhibit.
Draps Boudry et Cie. ..	Aspidistras.
Godfrey & Son	Poppies and Pelargoniums.
Hobbies, Ltd.	Roses.
Low, Stuart, & Co.	Metrosideros.
Mouillere et Fils	Hydrangeas.
Perry, Amos	Hardy Ferns.
Peeters & Son	Orchids.
Planche, M. von der ..	Aspidistras.
Rothschild, L. de	Carnations and Statice.
Steensma, G.	Branches, leaves, &c.
Toogood & Sons	Vegetables.
Vacherot, Henri	Carnations and Orchids.
Van Waveren	Spiræas.
Vilmorin-Andrieux & Co. ..	Miscellaneous.
Ware, T. S., Ltd.	Rock garden.

SILVER CUPS.

Blick, C.	Carnations.
Bunyard, G., & Co.	Rock garden.
Cutbush, W., & Son ..	Clipped trees.
Debrie, Edouard	Floral art.
De Crom, Jules Hye ..	Odontiodas.
Ferard Maison	Carnations.
Fortin & Laumounniere ..	——
Fromow & Sons	Ornamental trees and shrubs.
Gunn & Sons	Herbaceous flowers.
Kelway & Son	Herbaceous flowers.
Lockwood, Col.	Calyphas.
Portland, Duke of	Vegetables.
Pulham & Son	Fountain.
Salomon, L.	Hydrangeas, &c.
Smith, F., & Co.	Herbaceous flowers.
Syndicat des Maraichers d'Avignon	Vegetables and fruit.
Villebon, Mme. H.	Paintings.

SILVER CUPS (A).

Alsen, W. E.	Sweet Peas.
Baardse, D.	Hydrangeas and Begonias.
Barr & Sons	Pigmy trees.
Bonfiglioli	Anthuriums.
Burnham, Lord	Carnations.
Carlton-White	Box trees, &c.
Carter Page & Co.	Annuals, &c.
Cheal, J., & Sons	Garden design.
Davidson, F. H.	Orchids.
Dobbie & Co.	Pansies and Aquilegias.
Dorrien-Smith, Capt. ..	Puya chilensis.
Douglas, J.	Carnations.
Haage, A. F., Junr. ..	Cacti.
Halliford French Garden ..	Vegetables.
Hogg & Robertson	Cut flowers.
Jackman & Son	Cypripediums, &c.
Jarman & Co.	Centaureas, &c.
Kent & Brydon	Rock garden.
Lange, G.	Pinks and Carnations.
Laxton Bros.	Fruit trees.
Mercatelli, M.	Marantas
Miller, W. G.	Pyrethrums, &c.
Nonin, A.	Group of plants.
Pomologia e Orticulture ..	——
Prior, D., & Son	Roses.
Reamsbottom & Co.	Anemones.
Russell, L. R.	Carnations.
Storrie & Storrie	Fruit trees.
Tracy, H. A.	Orchids.
Willmott, Miss E.	Chinese plants.

SILVER-GILT MEDALS.

Bath, R. H.	Cut flowers.
Berger, J.	Cherries.
Breadmore, C. W.	Sweet Peas.
Cunningham, Fraser & Co.	Alpines.
Draps, E.	Adiantum.
Elliott, C.	Alpines.
Faudel-Phillips, Sir G. ..	Carnations.
Friedlander, J.	Schizanthus.
Graire, H.	Orchids.
Guichard, M.	Camellias.
Japanese Horticultural Society	Miscellaneous exhibit.
Lilley, F.	Cut flowers.
Lissadell Nursery Co. ..	Alpines.

SILVER-GILT MEDALS.—(Contd.)

Name.	Nature of Exhibit.
Mawson, T.	Statuary.
Miller, Mrs.	Preserved fruit.
Proffitlich, M.	Lily of the Valley.
Syndicat Agricole de St. Donat	Asparagus and Cherries.
Turbat, G.	Group of Roses.

LARGE SILVER MEDALS.

Barnes, R. J., & Sons ..	Roses.
Brassey, H. S.	Carnations.
Breadmore, C. W.	Sweet Peas in tubs.
De Smet, Firmin	Stove plants.
Forbes, J., Ltd.	Florists' flowers.
Harkness & Son	Herbaceous plants.
Herbert, C. H.	Pinks.
Libraire Agricole de la Maison	——
Locksheath Nurseries ..	Cut flowers.
Macwatt, Dr.	Alpines and Primulas.
Mortimer, S.	Stocks and Cucumbers.
Sydenham, Robert, Limited	Sweet Peas.
Sydenham, W.	Violas.
Wood, F.	Model of garden.

SILVER MEDALS.

Bees Ltd.	Alpines.
Birchenall, G.	Orchids.
Brown, W. & J.	Herbaceous flowers.
Chauvin, M.	New fruits.
Compoint, M.	Asparagus.
Correvon, H.	Alpines.
Dickson, Alex., & Sons, Ltd.	Roses.
Dicksons, Ltd.	Trees and shrubs.
Dutch Winter School, Boskoop	Azaleas.
Edwards, Mrs.	Alpines, &c.
Ellison, H. N.	Ferns, &c.
Fabius, A. A.	Adiantum farleyense.
Felton, R. F.	Carnations.
Gibson & Co.	Herbaceous flowers.
Goosens, Mons.	Orchid paintings.
Grosvenor, Hon. Mrs. ..	Parterre garden.
Gwillim, A. L.	Begonias.
Hansen, Julius	Lily of the Valley.
Harris, J.	Anemones.
Hemsley, H.	Formal garden.
Hicks, E. J.	Roses.
Hubert & Co.	Cut flowers.
King, E. W., & Co.	Sweet Peas.
Ladds, P.	Geraniums.
Libraire Horticole	——
Mattock, J.	Roses.
May, H. B., & Sons	Flowering plants.
Munch & Haufe	Roses.
Pulham & Son	Fountain.
Pyrenees Hort. Society ..	Vegetables.
Quillet, Francois	——
Regnier, Alex.	Orchids.
Reuthe, G.	Rhododendrons.
Reuthe, G.	Rock garden.
Rocca, E.	Lemons.
Salisbury, Marquis of ..	Stove plants.
Seabrook & Sons	Fruit.
Stevenson, J.	Sweet Peas.
Thompson & Charman ..	Rock gardens.
Ware, W. T.	Tulips.

BRONZE MEDALS.

Carmel Jovine	——
Chadwick Memorial School	Miscellaneous.
Dawes, T.	Rhubarb.
De Haye	Fruits.
Franciosa, M.	Vegetables.
Girault, M.	Preserved Grapes.
Jovini, M.	Vegetables.
Ladhams, Ltd.	Herbaceous flowers.
Ottani, Luca	——
Plat, Victor	Fruits.
Pyrenees Chair of Agriculture	Plans.
Rich & Co.	Cut flowers.
Roumat, M.	Strawberries.
Smith, G., & Co.	Junipers.
Smith, T., & Co.	——

FIG. 46.—TRAINED SPECIMEN INDOOR FLOWERING PLANTS EXHIBITED BY MESSRS. J. CYPHER AND CO.

(See p. viii. of First Supplement.)

NOVELTIES OF 1911.

THE GARDENERS' CHRONICLE

ESTABLISHED 1841

No. 3706

No. 1,306.—Vol. LI. {THIRD SERIES.} SATURDAY, JANUARY 6, 1912. {Registered as a Newspaper. WITH SUPPLEMENT.} {PRICE 3d. POST-FREE, 3½d.

SUBSCRIPTION—Inland, 15/-; Foreign, 17/6 [22fr. 10c.] [$4 26c.] per annum. Entered at the New York Post Office as second-class matter.

Postal Address—41, Wellington Street, Covent Garden, W.C. Telegraphic Address—"Gardchron, London." Telephone—Gerrard, 1543.

☞ **For CONTENTS see page 1.**

For Advertisement Charges see page xvi.

Now Ready.

WEBBS' SPRING CATALOGUE for 1912 Beautifully illustrated, and contains particulars of the Newest and Best varieties of Vegetables and Flowers, Potatos, etc. A copy will be sent gratis and post free to all who have gardens.

WEBBS' SEEDS FOR PRESENT SOWING.—Webbs' Selected Ailsa Craig Onion, 2s. 6d. per packet; Webbs' Early Favourite Pea, 2s. per pint, 3s. 6d. quart; Webbs' Peerless Melon, 2s. 6d. per packet; Webbs' Wonderful Carrot, 1s. 3d. per ounce; Webbs' Supreme Dwarf Bean, 2s. per pint.

42 GOLD MEDALS & SILVER CUPS awarded to Webbs' Vegetables & Flowers at the leading Exhibitions during the past three years.—WEBB & SONS, The King's Seedsmen, Wordsley, Stourbridge.

IRON & WIRE FENCING for GARDENS, Tree Guards, Gates, Arches, Espaliers. Rose Stakes, and Ornamental Garden Iron and Wire Work of every description. Send for Illustrated Catalogue, free.
BOULTON & PAUL, Ltd., Manufacturers, Norwich.

GREENHOUSE PAINTING & GLAZING "Vitrolite" superior to White Lead Paint, 9/- per gall. "Plastine" supersedes Putty, 16/- per cwt. Full particulars from W. CARSON & SONS, Grove Works, Battersea. Agents throughout the country.

MAKING OF GARDENS. — Practical advice given. Plans prepared. Planting a speciality. Many years with leading landscape firms.
HUBBARD, Ardingly, Sussex.

AUTO SHREDS FUMIGANT kills Leaf-mining maggot, insects in greenhouses, frames. For 1,000 cubic feet, 6d.; 10,000, 3s. 6d. No apparatus.
WM. DARLINGTON & SONS, Patentees, Hackney, N.E.

BARR'S SEED GUIDE FOR 1912 contains a select List of the best VEGETABLES, and the most beautiful ANNUALS and PERENNIALS for Garden and Greenhouse, including many fine Novelties of Sterling Merit. Sent free on application.
BARR & SONS, 11, 12 & 13, King St., Covent Garden, London.

BARR'S REMOVAL SALE OF HARDY PLANTS.—Clearance List of surplus plants at greatly reduced prices (prior to removal of nurseries from Surbiton to Taplow), sent post free on application.
BARR & SONS, 11, 12 & 13, King St., Covent Garden, London.

DICKSONS Horticultural Manure & other high-class Fertilizers; also Dicksons Improved Mushroom Spawn. Priced Circulars free on application to DICKSONS, Royal Seed Warehouses & Nurseries, Chester

PERPETUAL FLOWERING CARNATIONS—My stock is the largest in Europe; Inspection invited. Export to the Colonies a speciality. Catalogue free on application.
C. ENGELMANN, Saffron Walden.

VINES. VINES. VINES. — Fruiting Canes in pots of all leading varieties. Orders now booked for immediate delivery.
G. COLEMAN, The Vineries, Burgess Hill, Sussex.

New Phloxes.

GUNN & SONS were Awarded a Silver Cup at the Great Show at Olympia. New Lists now ready. Address: Olton, Warwickshire.

Sow Now Under Glass.

SUTTON'S NEW CUCUMBER, KING GEORGE.—When exhibited at the R.H. Society's Great Temple Show, this fine Cucumber won the admiration of crowds of visitors. Very handsome form, with dark green skin, slightly ribbed and practically without a handle Per packet, 2s. 6d., post free.

SUTTON & SONS, The King's Seedsmen, READING.

FIDLER'S NEW ILLUSTRATED CATALOGUE of CHOICE GARDEN SEEDS will be sent post free to any address on receipt of postcard. Write at once for a copy; it may help you to save 50 per cent. on your seed bill this season.
FIDLER & SONS, Royal Berkshire Seed Stores, Reading.

BATH'S SELECT SEEDS.—New Illustrated Catalogue of Choice Vegetable and Flower Seeds, with full cultural notes, is now ready, and will be sent post free on application.
(Dept. A), R. H. BATH, Ltd., The Floral Farms, Wisbech.

GARDEN PESTS.—Cross's "Clubicide" is the Gardeners' Insurance against damage by Eelworm, Wireworm, Slugs, Maggot, and all Disease Germs and Insect Pests. Kills all harmful Bacteria, reinvigorates the soil, stimulates plant life. In 1s. flasks and ½-gall. and 1 gall. drums. From all Seedsmen.
Sole Manufrs.: A. CROSS & SONS, Ltd., Glasgow.

ORDER TRELLIS-WORK NOW.—Get our book on Trellis-work, showing Screens, Wall Panels, Window Surrounds, Arches, Arbours, &c., post free.
BOULTON & PAUL, Ltd., Norwich.

Roses and Herbaceous Plants.

GUNN & SONS were awarded the 25 Guinea Challenge Cup in each collection at the Leamington Show. Up-to-date List for each now ready.
Address: Olton, Warwickshire.

To the Trade.

COOPER, TABER & CO., Ltd., 90 & 92, Southwark Street, London, have posted their WHOLESALE CATALOGUE to all their customers. If not received another copy will be sent on application.

OSMUNDA for Orchids.—Consignments arrive fortnightly. 2s. 6d. per bushel; per bag, 8s. 6d.
SANDER & SONS, St. Albans.

CHRYSANTHEMUMS.—Descriptive Catalogue of choice up-to-date varieties and novelty list for 1912, sent free. Apply
H. W. THORP, Durrington, Worthing.

LANDSCAPE GARDENING.—W. INNES STUCKEY, Landscape Gardener, Piccadilly Mansions, Piccadilly Circus, W. (With the late Mr. H. E. Milner).

ALPINES AND PERENNIALS. Rare Rhododendrons and other Shrubs, Daffodils and Bulbous Plants; Construction of Rockeries. Catalogues ready
G. REUTHE, Keston, Kent.

CROLL'S ROSES.—Catalogues now ready, and post free on application.
D. & W. CROLL, 63, Commercial Street, Dundee.

GISHURST COMPOUND is harmless in use; its soluble Sulphur, &c., has for 40 years cured Blights and Fungus on Plants, and is good for washing unhealthy dogs. Gishurstine keeps boots dry in all weathers; they will polish. Good for Harness.
Wholesale from—
PRICE'S PATENT CANDLE CO. Ltd., London.

BUNYARD'S CATALOGUES, free on application.

FRUIT TREES AND VINES.

SHRUBS AND CONIFERS.

ROSES AND OTHER CLIMBERS, in Pots.

HERBACEOUS & AQUATIC PLANTS for Autumn planting.

GEORGE BUNYARD & CO., Ltd., Royal Nurseries, Maidstone. Established 1796.

WELLS' CATALOGUE OF CHRYSANTHEMUMS, Perpetual Carnations, Herbaceous Plants, Alpine and Rock Plants, now ready, post free on application. Wells' Book, "The Culture of the Chrysanthemum," post free, 1s. 6d.
W. WELLS & CO., Merstham, Surrey.

HUTS FOR THE GARDEN. — Fruit Rooms, Potting Sheds, Workshops, Cycle Houses, Boot Rooms, Servants' Mess Rooms, Children's Playrooms, &c. Send for Illustrated Catalogue, free.
BOULTON & PAUL, Ltd., Norwich.

WALTERS & CO., Morland Rd., Croydon, Makers of Lath Roller Greenhouse Blinds; Trellis Screens and Fences, Arches, Arbours, Rose Pillars. Established over 20 years. Catalogues free.

JOHN McKERCHAR'S LILIUM AURATUM for planting, per dozen, 6s. to 12s.; for Exhibition, per dozen, 18s. to 30s. Special prices quoted per 100 on application.
35, Giesbach Road, Upper Holloway, London, N.

WM. DUNCAN TUCKER & SONS, Ltd., 27, Cannon Street, London, E.C.; Works, Tottenham. Conservatories, Winter Gardens, Vineries, Peach-houses, Portable Buildings, etc. Catalogue gratis.

CUTHBERT'S SPECIALITE MUSHROOM SPAWN.—NEW SPAWN NOW READY. We continue to receive the most gratifying testimonials as to the productiveness and good quality of our Spawn. Per bushel, 5s.—R. AND G. CUTHBERT, Seed and Bulb Merchants, Southgate, Middlesex.

NEW BEGONIAS, Lorraine Type.—Begonia Gloire of Cincinnati (awarded A.M. on Dec. 5th, 1911), Begonia Konkurrent—the above group awarded Silver Flora Medal at R.H.S., Dec. 5th, 1911. Prices on application to—
J. BRUCKHAUS, Orleans Nursery, Twickenham, Middx.

PERPETUAL-FLOWERING or American Tree Carnations; strong, healthy Guernsey plants from pots, 4s. per doz., carriage paid; 20s. per 100, carriage forward; ask for catalogue, 75 varieties, with full directions.—
VAN DER SLUYS, F.R.H.S., Ramee, Guernsey, C.I.

CANTERBURY BELLS, in blue, white and rose, strong plants, 1s. dozen, 7s. 100; Rock plants, good collection of strong plants in 3½ inch pots, 8d. each, 4s. 6d. dozen; Hollies maderiensis, 1½ foot to 2 feet, 1s. each, 9s. dozen; 2 feet to 2½ feet, 1s. 6d. and 2s. each; 2½ feet to 3 feet, 2s. and 2s. 6d. each; strong bushy Privet, ready to make hedges at once, 3 feet to 5 feet high; Rhubarb, strong forcing roots, 7s. 6d. per dozen; Daw's Champion, 12s. dozen.—S. BROADHEAD & SONS, Wooldale Nurseries, Thongsbridge, Huddersfield.

SALES BY AUCTION.

Monday, Wednesday and Friday Next.

MONDAY and FRIDAY NEXT, January 8th and 12th, at 12 o'Clock.—Japanese and other Lilies in great variety, Gladiolus, Montbretias, Begonias, Gloxinias, Lily of Valley, &c. 200 lots of choice Herbaceous Plants, Flowering and Decorative Shrubs, Spiræas, Iris, Dielytras, &c.

At 1.30 o'Clock.—1,500 ROSES. Standard, Dwarf, Climbing, &c. Also Standard and other Fruit Trees. Azaleas and Rhododendrons.

WEDNESDAY NEXT, January 10th, at 12 o'Clock.—Choice Herbaceous Plants, new and rare Perennials, Climbers, &c. Japanese Liliums in variety. Gladiolus, Begonias, Spiræas, and other hardy roots and bulbs.

At 1.30 o'Clock.—8,000 ROSES. English, French, and Dutch grown, comprising Standards, Dwarfs, climbers, T., H.T., and H.P. Together with Standard, Pyramidal, Bush, and Dwarf-trained Fruit Trees.

At 5 o'Clock.—A consignment from Belgium of Ornamental and Decorative Palms and Plants, Azaleas indica and mollis, Rhododendrons, Aspidistras, Standard Bays, &c.

MESSRS. PROTHEROE & MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C. On view morning of Sale and Catalogues had.

Wednesday Next, January 10th, at 12 o'Clock.

Trade Sale of many thousands of Gladiolus in large variety. Miscellaneous hardy bulbs, roots, and forcing plants. Single and double Begonias and Gloxinias, Hyacinthus candicans, Hardy Lilies, Amaryllis, Crozy cannas, Spiræas in variety, Watsonias of sorts. 40,000 Lily of the Valley Berlin Crowns, &c.

2,000 CHOICE YOUNG FRUIT TREES

of approved varieties, eminently suitable for trade requirements.

At 2.30 o'Clock—

A splendid consignment just to hand of

2,370 CASES JAPANESE LILIUMS,

comprising—

55,800	LILIUM AURATUM.	
1,210	"	" RUBRO-VITTATUM.
250	"	" PLATYPHYLLUM.
360	"	" WITTEI.
30,780	"	SPECIOSUM ALBUM.
62,960	"	" RUBRUM.
24,720	"	" MELPOMENE.
9,840	"	LONGIFLORUM.
32,535	"	" GIGANTEUM.
9,355	"	" FORMOSUM.
1,036	"	" Black stem var.
340	"	" EXIMEUM.
5,450	"	TIGRINUM.
225	"	BROWNII.
1,250	"	HANSONII.
1,000	"	BATEMANNEI.
1,000	"	THUNBERGIANUM ATRO-SANGUINEUM.
1,035	"	CONCOLOR, KRAMERI, and HENRYI.

2,750 Iris Kæmpferi, 1,280 Tree Pæonies, 750 Lycoris squamigera, Davallia Bullata balls, Morning Glory and double Hollyhock seeds, Japanese Iris drawings, &c.

MESSRS. PROTHEROE & MORRIS will SELL the above by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, E.C. On view morning of Sale, and Catalogues had.

Friday Next, January 12th, at 12.45 o'Clock.

By order of Messrs. Sander & Sons, St. Albans.

A splendid importation of DENDROBIUMS, in fine condition, comprising Dendrobium primulinum giganteum type, D. Crassinode, D. nobile Lang Tang var., D. thyrsiflorum, D. devonianum, D. Brymerianum, and

DENDROBIUM WARDIANUM GIGANTEUM,

in splendid order, including some enormous masses of this superb type, which is becoming very scarce.

Choice Established Orchids, cool, intermediate, and hot-house varieties from various sources. Orchids in flower and bud.

MESSRS. PROTHEROE & MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C. On view morning of Sale and Catalogues had.

TO HORTICULTURAL BUILDERS, GARDENERS, AND OTHERS.

By order of the Liquidator re Crompton & F. A. Fawkes, Ltd., Chelmsford.

FRED TAYLOR & CO. are instructed to SELL by AUCTION, at the Anchor Works, New Writtle Street, Chelmsford, on TUESDAY, JANUARY 16th, at 11 a.m., the whole of the stock of this well-known firm, including the patterns and stock in trade of greenhouse fittings, furnaces, garden lights, frames, &c., without reserve. Catalogues in due course of the Auctioneers, 17, Duke Street, Chelmsford.

Rose Trees, Shrubs, Fruit Trees, Lilies, Perennials.

MR. J. C. STEVENS begs to announce that his Sales by Auction are held every

MONDAY and WEDNESDAY,

at 12.30.

Catalogues post free.

Lots purchased, packed and forwarded to all parts.

STEVENS' AUCTION ROOMS

(Established 150 Years),

38, King St., Covent Garden, London, W.C.

BUSINESSES FOR SALE, &c.

Over 100 Nurseries, Market Gardens, Florist & Seed

BUSINESSES to be DISPOSED OF.

MESSRS. PROTHEROE and MORRIS' HORTICULTURAL REGISTER contains full particulars of the above, and can be obtained gratis at—67 and 68, Cheapside, London, E.C.

NURSERY BUSINESS (Midlands); splendidly situated in excellent Market centre; 11 glasshouses (heated), &c.; genuine; low price.—WARRINGTON BENNETT, Warwick Road, Kenilworth.

FOR SALE, NURSERY, FLORIST and FRUITERERS; 200 feet glass; recently rebuilt; stock; horse, van and cart, and cottage; a good going concern; well worth seeing.—Apply, A. EMENY, Gayton Road Nursery, 38, Gayton Road, Hampstead, N.W.

OLD-ESTABLISHED FLORIST, SEED, PLANT, BULB and JOBBING BUSINESS for Disposal; excellent position; long lease.—Particulars from G. G., Box 20, 41, Wellington Street, Covent Garden, W.C.

BUSINESSES TO LET.

HUNTINGDONSHIRE (midway between Huntingdon and St. Ives).—To Nurserymen and others.—To be Let or Sold, with immediate possession, walled-in garden, known as "The Vineyards," containing by estimation 1a. 1r. 31p. (more or less), with ranges of Vineries, greenhouses, potting sheds, Peach house, Tomato and Cucumber houses, brick pits (heated), cold pits, stable, cart shed, and other convenient outbuildings; the garden is well stocked with permanent wall and standard Fruit Trees, all in full bearing, including Pears, Plums, Apples, Peaches, and Apricots.—For rent, order to view, and further particulars, apply to DILLEY, SON & READ, Land Agents, Market Hill, Huntingdon.

TO BE LET or SOLD, compact FREEHOLD NURSERY; cottage; about 1 acre land; five glasshouses, each 60 feet, all fully heated, Rochford tubular boiler; large potting shed; within easy distance Reigate, Redhill.—Particulars, THOMPSON, Hookwood, Horley, Surrey.

BUSINESS CARDS.

BRITISH COLUMBIA.—A practical Man will be pleased to send particulars, gratis, to anyone requiring information on climate and soils for Fruit Growing, &c.—Address, H. WHITING, F.R.H.S., Kettle Valley Irrigated Fruit Lands, Ltd., Rock Creek, British Columbia.

CHARLESWORTH & CO.,

HAYWARDS HEATH, SUSSEX.

ORCHID SPECIALISTS,

IMPORTERS, EXPORTERS, RAISERS & GROWERS.

PRICED ILLUSTRATED CATALOGUE FREE.

PUBLISHERS' NOTICES.

KYNOCH'S "Wild Flowers of Barmouth," fourth edition, including Salwey's Scarce List, Habitats and Notes, published 1863, pp. 50, price 6d.—J. KYNOCH, 8, College Road, Brighton.

Pronunciation of Plant Names.

A few copies are still to be had. Post free, **1/1½**.

Present-Day Gardening.

Edited by R. HOOPER PEARSON, Managing Editor of the GARDENERS' CHRONICLE. Now Ready. Post free, **1/9** each.

Numerous Beautifully Coloured Plates are contained in Each Volume.

1.—**Sweet Peas.** By HORACE J. WRIGHT, late Secretary and Chairman of the National Sweet Pea Society. With Chapter on "Sweet Peas for Exhibition," by THOS. STEVENSON.

2.—**Pansies, Violas, and Violets.** By WILLIAM CUTHBERTSON, J.P., and R. HOOPER PEARSON.

3.—**Daffodils.** By the Rev. J. JACOB.

4.—**Orchids.** By JAMES O'BRIEN, V.M.H., Secretary of the Orchid Committee of the Royal Horticultural Society.

5.—**Root and Stem Vegetables.** By ALEXANDER DEAN, V.M.H., Chairman of the National Vegetable Society.

6.—**Carnations and Pinks.** By T. H. COOK, Head Gardener at Sandringham; JAMES DOUGLAS, V.M.H., and J. F. MCLEOD, Head Gardener to Mr. Pierpont Morgan. Contains 8 full-page coloured plates.

7.—**Rhododendrons and Azaleas.** By W. WATSON, with preface by Sir F. W. MOORE, M.A. (the first popular volume published on this subject). Contains 8 full page coloured plates.

8.—**Lilies.** By A. GROVE, F.L.S., with preface by H. J. ELWES, F.R.S. Contains 8 coloured plates.

9.—**Apples and Pears.** By GEORGE BUNYARD, V.M.H. Contains 8 coloured plates.

10.—**Roses.** By H. R. DARLINGTON, with 8 full-page coloured plates. A double volume, price **2/10**, post free. Special presentation edition, with beautiful cover design, in cloth gilt, gilt top, price **3/10**, post free

THE PUBLISHER,

"Gardeners' Chronicle" Offices, 41, Wellington St., Covent Garden, London, W.C.

PLANTS, &c., WANTED.

WANTED, large PALMS, for cash or in exchange for other plants.—Send particulars to WILLS & SEGAR, Royal Exotic Nursery, South Kensington.

WANTED, THUJA GIGANTEA.—Will any Nurseryman, who may be selling off cheaply the above for hedge purposes, well-rooted and regularly moved, communicate to me height and price per 100.—A. TREVOR-BATTYE, Ashford Chace, Petersfield.

WANTED, narrow-leaved, coloured Dracænas for stock purposes; cash or exchange.—H. B. MAY & SONS, The Fern Nurseries, Upper Edmonton.

PLANTS, &c., FOR SALE.

CALADIUMS, Bulbs, Candidum, excellent Argyites.—Inclusive list and prices to E. DYSON, Cherryhinton Hall, Cambs.

SYRINGA FLOWERS.—Gebr. Jongkind, Zijdstraat, Aalsmeer, Holland, beg to offer forced Lilac (Syringa), from 3d. to 5d. per spray.

WILTON & GODARD'S Chrysanthemum Catalogue now ready.—"Claremont," Durrington, Worthing.

SEEDLING BRIARS.—Fine clean stocks for Budding or Grafting, with splendid roots.—WILL TAYLER, Hampton, Middlesex.

PERPETUAL CARNATIONS.—Our 1911 Illustrated Catalogue free. Read our "Cultural Treatise," 1s.—YOUNG & CO., Carnation Specialists, Hatherley, Cheltenham.

PERPETUAL TREE CARNATIONS, best varieties, strong, young plants out of small pots, 20s. 100; good flowering plants in 5-inch pots, 10s. 6d. doz.—G. S. EVANS, F.R.H.S., Carnation Specialist, Bexley Heath.

FOR SALE, large specimen plants, including Eucharis, Agapanthus, Pancratiums, Stephanotis, Clivias, Bougainvilleas, Allamandas, Ixoras, and Cypripediums insigne.—KIDLEY, Chipley Park Gardens, Wellington, Somerset.

SHRUBS.—Offers for about 300 Euonymons and 50 Privet Lilac, &c., 4 feet, 5 feet, 6 feet high; must be sold.—WARD, Esq., 12, Melrose Road, Southfields, S.W.

THE

Gardeners' Chronicle

No. 1,306.—SATURDAY, January 6, 1912.

CONTENTS.

Androcymbium melanthoides 13
Apples, colour in ... 13
Ash tree, a famous ... 4
Books, notices of—
Annuals and Directories 9
Botanical Magazine ... 9
Old Garden Literature 10
The Flora of Formosa 8
The Orchid World ... 9
Electro-culture 8
Florists' flowers—
Scabious... 12
Gardeners' Royal Benevolent Institution ... 9
Hardy flower border—
Helleborus angustifolius 5
Hengrave Hall, Suffolk 5
Hooker, Sir Joseph, the late. 11; last published work of 9
International Horticultural Exhibition, entries for 9
Law note—
Thefts from nurseries 15
London's open spaces ... 10
Market fruit garden, the 3
Nut, flowering of the ... 14
Obituary—
Binot, Pedro Maria .. 15
Childs, Thomas ... 15
Deal, William 15
Inch, Robert 15
Riddell, Andrew ... 15
Wilkinson, Mrs. Thomas 15
Novelties of 1911—
Orchids 1
Paris spring show ... 9
Parks, London, school-classes in the 10
Pinus radiata (Monterey Pine) 13
Plants, new or noteworthy—
Two new Chinese Cotoneasters... ... 2
Potato and floral sterility, the 13
Rosary, the—
Cultural hints for January 5
Scotland, notes from ... 10
Societies—
Blackburn and District Horticultural ... 14
Coventry Chrys. ... 14
Linnean 9, 15
Manchester and North of England Orchid... 14
Reading and District Rose and Sweet Pea 15
Royal Horticultural ... 9
Royal Horticultural of Ireland 15
Surveyors' Institution 14
Strawberries, causes determining the yield of 10
Sweet Pea sport, a ... 14
Trees and shrubs—
Elliottia racemosa ... 11
Trees, street 3
Water garden, the formation of a 16
Week's work, the ... 6, 7

ILLUSTRATIONS.

Androcymbium melanthoides 13
Ash tree at Ruthin 4
Beckett, Mr. E., portrait of 6
Collier, Mr. J., portrait of 7
Cotoneaster amœna 2
Cup to be presented by Messrs. Bull & Sons at the Royal International Horticultural Exhibition 14
Elliottia racemosa 11
Harriss, Mr. E., portrait of 7
Hengrave Hall, Suffolk (Supplementary Illustration)
Jordan, Mr. F., portrait of 6
Stevenson, Mr. Thomas, portrait of 7
Trees, street, in Winnipeg 3
Weston, Mr. J. G., portrait of 6

NOVELTIES OF 1911.

NEW ORCHIDS.

IN the large number of Orchids presented to public notice during the past year hybrids have again largely outnumbered the new species and varieties introduced from their native countries. Many distinct and beautiful hybrids have received Awards from the Orchid Committee of the Royal Horticultural Society, but these certificated plants represent only a very small proportion of the seedlings that are raised. Many hybridists find that the further they carry the work of hybridisation between hybrids the greater the proportion of seedlings which possess but little merit compared with existing sorts; even a cherished cross may produce only seedlings which possess but little value.

If we consider the amateur Orchid-raisers first, Lt.-Col. Sir GEORGE L. HOLFORD, K.C.V.O., Westonbirt (gr. Mr. H. G. Alexander), has certainly taken the lead, not only for the good quality of his new Orchids but also for superb cultivation. His First-class Certificates commenced with the first show of the year, the subject gaining the award being the handsome Lælio-Cattleya Cranstouniæ. Then followed L.-C. luminosa aurea, and it is worth notice that in both these crosses Lælia tenebrosa "Walton Grange variety" was one of the parents, and stamped its fine characters on the progeny. The handsome Odontoglossum crispum Peacock secured a First-class Certificate on January 31, and Cypripedium Lucifer on October 10. At the meeting on November 21 Sir George Holford obtained three First-class Certificates for Lælio-Cattleya Prince of Orange, Brasso-Cattleya Digbyano-Mossiæ "Holford's variety," and Cypripedium Chapmanii "Westonbirt variety" respectively. Awards of Merit were also obtained for Brasso-Cattleya Euterpe, Cymbidium Alexanderi, a charming hybrid between C. insigne and C. eburneo-Lowianum; Cypripedium Draco and C. Lord Wolmer, both "Westonbirt varieties." A few testimonies to Mr. Alexander's skill in Orchid cultivation were the specimens of Lælia anceps Chamberlainiana, with 12 spikes, and Cattleya Trianæ Hydra, with 96 flowers; this latter plant was probably the finest single specimen of its kind ever seen.

Sir TREVOR LAWRENCE, Bart., K.C.V.O., Burford (gr. Mr. W. H. White), has excelled during the past year in showing many fine species exceptionally well grown and profusely flowered, a marked example being the specimen of the blue Dendrobium Victoria Regina, for which a First-class Certificate and a Cultural Commendation were awarded on July 18. Awards of Merit were also obtained for the remarkable mahogany-red Odontoglossum Swietenicolor, Epidendrum Laucheanum, Trichopilia Lehmannii, Cattleya Mossiæ aureola, Catasetum Cliftonii, and the two pretty hybrids Cœlogyne burfordiensis and Odontoglossum ramos-Edwardii. Botanical Certificates were awarded for Dendrobium Annæ, a pretty new Javan species; Maxillaria callichroma, Dendrobium delicatum, Platyclinis glumacea valida and some others. Mr. White secured Cultural Commendations for Zygopetalum maxillare, with 13 flower spikes; Dendrobium glomeratum with 30 flowers; Maxillaria picta, M. phœnicanthera, and Trichosma sauvis.

Sir JEREMIAH COLMAN, Bart., V.M.H., Gatton Park (gr. Mr. Collier), has raised some excellent Odontiodas, and continued his former successes by winning First-class Certificates for Odontioda Vuylstekeæ Lady Colman, and O. Bradshawiæ "Gatton Park variety," both hybrids exhibiting a brilliant red colour. Awards of Merit were also obtained for Catasetum Cliftonii, Oncidium Claesii, and Cypripedium insigne "Gatton Park variety," and Botanical Certificates for Bulbophyllum galbinum and Collabium nebulosum.

J. GURNEY FOWLER, Esq., Glebelands, South Woodford (gr. Mr. J. Davis), secured a First-class Certificate for Odontoglossum illustre variety "Europa," a showy large flower; Awards of Merit for O. crispum Alcyone, O. Halseyanum and the scarlet Odontioda Cooksoniæ; and a Certificate of Appreciation for Odontocidium Fowleri, a pretty and very interesting bigeneric hybrid between Odontoglossum cirrhosum and Oncidium sarcodes. Fine examples of the cultural success at Glebelands were given in several large specimens shown at the Olympia exhibition, the best two being Oncidium macranthum, with over 300 flowers, and Anguloa Cliftonii, with six large, yellow and purple blooms.

FRANCIS WELLESLEY, Esq., Westfield, Woking (gr. Mr. Hopkins), always shows well-grown specimens. At the Temple Show he was awarded a First-class Certificate for his beautiful Lælio-Cattleya Morningtoniæ (Pallas × Fascinator), and at later shows, Awards of Merit for Cattleya Freya var. "Mrs. Frederick Sassoon" (Dowiana aurea × Mantinii nigricans), and L.-C. Denganii. The golden-yellow sepal and petals of L.-C. Denganii are tinged with Indian red, and the lip is a ruby-claret shade.

DE B. CRAWSHAY, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), has produced a large number of new hybrid Odontoglossums from crosses effected between all the available species. Those for which he received Awards are equal to the best, and they comprise Odontoglossum rosefieldiense (Harryanum × Lambeauianum), O. harvengtense Crawshayanum, and two forms of his fine Odontioda rosefieldiensis (O. triumphans × C. Noezliana).

Mrs. NORMAN COOKSON, Oakwood, Wylam (gr. Mr. H. J. Chapman), exhibited the best white Calanthe in C. Cooksoniæ, and the pretty hybrid Cypripedium Sibyl superbum.

W. R. LEE, Esq., Plumpton Hall, Heywood, Manchester, on November 21, obtained two First-class Certificates for Odontoglossum Chione and O. Thais, two grand additions to a favourite genus. Other noteworthy plants from amateur collections were the very fine and darkly-coloured Odontoglossum mirum "The Dell variety," for which Baron BRUNO SCHRÖDER (gr. Mr. J. E. Shill), received a First-class Certificate at the Temple Show; the handsome Odontioda Boltonii of WILLIAM BOLTON, Esq., Warrington; Miltonia Hyeana, of F. M. OGILVIE, Esq.; Sophro-Lælio-Cattleya Goodsonii, of H. S. GOODSON, Esq.; the handsome Odontoglossum illustrissimum Queen Mary, for which WILLIAM THOMPSON, Esq., secured a First-class Certificate, May 9; and the rose-purple Odontoglossum Godmanii of F. DU CANE GODMAN, Esq.

NURSERYMEN.

Messrs. J. CHARLESWORTH & Co. have shown valuable novelties which gained nine First-class Certificates and 11 Awards of Merit. The First-class Certificates were for Odontoglossum Harwoodii (Wiganianum × maculatum auriferum) and O. Harwoodii "The Shrubbery variety," the two highest awards to the same cross testifying to its fine and distinct character; Odontoglossum Jeanette, a distinct O. Rossii cross of the O. Smithii class, O. Ossulstonii "Shrubbery variety," Lælio-Cattleya Germania,

L.-C. Sylvia, L.-C. Martinetii King George V., Odontioda Euterpe, Sophro-Lælio-Cattleya Jeanette, and Sophro-Cattleya Lotte Müller, all of fine colour, the last-named being one of the prettiest and brightest yet shown. The Awards of Merit were for Odontoglossum Olympia, O. Mariæ (Uro-Skinneri × Queen Alexandra), a very attractive hybrid, Cattleya Dupreana, C. Rhoda illuminata, Cypripedium Actæus Durbar, Trichopilia Gouldii, a pretty and fragrant white flower spotted with pink; the neat little bigeneric hybrid Oncidioda Cybele, and to prove that interest in fine species has not waned awards were given for the rare Houlletia Wallisii, Gongora leucochila, and Miltonia Warscewiczii picta.

Messrs. SANDER & SONS, St. Albans, are among the most frequent exhibitors of good plants, their Orchid collectors ensuring a good proportion of new species, while their extensive operations in Orchid raising keep that department a source of interest. Their First-class Certificates in 1911 were for Oncidium corynephorum var. Mulleri and Odontioda Lambeauiana at the Temple Show; Cattleya Ashtonii alba, a pure white form out of an otherwise coloured batch; Odontoglossum ardentissimum Queen Mary, and at the last show of the year Cypripedium Royal Sovereign, a large, showy and distinct flower. Messrs. SANDER'S Awards of Merit were for Cymbidium Gottianum, a C. insigne cross; Dia-Cattleya Sanderæ, a beautiful white flower; Odontioda Bradshawiæ "Sander's variety"; Odontoglossum mirum Bruggense, O. eximium King George, O. amabile The Queen, O. amabile Empress of India; and Cypripedium Charles Sladden, a worthy hybrid between C. bellatulum and C. glaucophyllum and the first cross obtained from the latter species.

Messrs. JAS. VEITCH & SONS, Chelsea, were awarded a First-class Certificate for Cymbidium langleyense (Lowianum × Devonianum), a remarkable cross between two distinct sections of the genus; and at the last meeting in the year a similar Award for Lælio Cattleya Nella (L.-C. Dominiana × C. labiata), florally one of the best and finest coloured hybrids.

Messrs. ARMSTRONG & BROWN, Tunbridge Wells, secured a First-class Certificate for Cypripedium Royal George (Harrisianum superbum × Minos Youngii), a large and perfect flower, and an Award of Merit for C. Duke of Connaught (Beryl × nitens "Ball's variety"), a stately flower of distinct colour. Among the many hybrids of C. Fairrieanum shown by the firm C. Capt. Spender Clay (villosum auriferum × Fairrieanum) and C. Mrs. Spender Clay (Actæus × Fairrieanum) were the most remarkable, being novel in form and distinct in colour. Odontioda Cupid and Lælio-Cattleya Phyllis were also good novelties.

Messrs. J. & A. A. MCBEAN secured the highest award for Lælio-Cattleya St. Gothard "McBean's variety," and Awards of Merit for Cattleya Venus lutescens and Brasso-Cattleya Leucothœa.

Messrs. MANSELL & HATCHER received Awards for the white Cattleya Mossiæ Queen Mary and Vanda Kimballiana alba, and Botanical Certificates for Grobya fascifera and Eria flava.

Mr. E. V. Low gained an Award of Merit for Cypripedium aureum laekenense; Messrs. HASSALL & Co. for Cypripedium Carola (Thompsonii × Euryades); and Mr. W. J. BIGGS for his distinctly-coloured Lælio-Cattleya W. J. Biggs, whose derivation is a problem. Gongora Tracyana is recorded from TRACY'S NURSERIES, Twickenham, and other exhibitors have shown promising novelties which only require development.

CONTINENTAL EXHIBITS.

The Awards to Continental exhibitors have been few. Orchidists look for Monsieur CHAS. VUYLSTEKE, of Loochristi, Ghent, to show them his newest and best at the Temple Show, and they are never disappointed. Last year he had some specially good Odontoglossum and Odontiodas, the fine new Odontioda Coronation securing a First-class Certificate.

Monsieur FIRMIN LAMBEAU, the leading amateur on the Continent, secured First-class Certificates for Cypripedium Vogelsang and Miltonia Bleuana Peetersiæ, two superb novelties.

Monsieur HENRI GRAIRE, Amiens, has shown some pretty hybrids of Odontoglossum Rossii and Odontiodas, the brightly-coloured O. ignea taking an Award of Merit; Monsieur THEODORE PAUWELS secured a First-class Certificate for Brasso-Cattleya Senateur de Bast, and an Award of Merit for Cymbidium Pauwelsii. Monsieur MAURICE MERTENS, of Ghent, has shown regularly, but has seldom entered any plants to go before the Committee.

The following new and rare Orchids have been illustrated in the *Gardeners' Chronicle* in 1911:—

Angræcum pellucidum, Jan. 14, p. 18.
Brasso-Cattleya Digbyano-Mossiæ "Holford's variety," Dec. 2, p. 393.
Brasso-Cattleya Digbyano-Mossiæ "Westonbirt variety," (Coloured Supp.), Jan. 7.
Brasso-Cattleya Senateur de Bast, March 4, p. 137.
Bulbophyllum cylindraceum, Jan. 7, p. 3.
Bulbophyllum tremulum, May 13, p. 291.
Calanthe Cooksoniæ, Nov. 18, p. 350.
Cattleya Trianæ Hydra, Feb. 18, p. 108.
Cœlogyne burfordiensis, May 27, p. 331.
Cymbidium Gottianum, Mar. 25, p. 180.
Cymbidium langleyense, Mar. 11, p. 146.
Cypripedium Chapmanii "Westonbirt variety," Dec. 16, p. 431.
Cypripedium Chas. Sladdin, Jan. 28, p. 50.
Cypripedium Duke of Connaught, Feb. 11, p. 83.
Cypripedium Lucifer, Oct. 21, p. 293.
Cypripedium luteum, June 24, p. 402.
Cypripedium Royal George, Oct. 14, p. 281.
Cypripedium Sibyl superbum, Nov. 18, p. 351.
Cypripedium spectabile at Cork, Nov. 4, p. 315.
Cypripedium tibeticum, June 24, p. 403.
Cypripedium Vogelsang, May 20, p. 309.
Dendrobium aggregatum at Rangoon, Aug. 5, p. 82.
Dendrobium Goldiei, Jan. 21, p. 36.
Dendrobium Victoria Regina, July 22, p. 57.
Dia-Cattleya Sanderæ, May 13, p. 290.
Houlletia Wallisii, Sept. 2, p. 177.
Lælia anceps Chamberlainiana, Feb. 4, p. 78.
Lælio-Cattleya Cranstounie "Westonbirt variety," Jan. 14, p. 27.
Lælio-Cattleya Fascinator-Mossiæ, July 1, p. 422.
Lælio-Cattleya Germania, May 27, p. 325.
Lælio-Cattleya Martinetii King George, July 15 p. 25.
Lælio-Cattleya Nella, Dec. 30, p. 474
Lycaste Locusta, April 29, p. 260.
Masdevallia pachyura, Feb. 11, p. 89.
Miltonia Bleuana Peetersiæ, May 6, p. 274.
Odontoglossum Ceres magnificum, Jan. 7, p. 12.
Odontoglossum Chione, Dec. 9, p. 411.
Odontoglossum crispum Coronation, May 20, p. 315.
Odontoglossum crispum Peacock, Feb. 11, p. 92.
Odontoglossum Groganiæ (Supp.), Feb. 4.
Odontoglossum Harwoodii, Feb. 18, p. 98.
Odontoglossum Harwoodii "The Shrubbery variety," Sept. 30, p. 245.
Odontoglossum illustrissimum Queen Mary, June 10, p. 363.
Odontoglossum Jeanette, April 1, p. 194.
Odontoglossum Black Prince, "The Dell variety," May 27, p. 332.
Odontoglossum Swietenicolor, April 8, p. 210.
Odontioda Rosefieldiensis, May 20, p. 308.
Odontioda Vuylstekeæ Lady Colman, April 8, p. 213.
Orchis italica, Aug. 26, p. 153.
Sophro-Lælio-Cattleya Jeanette, Sept. 23, p. 229.

(To be continued.)

NEW OR NOTEWORTHY PLANTS.

TWO NEW CHINESE COTONEASTERS.

IN the autumn of 1899, when collecting in the neighbourhood of Mengtsze, Yunnan, for Messrs. James Veitch & Sons, Ltd., I had the good fortune to secure ripe seeds of two ornamental species of Cotoneaster. Plants raised from these seeds flowered during the summer of 1902 in the Coombe Wood nursery, and were identified with the then little-known Cotoneaster Franchetii, Bois, and C. pannosa Franch. also from Yunnan. These were already introduced to Monsieur Maurice Vilmorin's famous garden through the agency of Roman Catholic priests, and have since become distributed. A more intimate knowledge proves them to be quite distinct from those I secured for Messrs. Veitch, and these latter have now received specific rank under the names of C. amœna and C. Harroviana.

FIG. 1.—COTONEASTER AMŒNA (SP. NOV.).

COTONEASTER AMŒNA* is allied to C. Franchetii, but is easily distinguished by its twiggy, more dwarf, compact habit, smaller leaves and aristate sepals equalling the petals in length. The fruits are closely clustered together, ovoid, dull red on the exposed side, yellowish on the other; the foliage is retained until late in the year. In a wild state this plant grows 3 feet to 5 feet high. The fruits are scarlet on one side and orange-yellow on the other.

The illustration (fig. 1) is from a spray cut during the last week in October from a plant fruiting in the Cotoneaster collection in Kew Gardens. Unfortunately the birds had taken some of the fruits before the photograph was obtained.

* COTONEASTER AMŒNA.—E. H. Wilson in "Plantæ Wilsonianæ" (ined.), *Hort. Veitch* et *Hort. Kew.*

COTONEASTER HARROVIANA† bears some resemblance to C. pannosa, but is a stronger-growing and altogether more vigorous plant, with larger, more coriaceous, shining, green leaves, ultimately glabrescent below (not permanently tomentose as in C. pannosa), and larger, more numerously-flowered cymes. There are also important floral distinctions between the two species. C. Harroviana forms a laxly-branched shrub, 6 feet to 7 feet high, with spreading, pendent branchlets. Every branch and short lateral branchlet terminates in a large corymb of pure-white, flat flowers, opening almost simultaneously. The flowers are followed by rather small, ovoid, brilliantly-red fruits. Altogether, this new-comer is one of the very finest of its family, and I have great pleasure in associating its name with Mr. George Harrow, the courteous and efficient manager of Messrs. Veitch's Coombe Wood nursery. To this gentleman's enthusiasm, care, and skill, recent plant introductions from China owe much. *E. H. Wilson, Arnold Arboretum, U.S.A.*

STREET TREES IN CANADA.

SOME time ago (see *Gardeners' Chronicle*, vol. xlix., p. 324), I remarked upon the effects of electric shocks upon street trees, and called attention to the growing danger in England from the ever-increasing number of power wires placed close to avenue trees. During the last few weeks, I have been making a tour of the large towns in the North American continent, and have seen terrible effects in the street trees of many of the towns, especially in the Dominion of Canada near to the great power centre at Niagara. Along some of the roads here, there is a voltage of 250,000, and practically one tree in three is more or less damaged, especially in Montreal, where the effects of the tussock moth are also to be noted. Out in the beautiful Cote de Nieges district one finds whole rows of trees damaged by burning and shocks. Trees thus injured fall an easy prey to the ravages of the tussock moth larvæ, and as this insect has two broods in a year, the second hatching just as the tree recovers from its first defoliation, the trees are often killed outright in one season. The female moth does not fly, and seldom moves from the cocoon which produced her, but on this cocoon she lays her eggs; consequently, a tree that suffers from a spring attack invariably suffers from the autumn broods unless steps are taken to prevent such injury. In the States, and especially in Massachusetts, the tree wardens are making a desperate effort to save the trees, and in addition to hand-picking of the cocoons, the school children are paid 10 cents a quart for all the cocoons they collect. Trees that are free from the pest are kept clean by banding the trunks with a grease band. But in Canada there are no tree wardens; the power companies cut and mutilate the trees just how they see fit, and there is no regulation apparently about the insulation of guy wires. The one town that I have found the exception is the great Prairie capital, Winnipeg. Winnipeg will become a second Paris, for even the small trees are being planted and laid out with shrubbery and grass margins. It is only natural that in this town of wide areas the streets should be wide and capable of carrying the traffic of the future. As the population of the town is increasing at the rate of 10,000 a year, the traffic will be enormous, for already the population is 200,000. The illustration (fig. 2) gives a good idea of the lay-out of the streets in this town, and its parks are just as promising. In no town have I met a more promising park area. When one considers the rigorous winter with 80° of frost, the trees are wonderful. The inhabitants of Winnipeg are justly proud of what they have achieved, and are very ambitious for the future. *Pem.*

† C. HARROVIANA.—E. H. Wilson, l. c., *Hort. Veitch*, No. 1315.

THE MARKET FRUIT GARDEN.

FOR persistence of rain the last quarter of 1911 has been almost, if not quite, unequalled in my experience. Consultation of the barometer has been useless during nearly all the time, as the wind has kept shifting about, falsifying all the indications of the mercury. Time after time the barometer has risen through two or more days of unsettled weather only to lead to disappointment. In frequency of rainfall December has proved even worse than November or October, as well as in total quantity. My registers are 14 rainy days and a total of 6.11 inches for October, 18 rainy days and a total of 5.89 inches for November, and 25 rainy days and a total of 6.22 inches for December. Thus, out of 92 days, 57 have been rainy, and the total fall 18.22 inches, which may be compared with 12.18 inches for the first three-quarters of the year. The expression "rainy days," of course, means days of 24 hours on which rain was measurable.

HINDRANCE TO WORK.

As stated last month, the work of fruit planting was practical under passable conditions at times up to the end of November, but after December began the land was kept in a perpetually water-logged condition, unfit for any kind of work upon it. Consequently planting, where much of it had to be done, is now in arrear, and the chances are that but little more of it will be effected before February, as the land is commonly either too wet or hard with frost during the first month of the year. Digging in fruit plantations is also much in arrear, and many employers have found it difficult to provide work for their men. As the greater part of the rain has fallen between sunset and sunrise, pruning has been less interrupted than work on the land. Where manure has been carted into orchards it has had to be left in big heaps, to be barrowed on to the land when frost occurs, or the flood of rain has come to an end. In my younger plantations there are roadways at intervals among the trees for carting manure on and fruit off; but they have been in far too sodden a condition for a month or more to allow of carting over them.

PERVERSE HABITS OF GROWTH.

In pruning young Apple trees of some varieties one cannot fail to be struck with their perverse habits of growth. One of the worst is that of great differences in the size and vigour of the branches which are to form the framework of the trees, as it is a serious hindrance to symmetrical shaping. Moreover, the strongest branches are commonly those growing in the middle of a tree, which it is desirable to keep open to sun and air. These should be cut out cleanly, or the tree will never be a satisfactory one, and the earlier in the growth of the tree this is done, the better it is. A similar fault is that of trees forming the strongest branches in the direction away from the prevailing wind, particularly in exposed plantations, while the branches on the windward side are comparatively weak. Nor is this all the harm done by wind to young trees, for as great a difficulty in obtaining a well-balanced and symmetrical tree arises from the persistent curving of the branches away from the direction whence the prevailing wind blows, which, in my case, is the south-west. The only corrective, which, however, is not perfect, is that of pruning nearly every main shoot to a bud pointing more or less directly to the windward quarter or upwards.

Varieties which have made the longest new growths are most troublesome in the way mentioned. Among these are Beauty of Bath and Gascoyne's Scarlet. The former is a particularly awkward grower, even in sheltered situations, and is difficult to shape properly. The latter with me is one of the most robust of growers, and is no trouble to shape when its form is not distorted by wind, although the extra strong

FIG. 2.—STREET TREES IN WINNIPEG.

branches which it would produce in the insides of the trees must be cut out.

Allington Pippin, as mentioned on a previous occasion, is another variety of Apple difficult to train, though its habit of growth is entirely different from that of either of the varieties just noticed. Its main shoots are comparatively rigid, and its chief fault as a grower is that it produces a profusion of laterals, mostly pointing to the middle of the tree, and needing to be cut out severely. Lane's Prince Albert is similarly troublesome, and even more so in one respect, as its tendency is to produce shoots pointing downwards, while its growth is much less vigorous than that of Allington Pippin. Both varieties in my soil have a propensity to premature fruiting, which needs severe correction to prevent stunting of wood growth.

One of the most disappointing varieties of the Apple planted by me is Domino, not because of its shaping, which is naturally symmetrical, but on account of its inveterate propensity to clothe its branches so profusely with fruit spurs that its wood growth is dwarfed, and a tree becomes mature before its proper time. It appears to require a very rich soil or profuse manuring. The latter has been tried for the last and the present season, but it should have been done earlier. This variety needs very severe cutting-back in its early stages to promote strong growth.

Duchess of Oldenberg is not worth the trouble to train well, as its fruit is not good enough in flavour for dessert, nor big enough to cook. Its shoots have the bad habit of growing inwards, and it is only by very severe thinning out of internal shoots and cutting the rest to buds pointing outwards, year after year, that trees of satisfactory shape can be produced. Summer-pruning, or, still better, disbudding quite early in the summer, is needed in this case, as it is with Allington Pippin and Lane's Prince Albert.

Apple Trees Easy to Shape.

Among the varieties of Apple trees in my plantations found easiest to train in symmetrical shape are Bramley's Seedling, Early Julyan, Warner's King, Queen, Cox's Orange Pippin, Charles Ross, and Mr. Gladstone. They differ widely in vigour of growth, but all tend to form themselves well, with comparatively little correction. Warner's King tends to the growth of sturdy branches too thinly disposed, a fault to be corrected by somewhat severe pruning in its early stages. Irish Peach might be included in the list, if it were not for the habit of that variety of fruiting on its terminals, which, if not checked, leads to the growth of a tree of pendent habit. With young trees of this variety the plan of keeping the leaders short year after year is being tried. This will check fruit production, but the object is to produce short-jointed branches stiff enough to bear the weight of the fruit, and thus to prevent the formation of a tree of "weeping" growth.

Birds and Buds.

From the fact that birds have cleared off the berries of the Hawthorn and most of those of the Holly earlier than usual, there seems to be reason to fear that they will soon turn their attention to the buds of Plums and Gooseberries. No attack has been noticed at present; but it is necessary to inspect the trees and bushes frequently in order to be prompt in spraying them with lime-sulphur as soon as the first signs of an attack are noticed. Unless the buds are molested, there is no need to spray Gooseberry bushes that are not covered with Lichen; while the spraying of Plum trees is best deferred until the buds are on the point of bursting, when the value of a fungicide will be greater than it would be at the present time. Fortunately, lime-sulphur, which is troublesome and "messy" to prepare at home, is now supplied by certain firms, who can instruct users as to the respective degrees of dilution required for their several solutions, which differ in strength. For a winter wash there should be at least 12 lb. of sulphur in 40 gallons of water, and if the maker will inform his customer how much sulphur is in solution per gallon of his preparation, the latter will know how much water to add. Or the latter may obtain a Baumé hydrometer, and dilute according to the density of the concentrated solution. The density of a well-made solution should show 32° to 33° on the Baumé scale, and then 10½ to 11 gallons of water should be added for a winter wash, or half-a-gallon less for each degree lower than 32°. The subject of using a winter wash as a fungicide, however, may be left for a future occasion, when it will be more seasonable than it is at present.

Boxing Apples.

A paper read at the recent fruit show at Ashford recalls attention to the question of packing Apples in bushel boxes. Mr. C. S. Smith, the reader of the paper, said that such boxes cost 5d. to 6d. each, 2s. per hundred for making up (so that apparently they are received in pieces), and 1½d. each to pack. How can such expenses be profitable when first-class culinary Apples, well graded, make only 3s. 6d. to 4s. per bushel, less commission and rail carriage, as hundreds of thousands of bushels were sold in the autumn? One report states that the boxed Bramley's Seedlings sold at the end of the show averaged only 4s. 3d. per bushel, a price much below the rate then current for firsts in London. Is it at all likely that a bushel of Apples would make 6d. more in a box than in a wicker sieve? It seems to me entirely improbable, and the advantage of the wasteful system of using non-returnable boxes does not commend itself to me. There is no reason in using such boxes simply because American and Canadian growers use them. They must use a rigid and closely-covered package, such as a box or a barrel, in exporting Apples; but the same necessity does not arise for home growers, whose fruit is sent only one rail journey, and sold a day or two after its despatch. *A Southern Grower.*

FIG. 3.—FAMOUS ASH TREE AT RUTHIN.

FAMOUS ASH TREE AT RUTHIN.

WE are indebted to Sir Daniel Morris, K.C.M.G., for our illustration (see fig. 3) of a remarkable Ash tree in the grounds of Ruthin Castle, North Wales. The measurement from the base to the first fork is 25 feet, and the circumference at 6 feet from the ground is 16 feet. From the ground level to the first fork the circumference is practically equal, so that taking the quarter girth, this part of the tree contains something like 400 cubic feet of timber. The height of the tree, in the opinion of Mr. Forder, the agent, is about 100 feet. One large limb was broken off in a storm two years ago, but otherwise the tree is perfectly sound. Mr. H. J. Elwes, writing to Sir Daniel Morris recently, expressed the opinion that the Ruthin Castle specimen is probably the finest Ash tree in Wales.

HENGRAVE HALL.

(See Supplementary Illustration.)

THE entrance lodge of the Suffolk residence of John Wood, Esq., is opposite the tiny, spick-and-span village of Hengrave, a little over three miles north-west of the ancient market town of Bury St. Edmunds. It is a most delightful entrance; the lodge is built in the best Elizabethan style, with tall, slender chimneys, and lattice windows looking across the road upon the clean walls and reed thatches of the village. The carriage drive is bordered on the right with a hedge of pruned Box and Yew, 15 feet high, with an occasional archway cut to give access to the woodland walks.

The mansion, which dates from 1530, is the most beautiful example of Elizabethan architecture it has been my good fortune to see. The upper illustration in the Supplement depicts the garden front, which lacks the splendour and beauty of the carriage entrance. In the porch, which leads to the courtyard, there stand two complete sets of beautifully-chased steel armour, with halberds ready; and the ancient Oak doors, 4 inches thick and almost black with age, with heavy iron bolts and bars, are a silent testimony to the troublous times which this famous residence has passed through. Beyond the very wide gravel carriage-sweep there stretches a long broad avenue of Lime and Plane trees, with a view towards Bury St. Edmunds. The lower illustration, with its charming, old, red-brick walls, covered with Roses and other climbing plants and well-filled borders at the foot, shows a garden gate leading to an exceedingly fine old Lime Avenue, composed of trees with huge, gnarled trunks. One can only surmise its age, for Mr. Tuck, who has had charge of this real old-English garden for nearly half a century, pointed out a few trees which he planted 40 years ago, when the owner desired to make the avenue complete, and these fine trees, though they would be noteworthy if otherwise situated, appear to be only babes and striplings against the older and massive specimens.

The flower garden is a comparatively new addition to this old demesne, and restful quietness seems to be the keynote. In front of the house there is a broad terrace, surfaced with gravel, which has been toned by the weather to match the walls of the residence, and a flight of four broad steps of easy gradient lead down to the long central path and spacious lawns as level as the gardener's skill can make them. As will be seen, most of the flower-beds are circled around the centre vase, and at the time of my visit they were exceedingly gay and bright with a variety of flowering plants. Towards the end of the lawn there stands an exceptionally fine Libocedrus decurrens—a part of it comes into the left side of the illustration—45 feet high, and girthing 8 feet at 5 feet up, of perfect symmetry, and bearing quantities of young strobiles. At the end of the lawns there is a broad terrace walk, bordered with fine Box hedges, which enclose three sides of the garden. An uncommon feature of the broad herbaceous borders are the clumps of Pampas Grass, which relieve the levelness of the bordering hedge in an attractive manner.

THE CHAPEL.

Within two minutes walk of the house there stands the manor chapel, which in past ages was so essential an adjunct to the country house. This building, which is faced with flints, and supports an Ivy with a massive stem, was recently restored, and now is used as a chapel of ease for Flempton Church. The clock tower contains a quaint old clock, bearing the date 1778, whilst over the porch there is a vertical sun dial of much greater age. The interior is exceedingly interesting; here are recumbent figures, in vivid colouring, of bygone owners of Hengrave—Earls of Bathe, and Lords Darcie, whilst Dame Elizabeth Kytson placed a beautiful monument "to the memory of my beloved husband, who died September 20, 1608," with falcons and hound. Mural tablets testify the virtues of the Gages, Baronets of Hengrave, which family for generations owned this estate. The perfectly-turned arches are supported by stone pillars, which have Oak caps, and here peep out the globes of the electric light, in sharp contrast to the recumbent figures clad in ruffles and knee-breeches, with rapiers by their sides.

KITCHEN GARDENS.

The mellow walls of this portion of the garden tell the same story of nearly 400 years, which have come and gone since they were built. As we note the countless nail marks we wonder how many times new fruit trees have been planted against the walls, and how many gardeners (not so very many if the length of service of the present head gardener, Mr. Tuck, is any criterion) have trained the branches of the trees with mathematical regularity. This old garden recalls the discussions of a decade ago on soil exhaustion, and we look in vain for evidences of impoverishment. The Strawberries planted last August, to keep up a good succession, evidently find the soil to their liking, for they have made stout leaves and possess fat crowns. But perhaps they owe something to the potting soil in which they were layered. So we pass on to the Raspberry quarter, but here also our quest is in vain, for the canes are tall and strong, and as similar vigour is apparent in the crops of vegetables we conclude that there is no immediate danger of the soil not responding to the skill of the cultivator.

A broad grass path, with flower borders on each side, leads to an old sun dial, which "tells the sunny hours," and a pergola of Roses, with Lavender at the foot, provides a fitting frame for a pair of semi-circular Italian gates of uncommon shape and exquisite workmanship.

Glasshouses do not belong to the Elizabethan era, and the builder of the glass at Hengrave wisely placed them out of sight. The vineries contained ripe Grapes of good size and colour. A batch of Begonia Gloire de Lorraine in small pots bore quantities of brightly-coloured flowers, and retarded Lily of the Valley crowns potted singly into small pots were pushing up strong flower-spikes—these single corner plants are in demand for furnishing small vases. Other houses are devoted to the cultivation of Melons, Cucumbers, Ferns, Cordylines, and winter-flowering Pelargoniums. *A. C. Bartlett.*

THE ROSARY.

CULTURAL HINTS FOR JANUARY.

COMPOSTS of manure and soil should be turned over occasionally before the time comes for using the soil. Be quite prepared with some protective material for outdoor Roses, for it is during the first months of the year that we generally get the most severe weather.

I do not recommend planting in January unless the ground be in an exceptionally favourable condition, but prefer to wait until the end of February, when root-action may be expected to take place in a very short time after the operation. Nevertheless, the class of soil and situation have a direct bearing on this question of planting.

Pot up some dwarf plants ready for planting late in spring. This gives very little trouble, as the plants can be plunged beneath a wall until wanted to fill up the blanks found in the beds and borders at pruning time. Some standards and half-standards should also be potted up for the same purpose, or it will be impossible to make good any blanks discovered after the roots are active without danger of losing the specimens transplanted.

Employ the hoe to destroy weeds which have appeared during the mild winter and keep the ground between the plants as clean as possible.

Much pruning might be done now during open weather and when the ground is not too wet to work upon; such pruning, for instance, as the removal of old and useless wood from large plants growing over arches, pergolas and similar structures. More thinning out might well be practised in such cases. Swaying branches also need securing. It is generally these branches that are most valuable during the flowering season, so we may well thin out to make more room for them. Some of the wood upon Crimson Rambler, Dorothy Perkins, and similar sorts will be too old to give good results, and this should be cut out at any time now. The present is also a good time to kill the lichen or moss frequently found upon the stems of old standards. A little freshly-slaked lime will check this, but should not have any size mixed with it as in the case of whitewash, or it will not be so readily washed off by rains. If the stems are badly affected, I would prefer to scrape some of the worst off before applying the limewash. As a rule, such Roses are growing in much too poor or wet a soil, and if lichen is very prevalent, the Roses should be removed or the soil drained.

ROSES UNDER GLASS.

The earliest Roses will require more heat after this date, and those that have formed flower-buds may be helped by a little liquid manure, applied twice a week. Other batches intended to flower a short time before blooms are obtainable from plants growing against warm walls out-of-doors, should now be started, while all pot Roses should have their pruning finished this month.

It is not too late to graft. Some of the earliest-worked plants will need a shift into pots two sizes larger, using a richer compost, but still keeping them warm and active. Too early or sudden ripening off frequently leads to failure. At the end of March we start to harden our grafted plants before turning them into the open borders. These borders should be prepared soon, so that the ground can get settled down before planting. Free-growing Teas and their hybrids, also all of the dwarf-growing Polyanthas, make good plants the first season if grafted and treated in this way, while it is difficult to secure buds of many of these during summer. Twelve of the very best pot Roses are Richmond (deep crimson), Molly Sharman Crawford (pale lemon or white), Sunrise (orange and carmine), Mrs. Aaron Ward (coppery-orange and yellow), Bridesmaid (deep pink), Betty (golden yellow), Killarney (shaded flesh), Theresa Bevan (coppery-rose and carmine), Lady Hillingdon (golden yellow), Le Progrès (nankeen-yellow), Catherine Mermet (rosy-pink) and Niphetos (pure white). *Practice.*

HARDY FLOWER BORDER.

HELLEBORUS ANGUSTIFOLIUS.

THE narrow-leaved Hellebore, the prettiest of all the Christmas Roses, has pushed up its buds and expanded its blooms recently. The flowers are rather small, and, in that respect, compare unfavourably with those of Helleborus latifolius or H. maximus, which have been in flower for two months or more. But they are snow-white, and the plant should not be omitted from collections or even selections of hardy plants. The flower-buds of Christmas Roses, when picked and the stems immersed in water, expand into very refined flowers after standing for a few days in a hothouse; they are longer opening in a greenhouse or an apartment in a house. H. odorus, a greenish-yellow-flowered species, also flowers profusely throughout the winter; a little extra warmth results in a lengthening of the flower-stems, which is an advantage when used as cut blooms. It is remarkable that frost does not harm the flowers, but continued rains, with a low temperature, spoil the petals. *R. P. B.*

The Week's Work.

THE KITCHEN GARDEN.

By EDWIN BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

WINTER GREENS.—Although the past summer was unfavourable for all green crops, the weather of autumn and winter up to the present has been exceptionally mild, and all members of the Brassica family, as well as late-sown Turnips, have made exceptional growth. Provided very severe frost is not experienced, there will not be such a shortage of green vegetables as was anticipated in the autumn.

THE SEED ORDER.—Most of the seedsmen have already issued their catalogues for 1912, and it will be advisable to send the order for the supply of seeds as early in the New Year as possible. When the seeds are received they should be unpacked and stored in a dry place, where they are out of the reach of mice. It is probable that seeds of many kinds of vegetables will be scarce this season, and those who have any that have been left over from the previous season should test them to see if their germinating qualities are still good. It is a good plan to purchase a few of the more promising novelties each season and test them with standard sorts in order to have the very best varieties available.

SEED-SOWING.—Many kinds of vegetables should be sown early in January under glass and raised in gentle heat. Onions need to be sown early, so that the crop will mature early, as the bulbs keep better when they are ripened thoroughly. Sow the seed in shallow boxes provided with plenty of drainage materials, using a moderately light, porous soil and making it very firm. Ailsa Craig is still the best variety for furnishing large bulbs. Leeks may also be sown now for an early supply.

GARDEN TOOLS.—The stock of tools should be examined at this season, replacing any that are worn out and repairing others that are only damaged. Tools should always be cleaned and put away in a proper order, and the operator should be allowed time to do this.

SOILS AND MANURES.—The yard where the potting soil, manures and pots are stored should be put in order, and fresh stocks of the various materials procured. All refuse should be burned on the garden fire and the ashes saved for distributing on freshly-cultivated ground. A supply of stakes should be got in readiness for the coming season and the ends sharpened, which will provide employment for the staff under cover on wet days.

CROPS IN FRAMES.—Material for covering the frame in very cold weather should be got in readiness. The plants should be examined occasionally with a view to removing decayed leaves and rubbish. An abundance of fresh air should be admitted to the frames on all favourable occasions.

DIGGING AND TRENCHING.—Take the opportunity when the ground is hard with frost to wheel manure and other materials on land that is to be dug, thus saving labour as well as preventing damage to the paths and verges. Ground operations should be pushed on with all speed. I strongly advocate deep cultivation, the benefits of which were more than ever apparent during last season.

PUBLIC PARKS AND GARDENS.

By CHIEF OFFICER.

THE DANGERS OF WARD JEALOUSY.—Although ward representation is a very necessary concomitant of municipal government, it has to be admitted even by the most democratic section of the community that, while much can be urged in its favour, there is a good deal to be said against it. Without the slightest doubt, the abuse of ward representation—often known under the name of "wardism"—has very frequently been responsible for a great amount of municipal extravagance that might otherwise never have taken place. In this and in other ways a principle, admirable enough in itself, has not infrequently proved most inimical to the best interests of a municipality as a whole. Ward jealousy, in whatever form it may show itself, if brought to bear upon the important deliberations of a council in full assembly, never fails to react injuriously upon the interests of the town and its whole population. That such a state of affairs often exists is well known to any citizen who takes an intelligent interest in the proceedings of his local governing body. No public department worked by a municipal authority can be absolutely free from the ill-effects of wardism; but some departments, in the very nature of things, are more liable than others to be affected by it. A parks department comes within the latter category. Amongst other things, wardism is frequently responsible for the employment of inferior bands, simply because the players happen to reside in a ward where they can make their influence felt. In the same way, a number of ratepayers making themselves sufficiently insistent, have been known to get bands sent to play in open spaces which were not in the slightest degree suitable for the purpose of musical performances. In both instances the result is a waste of public money. Since bowling and tennis playing have become so popular during the past few years, one of the latest phases of wardism in its relation to park management is a growing tendency to influence parks committees to convert every little garden space into a site for a bowling green or tennis court, however unsuited it may be for the purpose. Ward representatives are continually being urged by deputations of their constituents to use their influence in getting bowling greens set down in every ward where a small open space exists, regardless of the fact whether or not it is likely to pay. It very often requires no small amount of moral courage on the part of a committee to refuse requests brought before them in this manner, and it is exceedingly fortunate for a parks department when the governing body realises the fact that, while it is their duty to provide as much reasonable amusement in the way of games and sports as possible, they have an equally important duty to perform in catering for the wants of the older and younger inhabitants to whom such pastimes do not appeal. In addition to this, a parks committee has a very strong argument against the wholesale conversion of town gardens into bowling greens or tennis courts. One of the objects of such a body is the beautifying of the town, and no one would for one moment suggest that bowling greens, however well laid out, have such a pleasing appearance as a piece of ground of equal size set out irregularly, and planted with choice trees, shrubs and flowering plants. For these reasons, a very strong stand should be taken against any attempt to encroach upon the smaller town spaces which serve such a useful purpose when laid out in the form of town gardens. The question very naturally arises in what way can the evil effects of wardism, in so far as it has to do with parks, be prevented? Is it the duty of the chief officer of the department concerned (who is a paid official) to attempt to influence the policy of those placed by the ratepayers in authority over him? This is undoubtedly an exceedingly delicate matter for an official to deal with, but it is, without question, his duty to use every legitimate means to get his committee to pursue a correct line of policy in the management of his department, and not only the committee, but the public at large. One of the most useful means at his disposal for enlisting the sympathy and assistance of the general public I propose to describe in a later issue.

THE HARDY FRUIT GARDEN.

By F. JORDAN, Gardener to Lady NUNBURNHOLME, Warter Priory, Yorkshire.

PRUNING AND TOP-DRESSING.—The weather during the last quarter of last year was unusually mild and wet, and outside operations, especially in the case of heavy soils, were carried out under great difficulties. Constant treading on fruit tree borders during wet weather is very detrimental to the borders, and much of the work of pruning, training, and top-dressing has been allowed, perforce, to fall into arrear. But the work of training and securing fruit trees, such as the Morello Cherry on north walls, has been done this season without inconvenience to the operator from cold. Later, when the weather is dry, the trees may be dressed with one of the many alkali washes on the market, as strong measures to eradicate pests may only be taken when the trees are dormant. The work of mulching, pruning and training may be carried out whenever the weather is favourable. Mulches are given for two different purposes (1) to protect the roots of newly-planted trees from severe frosts; (2) to give manurial assistance to established trees when they are in active growth and swelling their fruits. Any light material that will ward off frost is suitable for winter mulches, such, for instance, as manure from old Mushroom beds. Mulchings used for establishing trees in spring and summer should be of a stimulating nature, and heavy enough to keep the soil moist even during times of drought. Last season proved the value of these summer mulchings and of deep cultivation.

THE FLOWER GARDEN.

By J. G. WESTON, Gardener to Lady NORTHCOTE, Eastwell Park, Kent.

PLANTING SHRUBS.—The weather of the past three months has not been, on the whole, favourable for planting operations. In the early autumn the ground was too dry to permit of an early start, and when the fine weather broke rain fell so continuously that planting could only be carried out under difficulties. Against these disadvantages may be set the absence of frost and the ground being warmer than usual. Every opportunity should now be taken to carry out any planting that is contemplated. In preparing the ground for trees and shrubs it should either be trenched or dug deeply. If a shrubbery is being replanted, any old roots present should be cleared from the ground and, with other rubbish, burned, returning the ash to the soil when the planting is in progress. The planters of a past generation relied largely on Laurels, Aucubas, Privet and other common evergreens for their shrubberies, but nowadays there is a wider choice of subjects, including many handsome flowering species. Shrubs should be selected not only for

their flowers, but for their beautiful autumn-tinted foliage and their coloured bark, which brightens up the scenery when the plants are defoliated in winter. Bamboos should be planted more extensively in gardens, but these require shelter, as they are not capable of succeeding in situations exposed to cold winds.

BEDDING PLANTS IN FRAMES.—Pentstemons, Calceolarias, and Marguerites growing in frames should be afforded an abundance of fresh air during mild weather. Our practice is to dibble the cuttings in frames during the autumn in beds of prepared soil made quite firm. The frames are kept closed until the cuttings are rooted, when fresh air is given, increasing the amount of ventilation gradually until, in favourable weather, the lights are removed altogether. After the cuttings are rooted the tops of the plants are pinched out, and drier conditions afforded till the side shoots appear, when the plants are treated as before. Early in the spring the plants I have named should be placed in boxes or pots for planting out-of-doors early in the season.

VIOLETS IN FRAMES.—Frames in which Violets are planted should be freely ventilated at all times, but particularly during damp and mild weather. Remove the decayed foliage and stir the soil lightly. During very cold weather it will be better to maintain the necessary warmth in the frames by means of coverings on the glass in the frames than employ artificial heat.

PLANTS UNDER GLASS.

By THOMAS STEVENSON, Gardener to E. MOCATTA, Esq., Woburn Place, Addlestone, Surrey.

FOREWORDS.—The year 1912 should be a memorable one to horticulturists, in view of the great International Exhibition to be held in May, when indoor plants will doubtless form an important feature of the display. Since 1866 great changes have taken place in gardening, and especially in respect to the culture of indoor plants. In 1866 it was the fashion to grow large specimen plants, but nowadays large batches of smaller decorative plants are cultivated, some for use as plants, but the majority for furnishing cut blooms. In many establishments only a few kinds of plants are grown, these being relied upon to provide a bright display during their respective seasons. This class of plants I shall deal with in my remarks.

CLEANSING OPERATIONS.—The plant houses are generally comparatively empty at this season of the year, owing to the demand for decorative subjects in the dwelling-house, and where this is the case it will afford a good opportunity to put them in good order. In addition to cleansing the woodwork and glass, the walls should be limewashed, the water pipes painted, pipe-runs and tanks cleansed, the stages re-surfaced with ashes or gravel, and the houses made generally sweet and clean, ready for another season's work. Where there are several plant houses, it is an advantage to empty one, cleanse it thoroughly, and then transfer the plants of the next house into it. This will save labour in shifting and re-shifting the plants in the houses whilst working in them. All the pots should be washed, and, where necessary, the plants should be sponged or sprayed, at the same time taking the opportunity to throw away any plants that have become leggy or untidy, and are not required for stock purposes. This will allow of a little extra space and light for those that remain. The temperatures of the houses should be kept as cool as is consistent with the requirements of the plants, as excessive fire-heat often does more harm than good, for very few plants are in an active condition of growth at this season. The show houses containing such plants as Begonias, Carnations, Poinsettias, and Chrysanthemums should be kept at an even temperature of about 50° at night, allowing a slight rise during the day. A dry atmosphere is conducive to the flowers remaining for a long time in a good condition.

THE ORCHID HOUSES.

By J. COLLIER, Gardener to Sir JEREMIAH COLMAN, Bart., Gatton Park, Reigate.

MANAGEMENT OF ORCHID HOUSES.—During damp, mild weather great care is necessary in regulating the temperatures and the amount of atmospheric moisture in the Orchid houses. On bright mornings the bare spaces may be damped thoroughly, and, if the floors are damped again about 2 o'clock in the afternoon, this will provide sufficient atmospheric moisture until the next morning. During dull, mild weather one damping before noon will be sufficient, but when cold weather necessitates the use of considerable fire heat the amount of moisture should be increased accordingly. The bottom ventilators should be opened to admit fresh air on every possible occasion. I endeavour to have one or more of the bottom ventilators open for an inch or thereabouts always. The following temperatures should be maintained in the various houses as nearly as circumstances permit:—*Cool house*, 50° to 55° by day (with sun heat the thermometer may be allowed to rise to 60°) and 50° at night: *Intermediate house*, 50° to 53° by day, rising with sun heat to 66°: at night 57°: *Cattleya house*, 60° to 65° by day, rising to 68° with sun heat, and at night 58° to 60°: and *East Indian house*, 65° to 70° by day, rising to 75° with sun heat, and at night 65°. The temperatures I have given should be governed more or less by the weather conditions; when it is extremely cold a degree or two below those I give will cause less harm to the plants than excessive fire heat. The warmth from the hot-water system may be economised with advantage by utilising some protective covering over the roof exterior, but the covering should always be removed as early as possible in the morning, or it will form an obstruction to the light. When water is necessary, select, if possible, a bright morning for the work, always remembering that careful watering is one of the secrets of success in the culture of Orchids.

CLEANSING THE HOUSES.—If the cleansing of the houses has not been done already, the work should be attended to at once. The woodwork and glass should be washed thoroughly both inside and out, first removing the plants from the stages, so that they may not become splashed with dirty water. When this operation is over, the plants should be sponged with a suitable nicotine insecticide, taking care to dislodge any scale-insects that may be present on the leaves and rhizomes. After this has been done, scrub the pots and replace them in position on the stages, arranging the plants to the best advantage, so that the houses have a smart appearance. This overhauling of the plants affords a favourable opportunity to determine any that need re-potting; it will probably be found that very few subjects will need potting at this stage, but I always re-pot any plants that need it, even in winter. Removing the plants will show the haunts of cockroaches and woodlice which must be destroyed.

FRUITS UNDER GLASS.

By E. HARRISS, Fruit Foreman, The Royal Gardens, Windsor.

PREPARATIONS FOR FORCING.—The work of pruning and cleansing fruit trees under glass should be pushed on as quickly as possible. Peach trees especially should be pruned and trained at an early date, as the buds will soon be swelling and are then easily injured. The heating system should be overhauled, if this has not been done already, and any defects remedied. In many of the older fruit-houses the heating arrangements are inadequate to maintain the requisite temperatures during very severe weather without having the pipes excessively hot, which exposes the plants to injurious influences, including an early attack of red spider. In some of the new fruit-forcing houses at Frogmore there are no fewer than 12 rows of hot-water pipes, whilst many of the older houses have had extra pipes added. We find no difficulty in maintaining suitable temperatures, and, at the same time, are enabled to promote a moist, genial-growing atmosphere. The cost of the fuel, too, has been reduced considerably, as the fires never need to be driven to excess, as is the case where the heating surface is limited.

LATE VINES.—The bunches should all be cut from the vines by this date, so that the houses may be thrown wide open for a few weeks preparatory to starting the vines again into growth. The roots will, no doubt, be in need of a good watering and, if they are in a healthy condition, an application of weak liquid manure will be beneficial. Any vine borders which are in need of renovation should be attended to at once. Old vines which appear to be thoroughly worn out will often produce excellent crops if the roots are lifted carefully and replanted in fresh soil. Where both inside and outside borders exist, the roots in the one border may be attended to one year and those in the other the following season, thus avoiding too great a check. The work of renovation should be done expeditiously, preserving as many roots uninjured as possible. The pruning of the vines should be no longer delayed; in dealing with very old vines it is advisable not to shorten the shoots too much.

EARLY PEACHES AND NECTARINES IN POTS.—Trees of Peach and Nectarine which were placed under glass early in November will be on the point of blooming. At this stage they should be fumigated with a nicotine compound to destroy any aphides that may be present. Whilst the trees are in flower a minimum temperature of 55° should be maintained in order to create a warm, dry atmosphere suitable for the free dispersal of the pollen. At this time of the year the flowers need to be pollinated by gently dusting them with a rabbit's tail on a stick. Keep the atmosphere dry till the flowering is finished, and endeavour, by paying careful attention to the ventilation, to keep the temperature equable. During the time the trees are in flower the house should never be quite closed. Although it is necessary at this season to be sparing in applying water to the roots, the soil must never be allowed to become dry; when water is necessary give sufficient to wet the mass of soil and roots completely. If the trees were repotted in the autumn they will not need stimulants until the fruits have stoned. Fresh batches of trees may be placed into heat as required, and all the trees which are at present out-of-doors should be placed in a cool house. In the case of early Peach trees planted in permanent borders, make sure before the flowers appear that the roots are not suffering for want of moisture

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, *as well as specimens of plants for naming, should be addressed to the* **EDITORS, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

APPOINTMENTS FOR THE ENSUING WEEK.

SATURDAY, JANUARY 6—
Soc. Française d'Hort. de Londres meet.

MONDAY, JANUARY 8—
Roy. Hort. Soc. Exam. of Public Parks' Employés.
United Hort. Benefit and Prov. Soc. meet.

TUESDAY, JANUARY 9—
Roy. Hort. Soc. Coms. meet.

WEDNESDAY, JANUARY 10—
Deal, Walmer and District Hort. Soc. Ann. Meet.

THURSDAY, JANUARY 11—
Manchester and North of England Orchid Soc. meet. Bolton Hort. and Chrys. Soc. Ann. Meet. British Gardeners' Assoc. (London Branch) meet. (Lecture on "Chrysanthemums" by Mr. Cooper.)

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—37·9°.

ACTUAL TEMPERATURES:—
LONDON.—*Wednesday, January 3* (6 P.M.): Max. 51°; Min. 46°.
Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—*Thursday, January 4* (10 A.M.): Bar. 29·9°; Temp. 52°; *Weather*—Dull.
PROVINCES.—*Wednesday, January 3*: Max 50° Ireland W.; Min. 40° Scotland N.

SALES FOR THE ENSUING WEEK.

MONDAY AND WEDNESDAY—
Rose Trees, Fruit Trees, Perennials, &c., at Stevens's Auction Rooms, 38, King Street, Covent Garden, at 12.30.

MONDAY AND FRIDAY—
Herbaceous and Border Plants, Liliums and Hardy Bulbs, at 12; Roses and Fruit Trees, at 1.30; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

WEDNESDAY—
Japanese Liliums and other Hardy Bulbs, Perennials and Herbaceous Plants, at 12; Roses and Fruit Trees, at 1.30; Palms and Plants, at 5.
Trade Sale of Miscellaneous Plants and Bulbs, at 12; 2,370 cases Japanese Liliums, at 2.30; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

FRIDAY—
Choice Imported Dendrobiums, also Established Orchids, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.45.

Electro-Culture.

The application of electricity to horticultural practices is brought a definite step nearer general realisation by the experiments which have been carried out of recent years, both in this country and abroad. With the chief of the experiments carried on at home our readers are familiar; but the results of other experiments carried out elsewhere have but recently become available for consideration, and it is of these that we now propose to speak. The experiments in question were conducted at the Imperial Biological Station at Dahlem (Germany), and in them not only were the plants subjected to different modes of electrification compared with others growing under normal conditions, but they were compared also with plants covered with wire cages so arranged as to exclude natural atmospheric electricity.

By these means it was possible both to determine the effects of the electric currents to which the plants were submitted, and ascertain the effects of the electricity normally present in the air.

As the result of growing plants (dwarf French Beans) beneath insulating wire cages, and hence screened from atmospheric electricity, the yield, as compared with the normally exposed control, showed a reduction of 13.5 per cent. Further experiments of this kind are in progress in order to determine to what extent, if any, this reduction of yield is to be attributed to the reduced light-intensity owing to shading by the wired network of the cage.

The experiments in electrification were of two kinds. In one the atmospheric electricity was intensified by currents passing along overhead wires, and in the other high-tension electricity was applied.

The plants used in the experiments included Spinach, Radish, Corn Salad, and Cabbage Lettuce.

The results were generally in favour of the former mode of electrification, that is of electrification by intensifying the atmospheric electricity. The increased growths under these conditions ranged from 15-40 per cent. The high-tension electricity (direct current) caused, when a strong current was employed, a yield of 90-105 per cent, as compared with the normal control; in other words, a slight average decrease. The weak high-tension current, however, affected the yield more favourably, and produced, in some cases, as much as 25 per cent. increase.

With electrified Strawberries a hastening of the crop by several days was observed. Certain conclusions with respect to the time of application of the current are noteworthy. In summer it is best applied in early morning and evening; in spring and autumn from 7.30 until 9.30, and two hours before dusk; and in winter only in the morning from 9.30 until 11.30. It is useless to apply electricity during rain, but foggy weather is a particularly suitable occasion for its application.

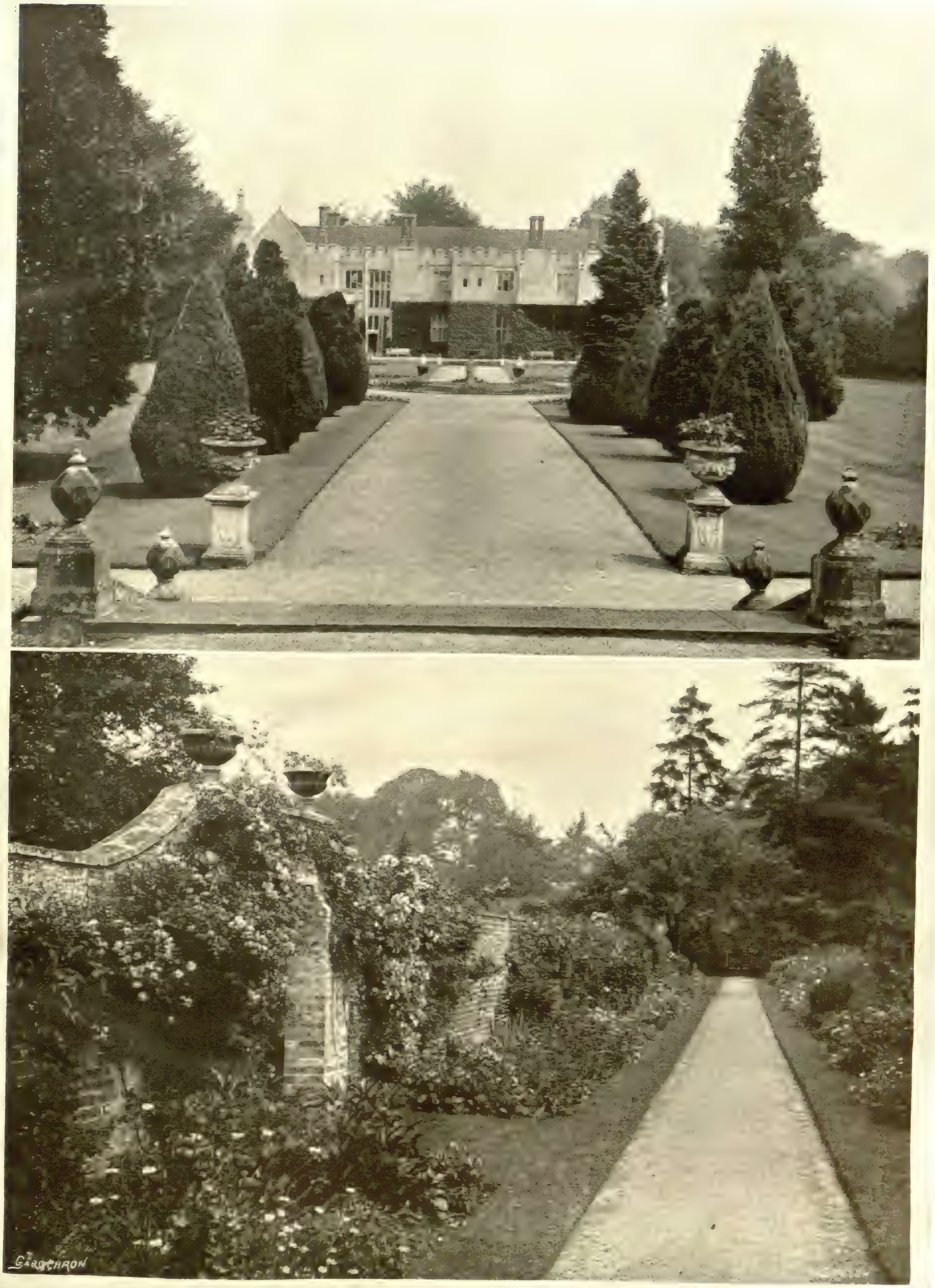
The Dahlem report concludes with a very definite caution. It points out that the whole question of the utilisation of electricity for augmenting the growth and speeding up the development of plants is in an experimental stage, and suggests that growers should be cautious in adopting schemes of electrification for these purposes, since the stage at which electricity can be used on a commercial scale with assured results has not yet been reached.

Nevertheless, with the results of the Dahlem experiments and those of Sir Oliver Lodge, Professor Priestley and others, it can scarcely be doubted that the near future may see a widespread adoption of this new agent for the forcing of plants.

The Flora of Formosa.

Since the Island of Formosa was formally ceded by China to Japan in 1895, the new rulers have accomplished marvels in the development of its resources. A botanical survey has been instituted, and Japanese botanists have been exceedingly active in the investigation of the flora of the island, and in publishing the results. Formosa lies partly within the Tropics, and has an area of about 15,000 square miles. The elevation of the highest point, Mount Morrison, is usually given as about 12,850 feet, though Dr. Hayata cites an elevation of 13,094 feet on the same mountain. Previous to the Japanese occupation, the botany of the densely-wooded interior was known but very imperfectly, and doubtless much yet remains to be done before the survey is completed. The total number of species of flowering plants and Ferns already recorded from the island is 2,660, belonging to 836 genera and 156 families; so that nearly three-fourths of the families of the world are represented. There are three important publications of the *Botanical Survey*,* two of which have already been noticed in these columns, and the third, now to be considered, is not the least important, as Dr. Hayata brought over the whole of his material to Kew in order to make comparative studies. He also visited Paris, Berlin and St. Petersburg, where many types of eastern plants are preserved. The following note in his introduction is characteristic of the Japanese devotion to duty: "During my stay at Kew, I was away from my work for a little more than a week, when I went to Brussels to take part in the International Botanical Congress." Dr. Hayata's two independent contributions to the botany of Formosa add 660 species, 135 genera, and three families to those previously known; and a large proportion of the species are new. The collections dealt with in the present work, as well as those in his *Flora Montana*, are in greater part from the mountain region; but the genuine Alpine element is very small. Arabis Morrisonensis, from an altitude of upwards of 13,000 feet, is one of the few recorded from a great elevation. The paucity of peculiar genera in the Formosan flora is a little surprising, after the rich harvest yielded by Central and Western China. There are new species of almost all the genera of wide distribution from Clematis to Arundinaria in the classification of Bentham and Hooker's *Genera Plantarum*. The descriptions are in Latin and the notes in English, so that it is an open book to western botanists, and the book is purely botanical, systematic and geographical. Even approximate dimensions of the new trees are not given. Of the dozen species of Quercus and five of Castanopsis described there is no indication in any instance whether it is a shrub or tree. A new Beech, Fagus Hayatæ, is described as "arbor excelsa." The omission of all details of size is unfortunate. Among the imperfectly-known trees is a Sweet Chestnut, designated Castanea sativa, Mill. var. formosana, Hayata, sp. nov.! The author probably intended describing it as a new species, and then changed his mind, but omitted to delete. There are large numbers of new Orchids, and few Liliaceæ, excepting Smilax. Lilium konishii is the only new Lily, "near L. japonicum, but differs from it in having narrower leaves." Under Scirpus triquetra we read: "The present plant is one of the most useful in Formosa. It is the principal source of the

* I. *Enumeratio Plantarum Formosanarum*, by J. Matsumura and B. Hayata. Octavo, pp. 702, with 18 plates. 1906.
II. *Flora Montana Formosæ*, by B. Hayata. Octavo, pp. 260, with 41 plates. 1908.
III. *Materials for a Flora of Formosa, &c.*, principally made at the Herbarium of the Royal Botanic Gardens, Kew, by B. Hayata. Octavo, pp. 471. 1911.



Photographs by H. N. King.

HENGRAVE HALL, SUFFOLK, THE RESIDENCE OF JOHN WOOD, ESQ.

material of which the mats called taiko-mushiro are made." And this is the only reference we have noted to applied botany. We understand that Dr. Hayata is engaged on a comprehensive series of illustrations of the plants of Formosa, which should afford some idea of their decorative value.

It should be mentioned that Mr. Takiya Kawakami, Botanist to the Formosa Government, has published a *List of the Plants of Formosa*, which is really a concordance of Latin and Japanese names.

OUR ALMANAC.—With our issue for next week we propose to publish the *Gardeners' Chronicle* Almanac *In order to make it as useful as possible for reference, we shall be obliged if Secretaries of Horticultural, Botanical and Allied Societies, or any of our correspondents, will send us* **IMMEDIATE INFORMATION** *of all fixtures for 1912.*

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the Committees of this Society will be held on the 9th inst. in the Society's Hall, Vincent Square, Westminster.

ROYAL INTERNATIONAL HORTICULTURAL EXHIBITION, 1912.—We are asked to announce that with reference to Non-competitive Exhibits, applications for space *must* reach the Secretary, Mr. T. GEOFFREY W. HENSLOW, 7, Victoria Street, S.W., on or before January 13. Entries for the Competitive Classes *must* be sent on or before February 1 next.

LINNEAN SOCIETY.—The next general meeting will be held on Thursday, January 18, at 8 p.m. Paper: Dr. A. ANSTRUTHER LAWSON, F.L.S.—"Some Features of the Marine Flora of St. Andrew's." Exhibition: Miss E. L. TURNER, F.L.S.—Lantern Slides of Bittern and Nest.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—The seventy-second annual general meeting of the members and subscribers of this Institution will be held at "Simpson's," 101, Strand, London, on Thursday, the 18th inst., at 2.45 p.m., for the purpose of receiving the report of the Committee and the accounts of the Institution for the year 1911; electing officers for the year 1912; and for the election of 20 annuitants on the funds. There are 71 candidates. The chair will be taken by HARRY J. VEITCH, Esq., F.L.S., V.M.H., Treasurer and Chairman of the Committee, at 2.45 o'clock. The poll will be open at 3 o'clock and close at 4 o'clock precisely, after which hour no voting papers can be received. During the year 1911 ESTHER PLUMMER, MARY CHAPMAN, MARY CLEMENT, HARRIET BARNFIELD, SARAH A. CLARK, SELINA COOKSON, ELLEN BLANDFORD, and ELLEN GOUGH, widows of annuitants, were placed on the funds without election in accordance with Rule III., 13. *George J. Ingram, Secretary.*

THE "ORCHID WORLD."—The number of this monthly periodical for January gives a good portrait of H. T. PITT, Esq., Rosslyn, Stamford Hill (gr. Mr. THURGOOD), whose appreciation of finely-blotched varieties of Odontoglossum crispum is well known. Mr. PITT paid £1,500 for O. crispum F. K. Sander in 1903, and proportionately high prices for other varieties; some of these are illustrated in the present issue of the *Orchid World*. Mr. ED. KROMER continues the account of his travels through British Guiana, and Mr. J. M. BLACK makes some interesting remarks on colour in hybridisation, giving suggestions for securing wholly yellow flowers.

PARIS SPRING SHOW.—In consequence of the Royal International Horticultural Show, London, 1912, being fixed for May 22, the National Horticultural Society of France will hold its annual spring show in Paris rather earlier than usual. The Paris Show will open on May 15 and close on the 22nd of the same month.

MR. F. SANDER.—The many friends of Mr. F. SANDER, head of the firm of Messrs. SANDER & SONS, of St. Albans, Bruges and New York, will be glad to learn that after a long, and at one time serious illness, he has now recovered from the operation which the doctors considered necessary. He is assured that he will be stronger than ever, and consequently it is to be hoped that he will again take a prominent place in horticultural gatherings.

DIRECTORIES, ALMANACS, DIARIES, AND OTHER ANNUALS.—Farmers, small-holders, and all who are interested in the land, and in the breeding of cattle, should procure a copy of *Vinton's Agricultural Almanac and Diary*. It contains extremely useful statistical information, a diary for the year, and much other interesting matter. The progress of agriculture during the past year is described, and a calendar of work for each month provided.

Webster's Forester's Diary is an extremely useful and handsome pocket book, bound in red leather. To all who have the management of woodlands it is an indispensable companion, containing as it does a mass of information on forestry in a compendious form.

The *Horticultural Directory* forms an invaluable work of reference to all who seek the addresses of gardeners, nurserymen, and horticultural traders generally. The directory of foreign and Continental nurserymen should prove of utility, especially in view of the approaching International Exhibition.

The Small Holder's Year Book forms a guide, suitable alike for the farmer and the amateur. Valuable information is given as to the work to be done each month, and dairy work is fully dealt with in a concise article. Directions are given with regard to the acquisition and tenure of land, a point which is often a stumbling block in the way of the would-be small holder. There is a good index, and a comprehensive directory.

My Garden Diary is a dainty little diary and memorandum book, published by Messrs. SUTTON & SONS, the well-known seed experts of Reading. Horticulturists will find it of the greatest utility; for each month the calendar is given, with reminders of the work to be done in the garden. Ample space is left for memoranda, a feature which is too often lacking in works of this nature. The book has a most artistic cover, and a fine frontispiece, altogether a charming companion for amateur or professional gardeners throughout the year.

Who's Who again makes its welcome appearance. It comes to us in company with a trio of most useful works of reference from the hands of the same experts, Messrs. A. and C. BLACK, *Who's Who Year Book*, the *Writers' and Artists' Year Book*, and the *Englishwoman's Year Book and Directory*. With these four books, no one need be at a loss for information of the most varied kind. *Who's Who Year Book* consists of tabular information which, not being quite so full as the biographical particulars in the larger work, is easier of reference. It contains matter which is unique—lists of Freemasons, of Presidents of Societies, of American ladies bearing titles, &c. The *Writers' and Artists' Year Book* is chiefly of interest to those who desire to earn money by the pen or brush. Editors ought to be especially grateful to Messrs. BLACK for sparing them thousands of letters asking for information which this little book so well supplies to the literary aspirant. The *Englishwoman's Year Book and Directory* is worth far more than the price asked for this volume. The section on professions alone is of absorbing interest. The articles are thoroughly practical, and are written by experts. The "Woman's Whittaker" has attained to the front rank among directories, a place which it well deserves.

The *British Journal Photographic Almanac* for 1912 is more fascinating than ever. Messrs. HENRY GREENWOOD & Co. are to be congratulated on having collected in so efficient a manner all the latest and most interesting information on a popular hobby. The work is a record of advances in all branches of photography, including colour photography, that latest development of the art, which promises so much for the near future.

SIR JOSEPH HOOKER'S LAST PUBLISHED WORK.—The third part of the thirtieth volume of HOOKER'S *Icones Plantarum*, plates 2,951-2,976, is to hand, dated December, 1911. All the plates represent species of Impatiens from the mountains of India, Eastern Tibet, and China, described by Sir JOSEPH HOOKER, and all, except three or four, were previously unpublished. Some of the species are founded, on single specimens belonging to foreign herbaria; hence the figures have a special value. As in previous parts of the *Icones*, the analyses of the flowers were drawn by Sir JOSEPH himself, and the main figures by Miss M. SMITH. Among the species figured in this part there are several remarkable for some peculiarity in their floral structure. The terminology employed in the description of the flowers differs a little from that in ordinary usage. The outermost, usually quite small organs, of which there may be two or four, are called sepals; the large petalon-spurred, posticous sepal is termed the labellum; the upper or posticous petal, the standard; and the lateral petals, each theoretically consisting of two petals fused together, wings. Specially interesting among the species figured are: I. Prainii, I. Kingii, I. cirrhipetala, I. recurvicornis, and I. robusta. The most remarkable of all is I. cirrhipetala, which has relatively large geniculate sepals and spirally-twisted lateral petals or wings.

THE "BOTANICAL MAGAZINE."—The issue for January contains illustrations and descriptions of the following plants:—

BEGONIA DICHROA, tab. 8412.—The flowers of this rather lax-growing Begonia are described as shining orange-scarlet and distinct from all other cultivated species of shrubby Begonias. There is some doubt as to the plant being a good species, and it may yet prove to be a hybrid, although specimens at Kew have been raised from seed exactly like the parents. The Kew plant was received from Messrs. HAAGUE & SCHMIDT, Erfurt.

ELLIOTTIA RACEMOSA, tab. 8413 (see p. 11, fig. 10).

BERBERIS WILSONÆ, tab. 8414.—A fruiting branch of this handsome Barberry was figured in *Gardeners' Chronicle*, November 30, 1907, p. 372, when a description of the plant was given by Mr. HERMANN SPOONER. The plant makes an excellent subject for the rock garden, and a specimen we noticed in September last, at Messrs. R. WALLACE & Co.'s Nursery at Colchester, on a low rockery appeared very beautiful with its delightful coral-red berries.

DISA LUGENS, tab. 8415 (see *Gardeners' Chronicle*, vol. xxiv., p. 232).—The flowers of

this Orchid are a metallic greenish-purple colour, the large, multifid lip being greenish. The plant is suitable as a greenhouse subject, and grows well in a mixture of sand, peat, loam and charcoal, but it is not easy to maintain in a good condition after it has flowered.

CALCEOLARIA CANA, tab. 8416.—All the Calceolarias, of which about 200 species are recognised, are natives of America, but C. cana is the only species found in Peru. The flowers are not so showy as some of the kinds grown in gardens, but they have a Violet-like perfume, and their season extends from June to October. The scapes grow to a height of about 1 foot 6 inches; the flower buds are yellow, but the open blooms are white, suffused with rose or purple; the throat being yellowish, marked with purplish-brown. The leaves are covered with a white tomentum, and the plant, when not in flower, has the appearance of a Stachys or a Gnaphalium.

OLD GARDEN LITERATURE.—To those of our readers who are interested in ancient horticultural literature, we may draw attention to the recently-issued *Botanical Catalogues* of Mr. BERNARD QUARITCH. In these we notice such bibliographical rarities as W. CARY'S *Herbal*; LYTE'S *Niewe Herball*; FUCH'S *De Historia Stirpium*; *Le Grant Herbier*; *The Grete Herball*; *Hortus Sanitatis*; GERARDE'S *Herbal*; PARKINSON'S *Theabrum Botanicum*; TURNER'S *Herbal*; *Hortus Floridus*; SOWERBY'S *English Botany*; ANDREW'S *Botanists' Repository*; EDWARD'S *Botanical Register*; *Flora Danica*; HOOKER'S *Icones Plantarum*; *Floræ Austriacæ* and many other rare works.

THE CAUSES DETERMINING THE YIELD OF STRAWBERRIES.—The results of an investigation by Mr. J. VERCIER into the causes which lead to an increased yield of Strawberries are published in *Le Progrès Agricole et Viticole*, and summarised in *International Institute of Agricultural Bulletin*. From Mr. VERCIER'S trials and experiments it is concluded:—(1) That the chief factor in the yield consists in the variety grown. Thus in a test of four varieties, the following results were obtained:

Laxton's Noble	82.4 cwt. per acre.
Sharpless	100 ,, ,, ,,
Quatre Saisons Remontantes	70 ,, ,, ,,
Red Pearl	60 ,, ,, ,,

(2) Varieties must be chosen with respect to peculiarities of soil; thus Sir Joseph Paxton suffers from chlorosis on a chalky soil, and only yields in such soils 27 cwt. per acre, whereas when grown in good loam it averages about 82 cwt. (3) Watering may increase the yield very considerably. Thus with Royal Sovereign the following results were obtained:—

3.79 lbs. per.	3.588 sq. yds. without watering.
4.30 ,, ,,	,, ,, ,, with 1 ,,
5.16 ,, ,,	,, ,, ,, with 2 waterings.
5.29 ,, ,,	,, ,, ,, with 3 ,,

(4) The use of fertilisers leads to an increase of yield:—Basic slag alone, 5 kilograms to 100 square metres, costing 1.21 francs, little more than paid for itself; but basic slag 5 kilograms, sulphate of potash 3 kilograms, and nitrate of soda 2 kilograms (costing 1.80 francs) for 100 sq. metres increased the yield from 93 kilograms to 109 kilograms, and the Strawberries of the manured plot sold for 71 francs as against 60 francs on the unmanured control plot. Whence it appears that a good complete manure for Strawberries consists in the following:—

Basic slag	18 oz. per 10 sq. yds.
Sulphate of potash ...	10 ,, ,, ,, ,, ,,
Nitrate of soda	7 ,, ,, ,, ,, ,,

LARCH AND DOUGLAS FIR.—In the note on forestry by Captain ROGERS in the last issue, the statement that Larches were planted near to a tree of Douglas Fir "thirty years after" should read, as is obvious from the context, that, thirty years after the planting of the Larches, Douglas Fir was planted amongst them.

LONDON'S OPEN SPACES.—The London County Council has decided to support the proposal to acquire the Shadwell Market site and to convert it into a public park as a memorial to King Edward by capitalising its liability for a part of the estate which it holds from the City Corporation at a rent of £710 a year. The capitalised value which the Corporation is prepared to accept is £14,000, and the Council has granted the necessary money, besides promising to maintain the park for the use of the public for ever. The London County Council has now taken possession of the Ironmongers' almhouses and garden at Shoreditch, and the garden is now open to the public. It is proposed to call the open space "Geffreye's Garden," after Sir Robert Geffreye, the founder of the charity in connection with which the almhouses were built.

A NEW USE FOR LONDON PARKS.—The London County Council will consider early in the New Year a proposal made by the Education Committee that starting from next Easter school classes shall be held in parks and open spaces. The Committee feel that an extension of the scheme of open air classes will be of very great benefit, and to meet the difficulty of those schools where the playgrounds are small and overlooked by other buildings, it is proposed to hold some classes in the parks and open spaces. When the Parks Committee were approached, they stated that the proposal to utilise parks and open spaces for the provision of open-air classes was one with which they were in sympathy, and that so far as they were able they would be pleased to assist the Education Committee in carrying out any practicable scheme. The Parks Committee, however, are not in a position to sanction the erection of any permanent buildings or enclosures. The cost of the new proposal is estimated at £900.

AUTOMATIC WATERING (F. DE CONDÉ).—Reported in *Bulletin of Bureau of Agricultural Intelligence* (International Society of Agriculture), No. 6, June, 1911, as follows:—An ingenious system is in force in Lot-et-Garonne. It consists of a raised reservoir with a principal pipe from which branch off, at right angles, secondary pipes, each of the latter being regulated by a tap, and having nozzles at certain intervals. The space between the secondary pipes is the distance between the beds to be watered. The watering is effected by the automatic action of the taps. That of the first pipe is opened, setting in action all the nozzles of that line, which, working as a hydraulic tourniquet, water the ground with a very regular fine spray. To the pipe is affixed a tube which discharges water into a bucket suspended by cables above the soil; the weight of the water overcomes the resistance caused by the friction of the supporting cables, the bucket descends, closes the tap automatically, and rises again, when a lever opens the regulating tap of the next pipe. This process is repeated every time. The speed of watering is regulated by the speed of filling the buckets which depends upon a tap. This apparatus, which only needs setting in motion, allows of irrigation at night. With a charge of water of 6-7 m. (19 feet 8 inches to 23 feet) each nozzle irrigates a circle with a radius of about 6 m. (19 feet 8 inches), therefore 140 to 150 nozzles are required per hectare (56 to 61 per acre), the entire cost of installation is about 4,000 fr. per hectare (about £64 10s. per acre).

SCOTLAND.

FIRE AT A SEEDSMAN'S.

THROUGH a fire which broke out at an early hour on the morning of December 31 considerable damage was done to the premises and stock of Mr. Robert Miller, seedsman, Helensburgh. The fire brigade succeeded in confining the fire practically to the saloon.

THE HEATING OF THE WAVERLEY MARKET, EDINBURGH.

THE new heating apparatus which has been fitted up in the Waverley Market, Edinburgh, was used for the first time on December 13, and worked very satisfactorily. A temperature of about 53 degrees was maintained, and this could have been increased.

FORESTRY APPOINTMENT.

MR. J. D. CROZIER, forester to Mr. Baird, of Durris (near Aberdeen), has been appointed a member of the staff of the Government Forestry Department of Ireland. Mr. Crozier has for long occupied a prominent position as an office-bearer of the Royal Scottish Arboricultural Society.

THE LATE ROBERT LAIRD.

AMONG the inventories of estates of deceased persons lodged in Edinburgh during December was that of the late Mr. Robert Laird, of Messrs. R. B. Laird & Sons, Ltd., Edinburgh, the amount stated being £3,450. That of Mr. Alfred M'Laren, fruit broker, Leith, is stated as £2,670.

NEW PARK FOR PAISLEY.

AT the last meeting of the Town Council of Paisley, the council agreed to adopt the report of a committee appointed to consider the proposed purchase of Barshaw estate, including the mansion house, for a public park. The estate comprises about 95 acres, but about 40 acres are let for agricultural purposes with 13 years of the lease still to run. The price of the whole will be £24,000, or £252 per acre. The citizens of Paisley will soon enter into possession of an important addition to their public parks.

AN EXPERIMENTAL GARDEN FOR EDINBURGH.

AT the last meeting of the governors of the Edinburgh and East of Scotland College of Agriculture a report was given by a special committee regarding the acquisition of an experimental garden for the teaching of horticulture in connection with the college. The committee reported having negotiated for about three acres of a field between Mayfield Road and Liberton Road. The report was adopted, and it was remitted back to the committee with powers to complete the lease and appoint a gardener.

FORESTRY AT EDINBURGH UNIVERSITY.

A NEW forestry building is to be erected at Edinburgh University, towards which the Development Commissioners will contribute £4,500. The University Court will supply a similar amount, and more if necessary. The Commissioners will also contribute £2,000, to be spread over five years, for the equipment of a museum and laboratories. For a period of five years the Development Commissioners also give £2,500 per annum for the salaries of an additional lecturer on forestry and an assistant. The scheme will be rendered complete by the further provision of a forest garden, and an experimental plantation by the University and the College of Agriculture.

THE VALUATION OF PUBLIC PARKS.

THE subject of the valuation of public parks recently came before the Court of Session. It was raised by an appeal from the Edinburgh Parish Council from the entry of the Craigentinny golf course, leased by the Leith Town Council for a public park and golf course, being

entered on the roll at £1, the Parish Council claiming that the amount should be £600. No charges are made for admission to the park, but those playing golf are charged certain sums. The expenses exceed the revenue, but, as the rent for the current year is £532, the accessor on account of tenant's improvements made the valuation £600. This was reduced by the Valuation Committee to the nominal sum of £1. *Correspondent.*

TREES AND SHRUBS.

ELLIOTTIA RACEMOSA.

ELLIOTTIA belongs to the Natural Order, Ericaceæ, botanists placing it between the two genera Leiophyllum and Ledum. It is a monotypic genus, although Tripetaleia paniculata, Sieb. and Zucc. and T. bracteata, Maxim, two other Ericaceous shrubs, natives of Japan, were included by Bentham and Hooker in the genus Elliottia. More recently, however, Drude has revived the original generic name of Tripetaleia, leaving the subject of this note the solitary representative of the genus. Elliottia is named in compliment to the American botanist Stephen Elliot, who died in the year 1830. He discovered the plant growing at Waynesboro on the Savannah river. Since that time specimens have been found growing in two other places on the banks of the same river, at Hamburg, South Carolina, and near Augusta, Georgia, by Mr. P. J. Berkmans, who sent the specimen to Kew, from which the flowering shoot illustrated in fig. 10 was photographed. Collectors in the same localities of more recent date have failed to discover this Elliottia, and if the plant exists wild at the present time it must be extremely rare. In 1894 Mr. Berkmans first sent living plants to Kew, but these failed to become established. Eight years later the same gentleman sent two more specimens, one of which flowered in July last, so that it has taken nine years to reach the flowering stage. Elliottia racemosa Muehl. is stated to grow wild in wet, sandy woods. At Kew the two plants are growing in sandy loam and peat, in company with the Mediterranean Heath sheltered (but not shaded) on all sides with tall trees.

Ten feet is given as the height of Elliottia racemosa in a wild state; the larger of the two Kew plants exceeds 6 feet in height, but no doubt in time this will be considerably exceeded as the plant added 11 inches to its stature last year. It is a deciduous bush distinctly pyramidal in growth with a main central stem, from which arise tiers or whorls of small branches. These in turn produce their branches from one point, so that, generally speaking, the growths all over the plant are in whorls, although without looking at the bush closely, especially near the base, this character is not readily discernible. One of these tiers of growths is added to the height of the plant each year. With two exceptions, the whole of the racemes of flowers, some 20 in number, were produced by the tier of growths made near the summit last year.

A racemose panicle rather than raceme more correctly describes the arrangement of the flowers, which are borne on slender pedicels two-thirds of an inch or rather more in length, generally singly, sometimes in pairs, and occasionally three together. The racemes are terminal, erect, and vary in length from 5 to 9 inches and 2½ to 3 inches in diameter. The largest raceme produced in all 104 flowers, but not more than about 20 of this number were open at any one time. The development of the buds is singular. At first erect, during the process of growth, they become inverted, changing again when opening to a horizontal position. The flowers are pure white, about an inch across, and fragrant. The leaves are 4 inches long, 2 inches broad in the centre, and tapering to both ends, being not unlike those of several species of Arbutus. The fruits are not known either from wild specimens or cultivated plants.

Various means of propagation, including cuttings of hard and soft wood, root cuttings and root grafting, have been tried, but so far without success. The upright habit of the plant makes layering difficult, but not impossible, and this will be tried. It is said that the Elliottias produce suckers in a wild state, but none has developed on the Kew specimens, although the roots of one of the plants were cut about for propagating purposes so much as to seriously imperil

[*Photograph by C. P. Raffill.*

FIG. 10.—ELLIOTTIA RACEMOSA: FLOWERS WHITE WITH RED ANTHERS.

the existence of the plant. Every effort was made to obtain seeds, the flowers being artificially pollinated. Some of the anthers were removed and placed on the stigmas, in others the buds were opened and pollination effected, pollen was also placed on the stigmas of some of the flowers after the petals had fallen, and the flowers on one raceme were pollinated from those of another raceme. This was done in the early morning, under the scorching rays of the mid-day sun, and also late in the afternoon, but all to no purpose. *A. Osborne, December, 1911.*

THE LIFE OF SIR JOSEPH HOOKER.

(Continued from page 469, vol. l.)

SYRIA, PALESTINE AND SINAI.

IN the autumn of 1860, Hooker accompanied Captain Washington, Hydrographer of the Navy, to Syria, in order, among other things, to investigate the Cedars on Mount Lebanon. The Rev. G. Washington and Mr. Daniel Hanbury were also of the party. Hooker made this journey the subject of a series of three lectures, delivered, in the first instance, before the staff of Kew, and repeated in London. It also gave rise to a paper "On the Cedars of Lebanon, Taurus, Algeria, and India," *The Natural History Review*, vol. ii., 1862, pp. 11-18, plates, 1-3, illustrating Cedrus Libani, C. atlantica, and C. deodara. Hooker regarded them as races of one species, but he was puzzled by the fact that C. atlantica and C. deodara were much nearer to each other in botanical characters than to the geographically intermediate C. Libani. Very definite particulars of the Lebanon Cedars were obtained. Approximately, there were in the grove visited 400 trees, ranging, it was estimated, between 22 and 800 years of age, but they had no means of verifying the ages. The total absence of seedlings and young trees was remarkable, pointing to the early extinction of the Lebanon Cedar. Very much larger groves were discovered by later explorers of Lebanon.

Sir Joseph contributed the article on the "Botany of Syria and Palestine" to Smith's *Dictionary of the Bible*, ii., 1863. This is an interesting and popular sketch of the vegetation, both from a scenic and economic standpoint, though no special concordance with biblical names is given.

"Plants of the Peninsula of Sinai," by J. D. Hooker, in E. H. Palmer's *Desert of the Exodus*, 1871. A rough list of the plants, without comment or explanation.

NORTH AND SOUTH AMERICA.

In 1877 Hooker visited the United States, where he met with a hearty welcome, and, accompanied by his old friend, Dr. Asa Gray, made a considerable tour of the country, including California and the Rocky Mountains. There is a manuscript diary of this journey in the Kew library, and the following papers contain some of the botanical results, which also included a herbarium of about a thousand species, presented to Kew.

"Notes on the Botany of the Rocky Mountains," *Nature*, vol. xvi. (1877), pp. 539-540. This volume of *Nature* is dedicated to Sir Joseph Hooker, and his portrait is supplemented by a highly-eulogistic appreciation of his life and work from the pen of Asa Gray, the leading American botanist of his day.

"The Distribution of the North American Flora," *Proceedings of the Royal Institute*, vol. viii. (1879), pp. 568-580. A lecture delivered before the Royal Institution of Great Britain, April 12, 1878, discusses more especially the close relationships of the floras of Eastern North America and Japan.

Hooker was also a contributor to Salvin and Godman's *Biologia Centrali Americana-Botany*, vol. i., "Introduction," 1888, pp. lxii.-lxviii., "A Commentary" on Mr. Hemsley's "Introduction and Appendix," by Sir J. D. Hooker. This may be termed a benevolent criticism of some of Hemsley's views, and a brief exposition of the author's conception of a phytogeographical division of the world into seven primary regions.

Concerning South America, there is not much to record. Specially deserving of mention, however, is the detailed and fully-illustrated morphological and anatomical description of the aberrant genus Myzodendron, in the *Flora Antarctica*, vol. ii., pp. 289-302, plates 102-107 ter. This genus has been alternately referred to the Loranthaceæ and the Santalaceæ, and erected into a separate family, the Myzodendraceæ. There is a translation by J. E. Planchon and complete reproduction in *Annales des Sciences Naturelles*, 3rd série, tome v., pp. 193-225, planches 5-9.

Hooker's only contribution to Martius's great *Flora Brasilensis* was the Rosaceæ.

Among scattered papers, the following is of special interest:—

"On Hydrothrix, A New Genus of Pontederiaceæ," *Annals of Botany*, vol. i. (1887), pp. 89-94, plate 7. A remarkable, though inconspicuous, amphibious plant, collected by Gardner, in

Brazil, as long ago as 1838. It grows in dense patches about 6 inches high, recalling Ceratophyllum, or Myriophyllum; but the exceedingly slender leaves are very numerous in each whorl. The flowers are very minute and monandrous, differing in this respect from all other Pontederiaceæ. Discussing its affinities, the author enters into the general question of the classification of aberrant genera, and enunciates the view that monotypic and polytypic aberrant genera should be treated differently, while admitting that it is, after all, a matter of convenience or expedience. Thus: "Were Clematis monotypic, it might be better considered as an aberrant Ranunculaceous genus; but whereas it contains many species distributed over all the continents, and these form a very considerable proportion of that Order, its claims are irresistible to be regarded either as a tribe or as a separate Order."

British Botany.

The Student's Flora of the British Islands, ed. 1, 1870; ed. 2, 1878; ed. 3, 1884. The author's opening words of his preface are: "The object of this work is to supply students and field-botanists with a fuller account of the plants of the British Isles than the manuals hitherto in use aim in giving." The general distribution of the Orders, genera and species, is given; also the approximate total numbers of the genera and species; the derivation of generic names, &c.

Hooker also edited the fifth edition of Bentham's *Handbook of the British Flora*, in 1887. What is now needed is a new flora, something on the same lines as the *Student's Flora*, and brought up to date in classification, nomenclature, and terminology.

Unclassified Publications.

A geographical arrangement having been adopted for works easily so classified, leaves a considerable number, of more or less importance, which may follow here in chronological order, and mostly without comment.

"On the Functions and Structure of the Rostellum of Listera ovata," *Philosophical Transactions*, 1854, pp. 259-264.

"On the Structure and Affinities of the Balanophoraceæ," *Transactions of the Linnean Society*, vol. xxii. (1856), pp. 1-68, tt. 1-16. This is one of Hooker's most elaborate papers, and it is splendidly illustrated in colour by W. H. Fitch. The genera Dactylanthus, New Zealand, and Corynæa, Andes of Peru and Columbia, were here first made known.

Hooker contributed an earlier account of the Balanophoraceæ to Lindley's *Vegetable Kingdom*, 1845, p. 88, under Lindley's class Rhizogens.

Among Hooker's detailed critical reviews of the work of other botanists, that of Alphonse de Candolle's *Géographie Botanique Raisonnée* (Hooker's *Journal of Botany*, vol. viii., 1856) is, perhaps, the most noteworthy. While fully acknowledging the merits of this great work, he questions many of the details, as being opposed to his experience in the field.

"On the Growth and Composition of the Ovarium of Siphonodon celastrineus, &c.," *Linnean Society's Transactions*, vol. xxii. (1857), pp. 133-141.

"On the Origin and Development of the Pitchers of Nepenthes," *Transactions of the Linnean Society*, vol. xxii. (1859), pp. 415-424, tt. 69-74. This essay includes descriptions and figures of several of the most remarkable species of the genus, among them N. rajah, N. villosa, N. Edwardsiana, and N. Lowii.

"On the Floras of Malaya and Tropical Africa," *Transactions of the Linnean Society*, vol. xxiii. (1860), pp. 155-172, plates 20-28. This paper includes descriptions and figures of a number of new plants, including the following mostly very striking genera:—Disepalum and Sphærothalamus (Anonaceæ), Pachynocarpus (Dipterocarpaceæ), Irvingia (Simarubaceæ), Pentaspadon, Hæmatostaphis, and Parishia (Anacardiaceæ), Trigonochlamys (Burseraceæ), and Hemiandrina (Connaraceæ).

"Note on the Replacement of Species in the Colonies and Elsewhere," *Natural History Review*, 1864, pp. 123-127.

"On the Struggle for Existence among Plants," *Popular Science Review*, vol. vi., 1867, pp. 131-139.

Illustrations of the Genus Carex," by Francis Booth, four vols., folio, 1858-1867. The fourth volume edited by Sir J. D. Hooker.

"A Monograph of the Nepenthaceæ," De Candolle's *Prodromus*, vol. xvii. (1873), pp. 190-216. Noteworthy among the remarkable new species of Nepenthes described here for the first time are N. bicalcarata, N. tentaculata, and N. echinostoma.

"The Production of Honeydew," *Entomologist*, vol. vi. (1873), pp. 463-464.

"Science Primers," *Botany*, 1876. A booklet of elementary botany, of which there are several editions. There is a Portuguese translation of the third edition by J. A. Henriques. This is not one of Hooker's best productions.

Admiralty Manual, ed. v., 1886. Botany by Sir Joseph D. Hooker.

Director of Kew, 1865 to 1885.

A glance through the annual official reports during the period that Sir William and Sir Joseph were successively Director of Kew affords some insight into the immense amount of work connected with the position. Previous to 1855 Sir Joseph held no definite salaried post, but he was the recipient of various Government grants to enable him to publish some of the results of the Antarctic and Indian expeditions. On account of the ever-increasing duties of the Director, he was that year appointed Assistant Director. A few notable events in the development of Kew are extracted from the Reports. The museum building opposite the Palm-house, now known as No. 1 museum, was finished in 1857, and it was filled and opened to the public the same year. In 1860-61 the octagons of the temperate house were built and filled with Australian and other plants, and the large central division was erected in 1862; but in spite of the repeated efforts of successive Directors it was not until 1897-98 that the north and south wings were added and the structure completed. The rearing of the flagstaff of Douglas Pine in the arboretum was a notable event of the year 1861, after a failure the previous year. The death of Sir William Hooker in 1865 was promptly followed by the promotion of his son to the post of Director, though in the meantime he was almost on the point of death from an attack of rheumatic fever, developed while nursing his father. During the 25 years the gardens were under his direction Sir William had the satisfaction of seeing most of his projects realised, in part at least; and although much remained for his successors to accomplish, there was little room for origination, except in details. Of the Colonial *Floras*, Bentham's *Flora Australiensis* and Harvey and Sonder's *Flora Capensis* had each reached the third volume; Oliver's *Flora of Tropical Africa* was begun, and two parts of Bentham and Hooker's *Genera Plantarum* had appeared—Ranunculaceæ to Myrtaceæ.

Lindley's almost priceless Orchid Herbarium was acquired for Kew the same year. Two years later (1867) the Government purchased the unrivalled private Hookerian Herbarium, Library and Correspondence, with which were soon incorporated the Benthamian Herbarium and Library, besides a number of smaller gifts, forming, together with the Museums, the richest botanical equipment in the world. In the Report for the year 1872 it is recorded that the trees skirting the Kew Road on the gardens side, from the Cumberland Gate to the Lion Gate, were planted; a record of considerable interest. In 1875 the post of Assistant Director was revived, and Mr. W. T. Thiselton-Dyer was appointed. The Report for that year records the number of plants cultivated in pots, tubs, &c., the total being approximately 47,500, of which 20,500 were in the permanent collections and the rest in the propagating departments, showing an increase of about 5,000 on the census of 1871. In this connection it may be mentioned that John Smith, in his *Records of Kew* (1880) states that the number of different species of plants cultivated in the gardens between 1822 and 1864 was about 11,700. The annual Reports from 1876 onwards contain more detail; paragraphs on economic plants being a special and valuable feature. The Report for 1877 contains a list of the Araceæ cultivated at Kew at that date, numbering 243 species, belonging to 47 genera. There were 64 species of Anthurium and 42 of Philodendron. The Jodrell Physiological Laboratory was built and equipped in 1876, and a new wing, now known as the north wing, was added to the Herbarium in 1877. In this Report it is recorded that there were 14 miles of roads and walks in Kew Gardens at that period. A list of the Bromeliaceæ cultivated at Kew is given in the Report for 1878. Concerning the destructive hailstorm of August 3, 1879, it is reported that 38,649 panes of glass were broken at Kew, representing a total weight of 18 tons. The "Marianne North" Gallery was opened in 1880, and the Report for that year includes a list of the Aloineæ, the Yuccoideæ, and the Agaves cultivated at Kew, and a list of the exotic economic and medicinal plants cultivated under glass appears in the Report for 1881. A description of the newly-formed rock garden is given in the Report of 1882, where there is also a list of 420 kinds of Palm cultivated at Kew.

Until 1871 the Director of Kew had been permitted to perform his onerous duties in peace, but the appointment of Mr. Ayrton to the office of First Commissioner of Works was the beginning of trouble, which, but for the intervention of the public generally and scientific men particularly, would have ended in Hooker's resignation. Ayrton, addressing his constituents on presenting himself for re-election, went out of his way to insult "architects, sculptors, and gardeners," and one of the earliest of his official acts was to send a reprimand to the Director of Kew, based, as it turned out, on a misconception. This was followed by various arbitrary and wholly inexcusable acts by which the First Commissioner secretly deprived the Director of certain branches of his authority, and offered his Curator a position in which the Curator would have had control in some matters over the Director. Thus the Director's position was made intolerable, and after a fruitless struggle with Ministers for justice, he demanded a strict definition of his authority, stating that if this were not conceded he would proceed to resignation. It is undesirable to enter here into particulars of this deplorable episode in the history of Kew. Let it be sufficient to say that the Press, representing all shades of political opinion, "unanimously pronounced a verdict in favour of Dr. Hooker and against Mr. Ayrton." This was followed by an appeal to Mr. Gladstone, signed by the leading scientific men of the country, in which the petitioners briefly sketched the history of Kew and Hooker's services to the Government and the public. They condemned the unwarrantable interferences of the First Commissioner in language as strong as circumstances permitted, and appraised the loss to the country the Director's resignation would entail. Finally the affair was brought before both Houses of Parliament, with the result that the Director was reinstated in his functions, but not before the anxieties of the situation had caused him a serious attack of illness.

Sir Joseph resigned the post of Director of Kew in 1885, and was succeeded by the Assistant Director (Mr. Thiselton-Dyer), who started the *Kew Bulletin* in 1887. *W. Botting Hemsley.*

(To be continued.)

FLORISTS' FLOWERS.

SCABIOUS.

Among many charming flowers which have within recent years been brought to a high standard of perfection, the sweet Scabious or Pin-cushion flower is prominent. Though not, strictly speaking, an annual, it can be most successfully grown as annuals are cultivated, and this is my excuse for calling special attention to the plant so early in the year. There are numerous strains offered for sale named after the height or habit of the plants or the size of the flowers, e.g., Dwarf Double, large-flowered Double, Tom Thumb Double, Compacta Double. For the purpose of growing for cut flowers a good stock of the tall, large-flowered Double should be procured. This type gives a wide range of colour, embracing white, flesh, Cherry-red, scarlet-purple, black-purple or pompadour, and azure-blue. There is a yellow-flowered variety, but the flowers of this variety are not large. The flowers in the various colours named grow from 2 inches to 3 inches in diameter with ordinary culture, and good strains give

globular flowers almost as good in form as the old strain of Asters, known as Betteridge's Prize. The flowers are produced on very long, wiry stems. Like Sweet Peas they ought certainly to be grown and used in separate colours. Grown in pots Scabious form very good subjects for conservatory decoration, but for this purpose one of the dwarf strains should be used.

The seed can be sown at any time. For flowering in summer and autumn the best time to sow is February or March. When the seedlings are large enough they should be transplanted into boxes of rich soil, and kept in a moderate to cool temperature. If it is desired to cultivate them specially well, the plants may be potted up or transplanted into a frame, giving them 4 inches at least between each plant. Plant them in beds where they are to flower early in May. If they are not in pots, lift them from the frame with large balls of soil, and water them thoroughly after planting. They require plenty of room in the beds, say 12 inches to 14 inches apart in the rows, and the rows 16 inches apart. In June, mulch the beds with 2 inches of decayed manure, and from the moment the first flowers are developed keep cutting them, and thus a long continued supply of flowers will be obtained. *Annual.*

FIG. 11.—ANDROCYMBIUM MELANTHOIDES, BRACTS WHITE, LINED WITH GREEN.

ANDROCYMBIUM MELANTHOIDES.

ANDROCYMBIUM melanthoides, the subject of the illustration (fig. 11), is certainly attractive. By its narrow leaves and large bracts, quite like some Tradescantias, it has the appearance of belonging to the Spider-worts. In reality it belongs to the Liliaceæ and to a curious group, the Anguillarieæ, which has anthers with extrorse dehiscence. In the tribe now in question, the root-stock may be a bulb or a corm, but the perianth segments are narrowed always into a distinct claw. It includes some five genera, the most familiar of which is perhaps the uncommon Wurmbea. Androcymbium is characterised as having a very short peduncle, capitate inflorescence, and perianth segments distinct, but this genus, well exemplified in A. melanthoides and two other genera, if one may judge by description, is remarkable in having the claws of the perianth segment folding round and fused with the base of the filament. That this is the explanation, the appearance of the flower of the present plant strongly suggests, but description prosaically reads "Stamens six, inserted at the apex of the claw of the perianth segments"—not that the claw itself is partly formed by the filament, the true claw being folded around it. This may be the case, however, because two of the allied genera have the stamens basally inserted, i.e., the stamens are either basal and free, or by having the claw folded round the lower part of the filament they appear to be inserted at the apex of the claw. That this view may be taken is evident by recollection of Rhagadiolus, a Mediterranean annual of the order Compositæ, in which every bract of the involucre seizes and folds round an achene, both falling together as if they were one in the semblance of a seed. In this case, however, there is no actual fusion. What claim to beauty this plant may have can be judged from the illustration (fig. 11). The large, white bracts which are faintly lined with green are, I think, distinctly ornamental, and they measure in the case of the largest 2 inches long and 1 inch wide, while leaves below are silvery on the upper surface as if with ambition to be bracts. The flowers are of narrow parts and inconspicuous, though perhaps ¾ inch diameter, one to each bract. The leaves are all narrow, about 11 inches long and ½ inch wide. The plant is a native of South Africa, the home of the group. *R. Irwin Lynch, Botanic Garden, Cambridge.*

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

THE MONTEREY PINE.—This tree, Pinus radiata, better known as P. insignis, is one of the most beautiful of its kind, owing to the rich, deep green of its foliage. It also makes timber faster, probably, than any other of the true Pines. I have carefully measured a tree that was blown down here in the gale of November 5. It was planted in the autumn of 1883, exactly 28 years ago, being then about 2½ feet high. Its dimensions were: height, 62 feet; girth, at 4 feet, 5 feet 2 inches; cubic contents, 49 feet. The timber is light and soft, hitherto reckoned of inferior value; but, as it takes creosote readily, will probably prove to be of much value when so treated. It is not a tree for all parts of the British Isles, being sure to succumb to frost sooner or later in inland districts, but near the sea it resists any amount of cold. The specimen described above did not suffer in the least during the memorable winter of 1894-5, although the mercury here fell below zero. *Herbert Maxwell, Monreith.*

COLOUR IN APPLES (see p. 447, vol. l.).—I am no expert in fruit culture, but may relate what might be an interesting instance of colouring. A gentleman residing in a seaside town in Ayrshire was some 15 to 20 years ago a leading prize-winner in Apple classes with specimens of exquisite colour. His fruits were all pot-grown, and he informed me that if he kept them under glass all the time the colour was inferior, but if he transferred the plants to the open air for two or three weeks before the show took place a remarkable change was observed. This seems to indicate that climatic conditions to some extent govern coluor in Apples. *Robt. Fife.*

———The first matter to determine in discussing the cause of colour in Apples is why some varieties develop high colour under all conditions of growth or of weather. For example, Calville Precoce, Duchess's Favourite, Ben's Red, Red Quarrenden, Red Victoria, Gascoyne's Scarlet Seedling, and Sops-in-Wine always colour highly, let the season be what it may. The most brilliant colouring may be seen on fruits, when grown under glass, in many varieties that do not develop much colour out-of-doors. This shows that warmth, in company with sunlight, is a great factor in creating colour. The remarkable colouring seen on the fruits of Spitzbergen, Jonathan, and other varieties of Apples from British Columbia is no doubt largely due to the brilliant sunshine of that Colony. It may be that any variety of Apple which produces colour would, under exceptional conditions, such as when grown under glass, produce that colour in a very high degree. That colour on Apples is intensified by alternating rain-showers and sun-bursts is a very old theory. *A. D.*

———In reply to Mr. Bernard Hall, I cannot say that I have any evidence of large supplies of potash helping to colour Apples. On the contrary, so far as my observation goes, the heavy soils, which contain most potash, produce Apples less highly coloured than light soils. I get most colour on a light loam over the Tunbridge Wells sand, which is probably deficient naturally in potash. Probably there was a considerable proportion of iron in the burnt clay referred to by Mr. Hall, and iron, I believe, does help to colour fruit. The Woburn Fruit Farm *Report*, just issued, refers to the extra colouring of Apples in grass land, a point noticed in my article on page 447. *A Southern Grower.*

THE POTATO AND FLORAL STERILITY.—Although the production of fruits by Potatos grown under ordinary conditions is now comparatively rare, yet there was a time, to me not so many years ago, when varieties fruited freely, the ground beneath the plants at the end of the summer being covered with the seed balls. Now, although certain varieties bloom freely, the flowers set no fruits owing to a lack of pollen, the hybridiser finding it a difficult matter to obtain the merest grain. I attribute this deficiency of pollen to the large crops of tubers which exhaust the energies of the plants. My conclusion may be a wrong one, but no better reason has been advanced. *A. Dean.*

SWEET PEA SPORT.—I have often been asked if I ever saw a Sweet Pea sport—a branch sport such as we are familiar with in Chrysanthemums. Until the month of October of this year I had never seen one, but during the summer I heard that such a sport was to be found in Captain Aitken's garden at Nisbet, Duns, where Mr. John Ness grows Sweet Peas so well. Mr. Alexander Malcolm and Mr. Andrew Ireland visited the garden in August and the sport was pointed out to them. I did not get to Duns until October. Fortunately, the Sweet Peas at Nisbet were still flowering, and Mr. Ness pointed out the sporting plant. It was one of Mrs. Routzahn, and was growing in a clump of perhaps half-a-dozen plants. Mrs. Routzahn is a dark-coloured flower, but the sport has produced blooms of deep cream colour throughout the season. Mr. Ness has saved a few seeds from the branch which gave the cream-coloured flowers; this branch was one of five which broke a few inches from the ground. *Wm. Cuthbertson.*

THE NUT FLOWERING (see pp. 400, 419, vol. l.)—I have seen to-day (December 29) several female flowers fully expanded on both Cob and Filbert Nuts, but there are no male catkins nearly approaching maturity. *T. Skilton, Lovelands, Walton-on-the-Hill.*

ROYAL INTERNATIONAL HORTICULTURAL EXHIBITION,

IN fig. 12 we illustrate one of the presentation cups which will be offered by Messrs. Wm. Bull & Sons at the forthcoming International Exhibition, to be held in the Chelsea Hospital grounds. Messrs. Bull & Sons inform us that they will offer three cups: one for the best hybrid Odontioda; one for the best hybrid Odontoglossum; and one for the best hybrid Cattleya.

SOCIETIES.

SURVEYORS' INSTITUTION.

THE next ordinary general meeting will be held at The Institution on Monday, January 8, at 8 p.m., when a paper will be read by Mr. Frank W. Hunt (Fellow) on "The Tendency of Recent Modifications of the Lands Clauses Act."

A SHORT SUMMARY OF THE PRINCIPAL POINTS IN THE PAPER.

The Act referred to principally is the Lands Clauses Consolidation Act, 1845.

The reason and object for passing the Act.

The following principles are deduced from the Act:—

(1) The power of compulsory expropriation not to be exercised except by direct authority of Parliament.

(2) The lands to be taken are to be restricted to what is actually required for the undertaking.

(3) Claimant entitled to be paid the value of the property to him and compensation for damage due to the taking irrespective of any benefit obtained in respect of other lands belonging to the same owner by reason of the execution of the works.

(4) By custom only, the addition of a percentage to the value of land taken in respect of the compulsory sale.

(5) The claimant has option of selecting the tribunal, the normal procedure provided in the Act being a trial before a jury.

(6) A claimant cannot be compelled to sell part of a house, building, or manufactory if he is able and willing to sell the whole.

(7) Costs in ordinary circumstances to be paid by promoters.

On a consideration of recent legislation it will be shown:—

(1) Large powers conferred by general Acts avoiding necessity in certain classes of cases of direct statutory authority.

(2) Lands not limited to execution of works but may be acquired compulsorily for other purposes.

(3) For certain public purposes basis of compensation to be market value, regard being had to enhanced value conferred upon other property by claimant.

(4) Statutory deprivation of customary allowance for compulsory sale.

(5) All disputed cases to be determined by an arbitrator.

(6) Part required for works may be purchased without owners being compelled to acquire the whole.

(7) Special limitation of costs.

Other amendments of a minor character with a view to simplifying procedure and reducing the cost.

That in construing powers under the Lands Clauses Acts the Courts have always drawn a broad distinction between those exercisable by a public company for profit and a local authority for public benefit. In considering any amendment or modification of the Lands Clauses Act and specific amendments of its provisions in private and public Bills it would be desirable to consider these in two categories to follow the practice of the Courts.

FIG. 12.—ROYAL INTERNATIONAL SHOW.
(Cup presented by Messrs. Bull & Sons.)

BLACKBURN AND DISTRICT HORTICULTURAL.

DECEMBER 9.—The 16th annual meeting of the members of this society was held on the above date. Mr. E. Coward was elected chairman of the meeting. The balance-sheet and report were submitted. The income was £294 2s. 11d., and the balance in hand £54 2s. 7d. The committee, in their annual report, stated that the year has been a most successful one. The report and balance-sheet were adopted, and the officers, including the committee, were elected. The rules were discussed, and it was decided to increase the radius covered by the scope of the society from 18 to 21 miles. A provision that a subscription of 5s. by an amateur shall entitle him to exhibit was also made. It was decided to make donations of £2 2s. each to the Darwen and Whalley Horticultural Societies.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

DECEMBER 14.—*Committee present:* Rev. J. Crombleholme (in the Chair); and Messrs. R. Ashworth, W. R. Lee, C. Parker, H. Thorp, A. Warburton, Z. A. Ward, J. C. Cowan, J. Cypher, W. Holmes, A. J. Keeling, D. McLeod, and H. Arthur (secretary).

The following Medals were awarded for collections of Orchids:—

Silver-gilt Medal to W. R. LEE, Esq., Heywood (gr. Mr. Woodhouse), for a group of Cypripediums and Odontoglossums. *Silver Medals:* Z. A. WARD, Esq., Northenden (gr. Mr. Weatherby), R. LE DOUX, West Derby (gr. Mr. Fletcher), for Cypripediums, R. ASHWORTH, Esq., Newchurch (gr. Mr. Gilden), for a mixed group, Col. J. RUTHERFORD, M.P., Blackburn (gr. Mr. Lupton), for a mixed group, A. WARBURTON, Esq., Haslingden (gr. Mr. Dalgleish), for Odontoglossums and Cypripediums, F. A. HINDLEY, Esq., Bradford, for Cypripediums, Messrs. J. CYPHER & SONS, Cheltenham, for Cypripediums, Mr. ED. V. LOW, Haywards Heath, for Cypripediums. A Cultural Commendation was awarded to Mr. Low for a specimen of C. minos Youngii and the LIVERPOOL ORCHID CO., Gateacre, for a miscellaneous collection. *Bronze Medals:* Rev. J. CROMBLEHOLME, Clayton-le-Moors (gr. Mr. Marshall), for a group of Cypripediums, J. MCCARTNEY, Esq., Bolton (gr. Mr. Holmes), for a mixed group, and G. H. PEACE, Esq., Monton Grange (gr. Mr. Mace), for a group of Cypripediums. Other exhibitors were: H J. BROMIELOW, Esq., Rann Lee (gr. Mr. Morgan), J. J. HOLDEN, Esq., Southport (gr. Mr. Johnson), L. LEEMANN, Esq., Heaton Mersey (gr. Mr. Smith), J. H. CRAVEN, Esq., Keighley (gr. Mr. Corney), H. THORP, Esq., Rhodes, Messrs. SANDER & SONS, St. Albans, Messrs. CHARLESWORTH & Co., Haywards Heath, Messrs. A. J. KEELING & SONS, Bradford, Mr. W. SHACKLETON, Great Horton, and Mr. D. MCLEOD.

AWARDS.

FIRST-CLASS CERTIFICATES.

Cypripedium Fairæ Maudiæ (Fairrieanum × Maudiæ) and *C. Pallas Athenæ* (Elmireanum × Æson giganteum), a noble flower; both shown by W. R. LEE, Esq.

C. Reginald Young (Elmireanum × Harefield Hall), from H. J. BROMIELOW, Esq., a large, well-marked flower.

AWARDS OF MERIT.

Cypripedium Juno var. "Hebencea," from J. J. HOLDEN, Esq. *Odontoglossum eximium* "Plumpton Hall variety"; *Cattleya Trianæ* var. "Britannia," a magnificent, deeply-coloured flower, with well-set, broad lip; both these were shown by W. R. LEE, Esq. *Cypripedium Mrs. Mabel Waring* (Harefield Hall × Troilus), from R. LE DOUX, Esq. *C. Leeanum* var. "Frederick Arnold," from F. A. HINDLEY, Esq. *Brasso Lælio-Cattleya Baron Honin* (B.-C. Leemanniæ × L.-C. callistoglossa), from J. LEEMAN, Esq. *Odontoglossum crispum* var. "Reine Blanche," a fine flower measuring 3½ inches across, from R. ASHWORTH, Esq. *O. Ruby King*, a good flower, with dark-coloured lip; a very distinct variety, from A. WARBURTON, Esq. *Cypripedium viridissimum* (C. villosum auriferum × C. aureum virginalis), a bright flower, resembling auriferum in form and habit of growth, from Mr. W. SHACKLETON.

COVENTRY CHRYSANTHEMUM.

DECEMBER 21.—The annual meeting of the members of this society was held on the foregoing date. The committee's report and balance-sheet were presented. It was stated that, after years of hard work and many disappointments, the annual exhibition had proved a gratifying success. The financial statement showed that the total income, including a balance from 1910 of £15 7s. 4d., amounted to £161 18s. 2d. After defraying liabilities, there was a credit balance of £43 4s., and it was stated that, since the preparation of the balance-sheet, other amounts had been received, which would increase the above balance by several pounds. Alderman Drinkwater was elected president; Alderman Batchelor, treasurer; and Mr. George Griffin, Coundon, secretary.

ROYAL HORTICULTURAL OF IRELAND.

DECEMBER 14.—The report of the Royal Horticultural Society of Ireland, submitted at the annual meeting held in Dublin, stated that the members had reason to be satisfied with the results of the three shows held during 1911, the shows having been larger than in previous years, and the quality of the exhibits very high. The autumn show was the largest of its kind for some years, but the winter fruit show was the most satisfactory ever promoted by the society. The membership is 476, and there is a credit balance of £231 11s.

Messrs. Ormsby and Rhodes were re-elected auditors, and it was agreed that members of the council attending at least one-quarter of the meetings of that body should be eligible for re-election without nomination.

The following retiring members of the council were re-elected:—

C. Watson, J. J. M'Donough, J. Wylie-Henderson, Rev. Canon Hayes, E. Wylie, Lady Albreda Bourke and Mrs. Greer. Mr. W. Ussher was elected to the vacancy caused by the retirement of Mr. H. Crawford.

READING AND DISTRICT ROSE AND SWEET PEA.

DECEMBER 16.—The annual general meeting of the above society was held in the Abbey Hall on this date. The Rev. F. Page-Roberts presided.

The secretary read the report, which stated that, although the entries were below the average, considering the trying season a very representative show was made in all sections. The committee thanked the Vice-Presidents and the principal subscribers for the help they had rendered, financially and otherwise. The society has gained some new subscribers, and the deficit has been reduced to about £14. Her Highness Princess Victoria of Schleswig-Holstein has kindly signified her willingness to accept the office of President for 1912, and if possible to attend the show. The report was adopted.

The secretary presented the financial statement, which showed total receipts amounting to £109 10s. 5d., and total payments of £123 12s. 8d., leaving a deficit of £14 2s. 3d.

The meeting then proceeded with the election of officers, the only change being in the office of President, Her Highness Princess Victoria of Schleswig-Holstein being appointed in place of Her Royal Highness Princess Christian.

LINNEAN SOCIETY.

THE LATE SIR JOSEPH HOOKER.

DECEMBER 21.—The President, Dr. D. H. Scott, M.A., F.R.S., spoke of the loss sustained by the Society since its last meeting in the death of Sir Joseph Hooker, beyond doubt their most distinguished Fellow. He was elected June 7, 1842, over 69 years ago, and served on the Council, with only short intermissions, from 1846 to 1864; he was Vice-president during a great part of that time, and exercised a great influence on the affairs of the Society, though, unfortunately, never president. Much of his best work, so far as it was not in book-form, was published by the Society; his memoirs on the flora of the Galapagos Islands, the distribution of Arctic plants, and the classic memoir on the unique plant, Welwitschia mirabilis, were mentioned. His last paper published in the *Transactions* was on the Rubber plant, Castilloa, 25 years back. The Society hoped to have the honour of publishing his latest work, on the genus Impatiens, on which he was actively engaged during the last years of his life, till very near the end.

Sir Joseph was the acknowledged leader in systematic and, above all, in geographical botany. His contributions to fossil botany were of great value; by the world at large, he would be best known for his close association with Darwin and with the development of the Darwinian theory.

The following resolution was then moved from the Chair:—

> The Fellows of the Linnean Society of London in general meeting assembled, desire to place upon record their profound sense of the loss to the Society and to the world of science, occasioned by the death of Sir Joseph Dalton Hooker on December 10, and their pride in his having been a Fellow of the Linnean Society for nearly 70 years, during which, by his scientific contributions to the Society's publications and his advice throughout his many years of service on the Council, he so greatly added to the prestige and efficiency of the Society.
>
> They desire also to express their deepest sympathy with Lady Hooker and the family in their bereavement.
>
> That a copy of the foregoing resolution be communicated to the family by the general secretary.

The resolution was carried unanimously, the Fellows rising in their places.

The President then announced that a vacancy existed in the List of Foreign Members by the recent death of Dr. Jean Baptiste Edouard Bornet, F.M.R.S., and that two vacancies had arisen in the List of Associates, by the death of Mr. Oswald Arthur Sayce, and the election as Fellow of Sir Frederick William Moore, M.A.

The Rev. Hilderic Friend read a paper entitled "Some Annelids of the Thames Valley," which was discussed by Prof. A. Dendy and the Rev. T. R. R. Stebbing; the author briefly replying.

Mr. W. C. Worsdell gave a lantern exhibition of a series of slides, showing abnormalities in fungi, and explained his views on the cause which produce them.

Dr. A. B. Rendle, F.R.S., showed specimens obtained in 1911, of the dissected leaf-form of Horseradish, Cochlearia Armoracia; in his absence, the following statement was read for him by the general secretary:—

It is not suggested that the dissected form of leaf of Horeradish is new; it will be familiar to many Fellows. The leaf-tissue between the veins is undeveloped to a greater or less degree, and a more or less cut form of leaf results. I should like to ask whether this form has been more generally noticed during the past remarkably sunny summer. It might be suggested that it is a response to an increased amount of sunlight or diminution of water supply. The specimen which I am showing came from a dry field, about a mile from the sea at Bognor, in which numbers of the plants were growing here and there, and nearly all of them showed the phenomenon in a greater or less degree. I noticed the same dissected leaf-form in other places this summer.

Obituary.

ANDREW RIDDELL.—The death of Mr. Andrew Riddell, seedsman, Grassmarket, Edinburgh, occurred on December 27 in the train on his way to Gorgie Market. Mr. Riddell, who had not enjoyed good health for some time past, died before medical assistance could be obtained. He was 63 years of age, and had been connected with the seed trade since 1871, when he was a member of the firm of Inch and Riddell, which was dissolved twenty years afterwards.

ROBERT INCH, EDINBURGH.—On December 29, just two days after the sudden death of his former partner, Mr. A. Riddell, there died at Belleville, Dalkeith Road, Edinburgh, Mr. Robert Inch, seed merchant, a well-known and respected member of the Edinburgh seed trade. He carried on business after the dissolution of partnership with Mr. Riddell and enjoyed for many years an extensive business.

MRS. THOMAS WILKINSON.—Horticulturists in the West of England will extend their sympathy to Mr. Thos. Wilkinson, of the Gardens, Tyntesfield, near Bristol, in the loss he has sustained by the death of his wife on the 27th ult.

WILLIAM DEAL.—As these pages go to press information is received of the death of Mr. William Deal, seedsman, Brooklands, Kelvedon, which occurred on Tuesday last, the 2nd inst.

PEDRO MARIA BINOT.—The information has just reached this country (January 4) of the death of Monsieur Pedro Maria Binot, which occurred in Brazil on November 26 last. M. Binot was a collector of Palm seeds, Orchids and other plants, whilst he was the principal importer of Cocos Weddelliana. He was well known to European dealers in Orchids and rare plants, and his death, after a long illness, will be regretted by a large circle of friends. Deceased was 61 years of age, and was a godson of the Emperor of Brazil. The remains were buried in the Petropolis Cemetery on the day following the death.

THOMAS CHILDS.—The death of this market gardener of Bexley, Kent, occurred on the 3rd inst. Deceased was well known in Covent Garden Market as a cultivator of pot plants, and especially Adiantum Ferns.

LAW NOTE.

THEFTS FROM NURSERIES.

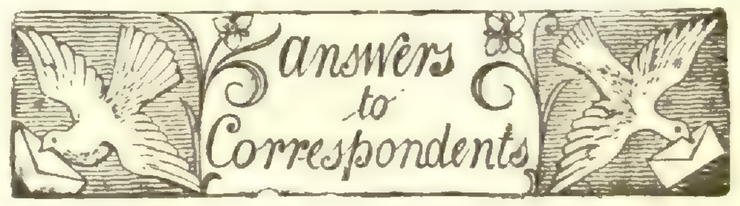
At the Spelthorne Petty Sessions recently, Walter Waring was charged on remand with stealing 21 standard roses from the nursery of Mr. Wilfred Clarke, Broad Lane, Hampton, value £1 11s. 6d. Prisoner was fined 40s., with the alternative of one month. Richard Anthony, carpenter, and Josiah Bonner, labourer, were charged on remand with being concerned together in stealing 102 standard briars, value 8s. 6d., the property of Ernest Hayler, nurseryman, Green Lane, Shepperton. Bonner was sentenced to six months' hard labour. Anthony pleaded not guilty, and said he simply carried the briars to earn a shilling or two. He was fined 20s., or 14 days in default.

TRADE NOTICES.

Mr. W. F. GULLICK, nurseryman, Salisbury, has acquired the business of florists and seedsmen carried on for the past 40 years by Messrs. Brittan & Son at 122, Fisherton Street, and Waterloo Nurseries, Salisbury.

NURSERY REQUISITES COMPANY, LTD.

This new private company has a capital of £2,000 in £1 shares and will carry on the business of manufacturer of nursery requisites and necessities, formerly conducted by J. C. S. Dunn, at Palais St. Georges, Conduit Street, W.



FRENCH HORTICULTURAL JOURNALS: *Hard-worker. Le Jardin*, 84 bis, Rue de Grenelle, Paris, *Jardinage*, 90 bis, Avenue de Paris, Versailles; *Revue Horticole*, Rue Jacob, 26, Paris.

GARDENING EMPLOYMENT IN AUSTRALIA: *Australian.* The late Mr. McIndoe, who visited Australia a few years ago, stated in reply to a similar question that "Anyone emigrating to Australia or New Zealand in the hope of obtaining a good situation as head gardener there incurs a great risk of being disappointed, no matter how good his testimonials may be. Large private garden establishments are few. With regard to public parks, a stranger may have to wait for years before he attains a superintendent's position. The gardeners in demand are good spadesmen and handy-men who are not particular in turning their hands to anything that comes in the way. Such men have no difficulty in getting situations in the neighbourhood of large towns at wages ranging from 40s. to 50s. per week.

LOBELIA CARDINALIS: *Doctor, Hampstead.* The plants are affected with eelworm. The soil should be sterilised by heating, or mixing with gas-lime. The plants cannot be saved, and should be burned. Obtain healthy stock and select your potting compost from a fresh source.

MARKET GARDENING: *F. B.* Your climate is undoubtedly favourable to the cultivation of the flowers you mention, and if your land is of fair depth and fertility good results should be obtained. It would not pay you to send Chrysanthemum flowers to Covent Garden Market, owing to the great distance of your place from London. Chrysanthemums were abundantly plentiful in Covent Garden Market during the past three months. However, there are several large towns in Devonshire and the adjoining counties in which you would be able to dispose of good supplies of Chrysanthemum blooms during August and the four following

months, always bearing in mind that disbudded flowers borne on long, stiff stems command top prices in the market. The following are good varieties of Chrysanthemum to grow for market:—*Early-flowering sorts*: Carrie (yellow), Miss F. Collier (a new white reflexed variety), Mrs. A. Beech (bronzy yellow), Miss Nellie Blake (bright bronze-red), Betty Spark (pink), Countess (white), Cranford Yellow (golden yellow), Mme. Desgrange (both white and yellow varieties), Goacher's Bronze (new), Polly (bronzy-yellow), and Roi des Blancs (King of the Whites). *Second early varieties*: Ryecroft Glory (bronzy.yellow), Sunshine (golden yellow), Mrs. J. W. Scott (white), Miss B. Miller (golden-yellow), October Gold (bronze) and Pink Princess. *Mid-season varieties*: Bronze Soleil d'Octobre (bronze), Soleil d'Octobre (golden)—these two October-flowering varieties produce immense blooms when they are disbudded; Felton's Favourite (white), Market Red, Mrs. Roots (a fine white bloom), Moneymaker (creamy white), Source d'Or (bronze or yellow), R. F. Felton (golden-yellow). *Late varieties*: Bonnie Dundee (incurved yellow), Baldock's Crimson, Emblème Poitevine (rich yellow), Framfield Pink (delicate pink), Winter Cheer (bright pink), Heston White (pure white), and Mrs. J. Thompson (creamy white)—the flowers of the last-mentioned four varieties are borne on long, stiff stems; Sarah Owen (incurved), Princess Victoria (white or pink), and Snowdrift (white, long stems).

NAMES OF FRUITS: *E. M. D.* Harvey's Reinette.—*T. P.* 1, decayed; 2, Beurré Rance; 3, Egremont Russet; 4, Franklin's Golden Pippin; 5, Ribston Pearmain; 6, Roundway's Magnum Bonum.—*James Hoad.* Mère de Ménage.—*G. Clark.* 1, Hambledon Deux-Ans; 2, Dumelow's Seedling (Wellington); 3, Golden Reinette.—*West End.* 1, Ronald's Gooseberry Pippin; 2, not recognised; 3, Lady Henniker; 4, Forge; 5, Golden Russet Nonpareil; 6, Northern Spy; 7, Blenheim Pippin.

NAMES OF PLANTS: *H. B.* Epidendrum evectum.—*O. R. T.* 1, Aspasia lunata; 2, Mormodes Buccinator; 3, Stelis ophioglossoides; 4, Cypripedium insigne; 5, Bulbophyllum cylindraceum.—*T. B.* 1, Euonymus japonica medio aurea; 2, E. japonica; 3, E. japonica aureo-marginata; 4, Olearia Haastii; 5, Veronica Traversii; 6, send when in flower; 7, V. Andersonii variety.—*A. H., Woolwich.* Cypripedium venustum.—*G. B.* Goldfussia isophylla.

PAINT-DESTROYING FUNGUS: *W. J. M.* If the red stains are well wetted with hydrogen peroxide, dabbed on with a pad of cotton wool, they will become bleached, and almost completely disappear of themselves, after a time. The fungus will not reappear, as it only grows on a newly-painted surface.

PEAT AND MUSHROOM BEDS: *J. R. M.* A small quantity of peaty or boggy soil in manure for a Mushroom bed will do no harm, but might generally be considered helpful provided the material is collected and prepared in an efficient manner.

PLANTAINS IN LAWN: *A. C. V.* Plantains may be removed from lawns by means of a special weed-extractor having a hollow steel cylinder. The cylinder should be placed over the crown and forced deeply down into the ground; when withdrawn, the root with a little soil will be removed. Then into each hole put a pinch of salt, filling up with good soil. The extractor may be purchased from the horticultural sundriesmen. Another way of destroying Plantains is to take an iron skewer, dip it into a bottle of sulphuric acid, and force the skewer into the centre of the plant, or a few drops of carbolic acid may be dropped on the crown of the plants, by means of an oilcan having a long spout.

ROSE ROOT DISEASED: *Dodder.* The roots are affected with crown gall, a bacterial disease. Remove all the diseased portions of the plant, and dust the wounds with a mixture of powdered sulphur and bluestone.

SELECT STOVE OR WARM-GREENHOUSE FLOWERING PLANTS: *A. H.* The following plants would provide a good selection for the stove or warm greenhouse:—Gardenia florida, the best of the genus for gardens, because of its compact growth and freedom of flowering. Specimens may be had in bloom for at least eight months in the year, and the blooms are very suitable for use as coat-flowers. Stephanotis floribunda, trained on the rafter, will, if the shoots are well ripened and pruned hard after the main flowering, continue flowering for several months. Jasminum Sambac has pure-white, sweetly-scented flowers; specimens may be trained as columns. Psychotria (Gloneria) jasminiflora is a beautiful plant with white flowers, and not unlike a Bouvardia. Aphelandra aurantiaca Roezlii is best grown as a winter-blooming plant; the flowers are coloured orange-scarlet. Eranthemum pulchellum is the best blue-flowered plant for winter blooming. Euphorbia (Poinsettia) jacquiniæflora and E. pulcherrima. Exacum macranthum is an almost perpetual-flowering plant with pretty, blue blossoms; it should be treated as an annual. Hoya bella. Rondeletia speciosa major produces a fine display from July to October; the dark orange-coloured flowers are useful for coat-flowers. Thyrsacanthus rutilans is an easy plant to manage, and useful in the winter season; the flowers are coloured a bright crimson. Begonias Gloire de Lorraine and its varieties, also Gloire de Sceaux. Ixora Prince of Orange is very free in flowering. Crossandra undulæfolia has deep orange-coloured flowers, and is very easy to cultivate. Anthurium Scherzerianum in variety. Gloriosa Rothschildiana is the finest in colour of this genus, and the best suited as a summer climber. As the plants are required for a small house, aim at obtaining dwarf, compact specimens, and in the case of the climbers do not encourage an excessive growth. By pinching the shoots of the various kinds during their growing season the period of flowering will be greatly extended.

SUMMER AND WINTER TOP-DRESSINGS: *C. T.* You do not state what kinds of plants you intend to top-dress, or whether they are in a dormant or active condition. Much depends also upon the material of which the top-dressing is composed, and whether the plants are growing in the open ground, in pots, or planted out under glass. In many cases, top-dressings are best carried out during the winter months, or just before growth commences actively. This applies to plants in a starved condition. When top-dressings are applied to furnish food and retain moisture in the soil, the plants should be in a vigorous condition of growth. Mulches are also valuable in the case of newly-planted trees. (See "Hardy Fruit Garden," p. 6.) They are especially valuable to plants at their flowering season, or in the case of fruit trees, after the fruit is set.

SWEET PEA ROOTS: *W. S.* We have known roots of Sweet Peas to penetrate to a depth of from 2 to 3 feet in well-prepared trenches, but such deep-plunging roots are not essential to the production of good flowers. Vigorous roots, 15 to to 18 inches long, with plenty of nodules, and growing in a firm, sweet and yet moderately-rich soil will furnish excellent results, and the plants under these conditions will be less likely to contract disease.

SWEET WILLIAM RUST: *Hardworker.* Spray the plants with liver of sulphur, at a strength of 1 ounce in 2 gallons of water. The soil is probably infected with falling spores, which perpetuate the disease from one year to another.

TULIPS DISEASED: *G. A. W. & Co.* See reply to *Doctor, Hampstead,* on Lobelia cardinalis.

TWIN APPLE: *J. H.* Double Apples are relatively common; a specimen was illustrated in *Gardeners' Chronicle* as long ago as 1855, October 20, p. 692. Your example of the variety Mère de Ménage is a remarkably well-developed specimen of the abnormality.

VIOLETS DISEASED: *C. C.* Fungus spawn is present in abundance in the leaf soil, and has attacked the roots of the Violets. It is doubtful whether this can be prevented. Your best plan is to soak the soil with a solution of nitrate of potash, using 1 ounce in each gallon of water. Leaf soil should be mixed with a sprinkling of kainit a month before it is used.

VIOLETS FOR MARKET: *F. B.* Violets pay if given a generous treatment, and English-grown Violets are always saleable in florists' shops, not only in London, but also in provincial towns; distances from these markets do not matter much, inasmuch as consignments can be sent by parcel post at a small cost. The best varieties to grow are as follow:—*Double-flowering sorts*: Mrs. Arthur (an improved Marie Louise and the best of all double Violets), Marie Louise (rich deep blue with white eye and a profuse flowerer), De Parme (lavender blue and very fragrant), Comte de Brazza (the best double white), and Belle de Chatenay (fragrant double white). *Single Violets*: Princess of Wales (deep-blue flowers borne on long stems), Wellsiana (very hardy and early-flowering variety, flowers blue), Kaiser Wilhelm (the largest single Violet grown), Mme. Schwarz (rich, deep blue), and Victoria Regina (an improved Czar and a profuse flowerer, but rather short stemmed). No doubt a houseful of Richardia africana (Arums), timed to flower at Easter time, would be remunerative. Salesmen in Covent Garden Market, include Messrs. W. Newton, Forster & Robins, D. Ingamells, J. Collingridge, and George Munro. The book of *Market Gardening*, by R. Lewis Castle, price 2s. 9d., and *My Gardener*, by H. W. Ward, price 2s. 10d., may prove helpful to you. Both books may be obtained from our publishing department, post free at the prices indicated. *My Gardener* contains instructive articles on the culture of Violets and Richardias.

WATER-GARDEN: *E. P.* If your garden already possesses a pond your work will be greatly simplified, but if such is not the case careful consideration must be given to the choice of a position for the water-garden. It should be remembered that, as water seeks low-lying positions, natural ponds are rarely found on high ground, and if you make a pond in such a position it will require exceptional skill in planting around it, or a very artificial appearance will be created. Your next care will be the outline; straight lines must be avoided, as also should very wavy lines and circles. Endeavour to make a few bold projections in as natural a manner as possible. If your subsoil is of a clayey nature you should not experience much difficulty in making the pond watertight. With a porous soil you must consider the rival claims (and relative cost) of concrete and puddling as the means of preventing waste of water. The minimum depth of the pond should be from 3 feet in its deepest part to 15 inches at the sides. If your pond is to be staunched with concrete the Nymphæas may be planted in good-sized mounds of soil, but as the plants cannot then be moved about their positions must be carefully determined beforehand. Besides the Water-Lilies (Nymphæas) other desirable hardy aquatics are Aponogeton distachyon, Alisma plantago, Butomus umbellatus, Pontederia cordata, Richardia africana, Sagittaria sagittæfolia, and a few floating plants, such as Alisma, Trapa natans, Stratiotes aloides, and Utricularia vulgaris. For the banks of the pond there are numerous plants to select from, such as many of the Irises (I. aurea, Delavayi, gigantea, Monspur, sibirica, and spuria), Primula japonica, P. rosea, Caltha palustris, Camassia esculenta, Doronicum excelsum, Epilobium, Lythrum, Mimulus cardinalis, Saxifraga peltata, Spiræas (including Astilbe), Trillium grandiflorum, and Trollius amongst flowering plants. Gunnera manicata and G. scabra are noble foliage plants where space admits of their being grown. Other, and smaller, waterside foliage plants are Acanthus mollis, Arundo Donax, Bamboos, Cyperus longus, Funkias, Osmunda regalis, Rheum Emodi and Rodgersias. Suitable trees and shrubs for waterside planting are Acer rubrum, Alnus glutinosa, Betula alba, Cornus, Cratægus, Myrica cerifera, M. Gale, Quercus coccinea, Salix, and Taxodium distichum

Communications Received.—F. H. F.—Interested.—F. L. B.—E. D.—J. M. E. F. G., Dublin.—S. H. K.—E. C., Switzerland.—G. W. F.—J. S.—E. W.—J. A. T.—F. W.—J. E. C. A B., Italy—T. G. W. H.—E. T.—C. T. & Co.—E. F. C.—E. M.—J. R. J.—Ignoramus.—J. M.—H. M. V.—W C.—T. S—W. G. K.—Fairplay.—W. F.—A H. S., Ontario.—E. H. B.—P. H.—C. F. M.—T. E.—W. K., Austria.—W. H. J.—C. P.—A. G. B.—H. H. R.—A. J. M.—C. H. P.

ALMANAC FOR 1912.

THE GARDENERS' CHRONICLE

ESTABLISHED 1841

No 3707

No. 1,307.—VOL. LI. {THIRD SERIES.} SATURDAY, JANUARY 13, 1912. {Registered as a Newspaper. WITH SUPPLEMENT: PRICE 3d. POST-FREE, 3½d.

SUBSCRIPTION—Inland, 15/-; Foreign, 17/6 [22fr. 10c.] [$4 26c.] per annum. Entered at the New York Post Office as second-class matter.

Postal Address—41, Wellington Street, Covent Garden, W.C. Telegraphic Address—"Gardchron, London." Telephone—Gerrard, 1543.

☞ For CONTENTS see page 17.

First Prize, London, 1911, awarded to

WEBBS' NEW CONQUEROR TOMATO, 1s. 6d. and 2s. 6d. per packet, post free.

PRESS EXTRACT: "National Vegetable Society's Show, London.—A new class introduced for Tomatos in which points were specially awarded for quality—*i.e.* solidity of the flesh with little pulp and seeds, and flavour—was well contested with fourteen entries. The winning variety was Webbs' Conqueror, shown by Mr. J. Hudson, Leicester, but the dish might well have secured the premier award solely for the fine colour, size, and uniformity of the fruits."

WEBB & SONS, The King's Seedsmen
WORDSLEY, STOURBRIDGE.

GREENHOUSE PAINTING & GLAZING "Vitrolite" superior to White Lead Paint, 9/- per gall. "Plastine" supersedes Putty, 16/- per cwt. Full particulars from W. CARSON & SONS, Grove Works, Battersea. Agents throughout the country.

AUTO SHREDS FUMIGANT kills Leaf-mining maggot, insects in greenhouses, frames. For 1,000 cubic feet, 6d.; 10,000, 3s. 6d. No apparatus.
WM. DARLINGTON & SONS, Patentees, Hackney, N.E.

BARR'S SEED GUIDE FOR 1912 contains a select List of the best VEGETABLES, and the most beautiful ANNUALS and PERENNIALS for Garden and Greenhouse, including many fine Novelties of Sterling Merit. Sent free on application.
BARR & SONS, 11, 12 & 13, King St., Covent Garden, London.

BARR'S REMOVAL SALE OF HARDY PLANTS.—Clearance List of surplus plants at greatly reduced prices (prior to removal of nurseries from Surbiton to Taplow), sent post free on application.
BARR & SONS, 11, 12 & 13, King St., Covent Garden, London.

DICKSONS Horticultural Manure & other high-class Fertilizers; also Dicksons Improved Mushroom Spawn. Priced Circulars free on application to DICKSONS, Royal Seed Warehouses & Nurseries, Chester

PERPETUAL FLOWERING CARNATIONS—My stock is the largest in Europe; Inspection invited. Export to the Colonies a speciality. Catalogue free on application.
C. ENGELMANN, Saffron Walden.

GISHURST COMPOUND is harmless in use; its soluble Sulphur, &c., has for 40 years cured Blights and Fungus on Plants, and is good for washing unhealthy dogs. Gishurstine keeps boots dry in all weathers; they will polish. Good for Harness.
Wholesale from—
PRICE'S PATENT CANDLE CO. LTD., London.

THE Popularity of "XL ALL" Specialities increases every year. All gardeners proclaim that nothing equals these celebrated preparations. "XL ALL" NICOTINE VAPORISING COMPOUND, the gardeners' favourite Fumigant, both Liquid and Cake. "XL ALL" NICOTINE INSECTICIDE WASH for Syringing, Dipping and Dressing Fruit Trees and Plants; Mealy Bug, Scale, etc., cannot exist where this is used. "XL ALL" INSECTICIDE WASH B (*sine* Nicotine), best non-poisonous Wash on the Market. No licence required to sell this. Other preparations of great renown, both poisonous and non-poisonous, are:—"XL ALL" WEED KILLER, "XL ALL" FERTILISER, "XL ALL" WINTER WASH for Fruit Trees, RICHARDS' BANDING GREASE, etc. Don't forget to ask your Nurseryman, Seedsman or Florist for Richards' small pink list.—G. H. RICHARDS, Manufacturer, 234, Borough High Street, London, S.E.

Sow Now Under Glass.

SUTTON'S PIONEER PEA.
Per pint, 2s.; quart, 3s. 6d., post free.

Mr. A. WOOD, Gardener to A. J. Allcock, Esq., writes:—"I must remark on your dwarf Pioneer Pea. I had it to follow Harbinger and Little Marvel, and it completely outclassed all other dwarfs. Large, handsome, well-filled pods of grand quality, entirely smothering the plants."

SUTTON & SONS, The King's Seedsmen,
READING.

BATH'S SELECT SEEDS.—New Illustrated Catalogue of Choice Vegetable and Flower Seeds, with full cultural notes, is now ready, and will be sent post free on application.
(Dept. A), R. H. BATH, Ltd., The Floral Farms, Wisbech.

GARDEN PESTS.—Cross's "Clubicide" is the Gardeners' Insurance against damage by Eelworm, Wireworm, Slugs, Maggot, and all Disease Germs and Insect Pests. Kills all harmful Bacteria, reinvigorates the soil, stimulates plant life. In 1s. flasks and ½-gall. and 1 gall. drums. From all Seedsmen.
Sole Manufrs.: A. CROSS & SONS, Ltd., Glasgow.

CROLL'S ROSES.—Catalogues now ready, and post free on application.
D. & W. CROLL, 63, Commercial Street, Dundee.

Roses and Herbaceous Plants.

GUNN & SONS were awarded the 25 Guinea Challenge Cup in each collection at the Leamington Show. Up-to-date List for each now ready.
Address: Olton, Warwickshire.

OSMUNDA for Orchids.—Consignments arrive fortnightly. 2s. 6d. per bushel; per bag, 8s. 6d.
SANDER & SONS, St. Albans.

LANDSCAPE GARDENING.—W. INNES STUCKEY, Landscape Gardener, Piccadilly Mansions, Piccadilly Circus, W. (With the late Mr. H. E. Milner).

WALTERS & CO., Morland Rd., Croydon, Makers of Lath Roller Greenhouse Blinds; Trellis Screens and Fences, Arches, Arbours, Rose Pillars. Established over 20 years. Catalogues free.

ALPINES AND PERENNIALS. Rare Rhododendrons and other Shrubs, Daffodils and Bulbous Plants; Construction of Rockeries. Catalogues ready
G. REUTHE, Keston, Kent.

BUNYARD'S CATALOGUES, free on application.

FRUIT TREES AND VINES.

SHRUBS AND CONIFERS.

ROSES AND OTHER CLIMBERS, in Pots.

HERBACEOUS & AQUATIC PLANTS for Autumn planting.

GEORGE BUNYARD & CO., LTD.,
Royal Nurseries, Maidstone. Established 1796.

WELLS' CATALOGUE OF CHRYSANTHEMUMS, Perpetual Carnations, Herbaceous Plants, Alpine and Rock Plants, now ready, post free on application. Wells' Book, "The Culture of the Chrysanthemum," post free, 1s. 6d.
W. WELLS & CO., Merstham, Surrey.

For Advertisement Charges see page iv.

WM. DUNCAN TUCKER & SONS, Ltd., 27, Cannon Street, London, E.C.; Works, Tottenham. Conservatories, Winter Gardens, Vineries, Peach-houses, Portable Buildings, etc. Catalogue gratis.

FIDLER'S NEW ILLUSTRATED CATALOGUE of CHOICE GARDEN SEEDS will be sent post free to any address on receipt of postcard. Write at once for a copy; it may help you to save 50 per cent. on your seed bill this season.
FIDLER & SONS, Royal Berkshire Seed Stores, Reading.

CHRYSANTHEMUMS.—Descriptive Catalogue of choice up-to-date varieties and novelty list for 1912, sent free. Apply
H. W. THORP, Durrington, Worthing.

POULTRY and KENNEL APPLIANCES of every description. Write for latest Catalogue free on application.
BOULTON & PAUL, Ltd., Norwich.

MACKENZIE AND MONCUR, Limited, Hothouse Builders and Heating Engineers, London, Edinburgh, and Glasgow. By Special Appointment to H.M. The King.
London Office: 8, CAMDEN ROAD, N.W.

New Phloxes.

GUNN & SONS were Awarded a Silver Cup at the Great Show at Olympia. New Lists now ready. Address: Olton, Warwickshire.

SEED PEAS.—"Farrow's Glory" Marrowfats. A very hardy variety. Can be sown both early and late. Length of straw about 3 ft. 6 ins. Prodigious yield and excellent flavour. ½-pt. packet, 7d., post free.
G. C. FARROW & CO., Peterborough.

CUTHBERT'S SPECIALITE MUSHROOM SPAWN.—NEW SPAWN NOW READY. We continue to receive the most gratifying testimonials as to the productiveness and good quality of our Spawn. Per bushel, 5s.—R. AND G. CUTHBERT, Seed and Bulb Merchants, Southgate, Middlesex.

PERPETUAL-FLOWERING or American Tree Carnations; strong, healthy Guernsey plants from pots, 4s. per doz., carriage paid; 20s. per 100, carriage forward; ask for catalogue, 75 varieties, with full directions.—
VAN DER SLUYS, F.R.H.S., Ramee, Guernsey, C.I.

FERNS! FERNS!!—Tree, Climbing, Basket, Stove, Greenhouse, and Garden Ferns; catalogues free.—SMITH, London Fern Nurseries, Loughboro' Junction; London, S.W.

PERPETUAL TREE CARNATIONS, best varieties, strong, young plants out of small pots, 20s. 100; good flowering plants in 5-inch pots; 10s. 6d. doz.—G. S. EVANS, F.R.H.S., Carnation Specialist, Bexley Heath.

FIGS, GRAPE VINES, for fruiting and planting; please write for sizes and prices.—
WILL TAYLER, Hampton, Middlesex.

CARNATION "MAY DAY"; most profitable pink; well rooted; 3s. 6d. per dozen, 22s. 6d. per 100; cash.—JOHN BURCH, Staple Hill Nursery, Bristol.

FOR SALE.—Crotons, Calanthe Veitchii, Eucharis amazonica, Asparagus plumosus, Cyclamen, Clivias, Arum Æthiopica, Elliottiana, and Pentlandii, Malmaisons, &c.—For particulars apply, J. McPHERSON, Londesborough Park, Market Weighton, Yorks.

SALES BY AUCTION.

Monday, Wednesday and Friday Next.

MONDAY and FRIDAY NEXT, JANUARY 15th and 19th, at 12 o'Clock.—200 lots of choice Herbaceous Plants, Flowering and Decorative Shrubs, Spiræas, Iris, Pæonies, Dielytras, &c., Japanese Liliums in variety, Gladiolus, Montbretias, Begonias, Gloxinias, Lily of Valley, &c.

At 1.30 o'Clock.—1,500 ROSES, Standard, Dwarf, Climbing, &c., also Standard and other Fruit Trees, Azaleas, and Rhododendrons.

WEDNESDAY NEXT, JANUARY 17th, at 12 o'Clock.—Japanese Liliums in variety, Gladiolus, Begonias, Spiræas, Japanese Iris, Carnations, Pinks, Pæonies, &c., choice Herbaceous Plants, Perennials, and Rock Plants, Climbers, &c., Lily of the Valley, retarded roots and bulbs.

At 1.30 o'Clock.—8,000 ROSES, English, French, and Dutch grown, comprising Standards, Dwarfs, Climbers, T., H.T., and H.P., together with Standard, Pyramidal, Bush and Dwarf-trained Fruit Trees.

At 5 o'Clock.—Ornamental and Decorative Palms and Plants, Azaleas indica and mollis, Rhododendrons, Aspidistras, &c., received from Belgium.

MESSRS. PROTHEROE & MORRIS will SELL the above by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C. On view morning of Sale and Catalogues had.

Rose Trees, Shrubs, Fruit Trees, Lilies, Perennials.

MR. J. C. STEVENS begs to announce that his Sales by Auction are held every

MONDAY and WEDNESDAY, at 12.30.

Catalogues post free.

Lots purchased, packed and forwarded to all parts.

STEVENS' AUCTION ROOMS

(Established 150 Years),

38, King St., Covent Garden, London, W.C.

TO HORTICULTURAL BUILDERS, GARDENERS, AND OTHERS.

By order of the Liquidator re Crompton & F. A. Fawkes, Ltd., Chelmsford.

FRED TAYLOR & CO. are instructed to SELL by AUCTION, at the Anchor Works, New Writtle Street, Chelmsford, on TUESDAY, JANUARY 16th, at 11 a.m., the whole of the stock of this well-known firm, including the patterns and stock in trade of greenhouse fittings, furnaces, garden lights, frames, &c., without reserve. Catalogues in due course of the Auctioneers, 17, Duke Street, Chelmsford.

FRYETT, WHITE & CO., Horticultural Auctioneers, 23, Moorfields, E.C. (two doors Moorgate Street Station), SALES every TUESDAY, WEDNESDAY, and FRIDAY, high-class Roses, Standard, Bush, and Climbing, Liliums, Gladioli, Herbaceous Plants, Fruit Trees, &c., &c. Catalogues post free. Tel. 9220 Wall.

BUSINESSES FOR SALE, &c.

PENRITH (Main line, London and North-Western Railway).—For Sale, owing to ill health of proprietor, a genuine NURSERY, MARKET GARDEN and FLORIST'S BUSINESS, with or without shop in town; established 60 years; grounds of about seven acres; one mile from town; five glasshouses, practically new, modern heating arrangements; quantity of frames; varied and general stock of growing plants, florists' requisites, &c.; shop in central position; total valuation £1,500; offers invited for quick sale; splendid opportunity for energetic man with moderate capital.—Full particulars from THORNBORROW & CO., St. Andrew's Churchyard, Penrith.

FREEHOLD NURSERY, South Coast, for Sale; two acres; one of most fertile spots in England; charming residence; fifteenth century cottage style by celebrated architect; two large glasshouses, fine propagating house (all new); stable coachhouse, potting, and packing sheds, &c.; 500 feet of glass frames; good stock, chiefly Violets; excellent pony, trap, and market trolley; water laid on; suit ladies.—Write, 1197, Sell's Advertising Offices, Fleet Street, London.

FOR SALE, with immediate possession in well-known growing district, 14 miles from London and 10 minutes from rail and tram, FREEHOLD NURSERY, comprising 4½ acres of land with 2,100 feet run of good glasshouses, fully heated with boilers and hot-water pipes; also good packing shed, &c.; part could remain on mortgage.—M. P., Box 1, 41, Wellington Street, Covent Garden, W.C.

NURSERY, FLORIST and FRUITERERS' BUSINESS for Sale; near Exeter; ¾ Acre; with well-built and heated glasshouses; town water supply; immediate possession.—Particulars, Avenue House, Crediton, Devon.

BUSINESS CARDS.

BRITISH COLUMBIA.—A practical Man will be pleased to send particulars, gratis, to anyone requiring information on climate and soils for Fruit Growing, &c.—Address, H. WHITING, F.R.H.S., Kettle Valley Irrigated Fruit Lands, Ltd., Rock Creek, British Columbia.

CORRESPONDENCE COACHING CLASSES for R.H.S. Examination; special terms for Under Gardeners; success assured.—HORTULANUS, Gatcombe Court, Flax Bourton, Bristol.

CHARLESWORTH & CO.,

HAYWARDS HEATH, SUSSEX.

ORCHID SPECIALISTS,

IMPORTERS, EXPORTERS, RAISERS & GROWERS.

PUBLISHERS' NOTICES.

KYNOCH'S "Wild Flowers of Barmouth," fourth edition, including Salwey's Scarce List, Habitats and Notes, published 1863, pp. 50, price 6d.—J. KYNOCH, 8, College Road, Brighton.

Pronunciation of Plant Names.

A few copies are still to be had. Post free, **1/1½**.

Present-Day Gardening.

Edited by R. HOOPER PEARSON, Managing Editor of the GARDENERS' CHRONICLE. Now Ready. Post free, **1/9** each.

Numerous Beautifully Coloured Plates are contained in Each Volume.

1.—**Sweet Peas.** By HORACE J. WRIGHT, late Secretary and Chairman of the National Sweet Pea Society. With Chapter on "Sweet Peas for Exhibition," by THOS. STEVENSON.

2.—**Pansies, Violas, and Violets.** By WILLIAM CUTHBERTSON, J.P., and R. HOOPER PEARSON.

3.—**Daffodils.** By the Rev. J. JACOB.

4.—**Orchids.** By JAMES O'BRIEN, V.M.H., Secretary of the Orchid Committee of the Royal Horticultural Society.

5.—**Root and Stem Vegetables.** By ALEXANDER DEAN, V.M.H., Chairman of the National Vegetable Society.

6.—**Carnations and Pinks.** By T. H. COOK, Head Gardener at Sandringham; JAMES DOUGLAS, V.M.H., and J. F. MCLEOD, Head Gardener to Mr. Pierpont Morgan. Contains 8 full-page coloured plates.

7.—**Rhododendrons and Azaleas.** By W. WATSON, with preface by Sir F. W. MOORE, M.A. (the first popular volume published on this subject). Contains 8 full page coloured plates.

8.—**Lilies.** By A. GROVE, F.L.S., with preface by H. J. ELWES, F.R.S. Contains 8 coloured plates.

9.—**Apples and Pears.** By GEORGE BUNYARD, V.M.H. Contains 8 coloured plates.

10.—**Roses.** By H. R. DARLINGTON, with 8 full-page coloured plates. A double volume, price **2/10**, post free. Special presentation edition, with beautiful cover design, in cloth gilt, gilt top, price **3/10**, post free

THE PUBLISHER,

"Gardeners' Chronicle" Offices, 41, Wellington St., Covent Garden, London, W.C.

ALPINE FLOWERS AND ROCK GARDENS. By Walter P. Wright. A practical book containing magnificent colour and half-tone plates of the flowers as they grow. The most beautiful book on the subject yet produced. 12s. 6d. net.
HEADLEY BROTHERS, Bishopsgate, London.

ROSES AND ROSE GARDENS. By Walter P. Wright. A companion volume to above. *The Sphere* says: "Buy the book this winter and you will have a fine rose garden next June and July." 12s. 6d. net. Write for illustrated booklet post free.
HEADLEY BROTHERS, Bishopsgate, London.

AMONG THE HILLS. By Reginald Farrer, being an account of the Author's wanderings in search of Alpine Flowers. Profusely illustrated in colour. "Mr. Farrer has won for himself a unique place among writers on Alpine Plants."—*The Gardener's Chronicle*. 12s. 6d. net.
HEADLEY BROTHERS, Bishopsgate, London.

NOTICES.

IMPERIAL COLLEGE OF SCIENCE and TECHNOLOGY,

SOUTH KENSINGTON,

including

The Royal College of Science, The Royal School of Mines, and The City and Guilds (Engineering) College.

A Course of about 20 Lectures, with Practical Work, will be given, commencing January 16th, on

SUBJECT:

The Pathology of Plants.

CONDUCTED BY:

Professor Blackman.

For further particulars of this and other Courses to follow, and admission to this Course, application should be made to the Secretary.

PLANTS, &c., WANTED.

WANTED, large PALMS, for cash or in exchange for other plants.—Send particulars to WILLS & SEGAR, Royal Exotic Nursery, South Kensington.

WANTED, large KENTIA PALMS, up to 25 feet high; large, well-coloured Dracænas and Crotons, also Aspidistras.—ROBERT GREEN (1911), LTD., 28, Crawford Street, London, W.

CALADIUMS, Bulbs, Candidum, excellent Argyites.—Inclusive list and prices to E. DYSON, Cherryhinton Hall, Cambs.

PLANTS, &c., FOR SALE.

WILTON & GODARD'S Chrysanthemum Catalogue now ready.—"Claremont," Durrington, Worthing.

PERPETUAL CARNATIONS.—Our 1911 Illustrated Catalogue free. Read our "Cultural Treatise," 1s.—YOUNG & CO., Carnation Specialists, Hatherley, Cheltenham.

GARDEN FERNS, 20s. 100.—Cyclamen, Genistas, Acacias, Ericas, Palms, Begonias, Crotons, Dracænas; catalogues free.—SMITH, London Fern Nurseries, Loughboro' Junction, London, S.W.

AZALEA INDICA, named, well set with buds, 24s., 30s., 36s., 42s. per doz.; Azalea mollis, grand plants, 21s. per doz.; Lilacs for forcing, very fine, 5s. each; Deutsia Lemoinei and gracilis, pot grown, 9s. per doz.—MORLE & CO., LTD., 156, Finchley Road, N.W.

ALL JAPANESE LILIUMS at lowest prices: Spiræa Queen Alexandra, 8s.; Gladstone, 6s. doz.; Helleborus niger maximus, fine clumps, 7s. doz.; Early-flowering Gladiolus, all best sorts, 2s. 6d.; Brenchleyensis, top size, very fine, 8s., fine bulbs, 6s.; Gandavensis, 6s.; Childsii, 7s. 6d.; all per 100.—
MORLE & CO., LTD., as above.

MORLE & CO., LTD., offer overstock of Hyacinths, Tulips, and Narcissus very cheap; prices and sorts on application.—156, Finchley Road, N.W.

MISCELLANEOUS.

GARDENERS' strong blue Serge Aprons, with or without bibs, 1s. 11d., post free; best quality, 2s. 6d., post free; satisfaction guaranteed or money refunded.—R. E. DAVIES, Clothier, The Square, Bishops Castle, Salop.

FOR Garden BIRCH BROOMS, selected Hazel, Sweet Pea sticks, and thatching Heather for summer houses, &c.—Apply to JOHN APPLETON & SONS, Birches, Baughurst, Hants.

FOR SALE, Cassell's "Dictionary of Gardening," bound in four volumes with supplement, in perfect condition; cost 34s.; what offers?—McQUEEN, Capel, near Tonbridge, Kent.

ORCHIDS **EIGHT MILES by Road from the City.**

A grand lot of **Dendrobium Formosum giganteum, Dendrobium Phalænopsis Schroderianum** in bud, **Cattleya Trianæ, Cattleya Schroderæ.**
Full of Sheaths.

Oncidium Varicosum in Spike.

Particulars on application. Nurseries easily reached by Rail to BUSH HILL PARK Station, or by Road.

STUART LOW & CO., Royal Nurseries, Bush Hill Park, Middlesex. 'Phone:—Enfield 1 & 2.

THE
Gardeners' Chronicle

No. 1,307.—SATURDAY, January 13, 1912.

CONTENTS.

Agricultural statistics .. 25
Apple, sport in 25
Apples, the colouring of 28
Asparagus, the treatment of 27
Begonia luxurians ... 29
Books, notices of—
Encyclopædia of Gardening 19
Histoire des Légumes 19
La Vie a la Campagne 25
Le Jardin 25
Report on the Dune Areas of New Zealand 25
Bulb garden, the—
Lilium sulphureum ... 19
China, the flora of ... 25
Cotton breeding 24
Cypripedium spectabile 18
Elsholtzia Stauntonii ... 21
Florists' flowers—
Carnations, registered 21
Sweet Pea novelties from America ... 21
Flowers in season ... 24
Fruit trees in grass land 17
Fruit trees, protecting, from hares 24
Gardeners' Royal Benevolent Institution ... 24
Gibault, M. Georges ... 25
Hooker, Sir Joseph, the life of 26
International Horticultural Exhibition ... 24
Iris susiana 19
London's open spaces ... 24
New invention—
Saughton plant label 27
Novelties of 1911... ... 20
Oak, a curious 26
Oak, a "sleeping" ... 25
Obituary—
Baillie, William .. 32
Brown, A. R. 32
Doig, J. 32
Grahame, Archibald 32
Rowan, M. 32
Pastures, the renovation of poor 25
Pictures at the Royal Institute Galleries ... 27
Plants for a cold greenhouse 32
Plants, new, of Central Asia 25
Plants, new or noteworthy—
A new Iris 18
Lælio-Cattleya Mossemiliana 18
Potato, the, and floral sterility 28
Rat-catching, a theory of 28
Rosary, the—
Fragrant Roses ... 25
Rose William Allan Richardson 26
Scotland, notes from ... 26
Societies—
Manchester and North of England Orchid ... 31
National Sweet Pea ... 30
Royal Horticultural ... 29
Royal Meteorological 24
Women's Agricultural and Hort. Union ... 24
Standard fruit trees, training young... ... 28
Week's work, the 22, 23
Winter, the mild ... 29

ILLUSTRATIONS.

Begonia luxurians 28
Cypripedium spectabile at Straffan House gardens, co. Kildare 18
Elsholtzia Stauntonii 21
Iris susiana in Mr. Charles Prentis's garden 20
Lilium sulphureum in a Northamptonshire garden ... 19
Oak tree, a curious, in Mr. Henry B. May's garden ... 26

FRUIT TREES IN GRASS LAND.

IN the thirteenth *Report** of the Woburn Experimental Fruit Farm, the Duke of Bedford and Mr. Spencer U. Pickering add to the valuable information given in their third *Report*, issued in 1903, with reference to the effects of growing fruit trees in grass land. The early experiments bearing upon this subject were carried out with Apples, and whilst a great number of new ones have since been conducted with this fruit, Pears, Plums, Cherries, and forest trees have also been included in the more recent trials. Further, a great number of experiments have been carried on, including some with trees in pots, for the purpose of testing the several suggestions as to the cause or causes of the dwarfing effect of growing trees in grass land. No amount of trouble or expense has been spared in carrying out trials calculated to throw light upon the subjects of investigation, and fruit-growers in all parts of the world have reason to be grateful to the authors of the *Report* for the unstinted expenditure of thought, time, and money devoted to their important experiments.

* Amalgamated Press, London. Price 4s. 9d.

The later experiments have fully confirmed the conclusion derived from the early ones to the effect that no other treatment has so bad an effect upon fruit trees as growing them in grass land. The stunting effect upon wood growth, foliage, and fruit is greatest when young trees are grassed over immediately after they have been planted; it is less when even a small space around each tree is kept under tillage or when the grassed area is small, so that the roots of the trees extend in time to the tilled soil outside; and it is least when a large space is kept tilled around each tree. An extreme instance is given of some Apple trees showing injury to foliage and fruit when as little as 1-1,000th to 1-2,000th of their root systems extended from tilled land to grass. This is so astonishing that it may be suggested that some cause other than the one assumed must have been in operation. All the varieties of fruit tested and all the forest trees, except Conifers, showed the stunting effects of grass over their roots, while standard Apples on crab stock suffered nearly as much as dwarfs on the paradise. The photographs showing the differences in growth between trees of various ages in grass and in arable land respectively are very striking.

Bearing in mind the fact that there are many Apple orchards of large and robust trees in grass land in this country, the United States, and Canada, and that the splendid Cherry orchards of Kent, the finest in the country, are generally in grass, it must be concluded that the ill-effects are more extreme in the Woburn district than in most places. Nothing can be said in extenuation of the practice of planting trees in grass without keeping a space well tilled around each of them, and extending it as the roots spread, until the trees are mature. But when trees are thus treated, or are kept in tilled land altogether until they are mature, they often flourish in all respects, although, perhaps, not so perfectly as they would do if the land were kept under tillage. A great number of American Apple growers still stand by the "sod and mulch system," maintaining that the results are quite as good as those of tillage. But the trees must be standards or half-standards on the crab or free stock, and they must be frequently mulched with farmyard manure or other organic matter, a plan which does not appear to have been tried at Woburn. To leave the cut grass in the orchard is not sufficient.

The authors of the *Report* state that they "are dealing with a general phenomenon, to which there are many real or apparent exceptions," and that "the majority of their experiments have been planned in such a way that any effect which the grass had on the trees would be exercised to a maximum extent." Most of the Apple trees tested are dwarfs on the paradise stock, which are not suitable for grass orchards. Moreover, the soil at Ridgmont, where nearly all the trials were conducted, is a shallow soil over clay, into which the roots even of trees on the crab stock do not penetrate. This probably explains why trees on the crab suffered nearly as much from grass as trees on the paradise stock. With all necessary allowances, however, it must be regarded as a fact proved beyond all doubt that growing young trees in or very near grass has a dwarfing effect upon root and wood growth, foliage, and fruit.

To demonstrate the effects of growing trees in grass is a simple matter in comparison with an elucidation of the cause or causes of those effects. It is highly probable that more than one cause is in operation in producing such marked effects as those noticed in the *Report*, and for this reason objection may be taken to the dismissal of some of the suggested causes on more or less uncertain evidence, on the ground that each of them separately is shown to be insufficient to account for the phenomena under investigation. It is impossible in an article of ordinary length to follow the writers in the voluminous details of evidence put forward in this division of their subject. That evidence seems to prove clearly enough that the phenomena are not due to any accumulation of carbon dioxide or excess of alkalinity in the grassed soil. On the other hand, it cannot be affirmed that the last word has been said in relation to soil temperature, water supply, food supply, or aëration of the soil: nor to the condition of the soil with respect to bacteria, which, as the *Report* states, are under investigation by Dr. Hutchinson. The aëration of the soil and the food supply therein are allied subjects, and there are strong reasons for supposing that they have an important bearing upon the behaviour of trees in grass and in tilled land respectively. The grassed trees show every sign of partial starvation, and many a tree in arable land shows similar signs of lack of nutrition. It is not enough to prove by analysis that the soil under grass contains as large or larger proportions of the food constituents of plants as tilled soil. The lack of aëration in the former may make a vast difference to the amounts of food-materials utilisable by the trees, and so it may to the number and activity of beneficial bacteria or to the presence or absence of their enemies. The plan of leading a channel of stones down to the roots of a tree to prove that the condition of grassed trees was not affected by lack of soil aëration is in no respect equivalent to aëration by frequent tillage; and the converse method of placing a small patch of cement around a tree is equally inappropriate, besides which it did have a highly injurious effect after two or three years.

With respect to injury done by excretions from the roots of grass, to which our authors attribute the dwarfing effect of growing trees in grass land, it is difficult to accept such a deduction from the evidence they supply. Leachings from trays in which grass was growing, instead of injuring trees in pots grown in soil free from grass, are shown to have actually benefited them; but when the trays were placed on the surface of the soil around the trees, so that "the washings from the grass reached the roots with

practically no exposure to the air, they had a very deleterious effect, nearly, if not quite, as great as when grass was grown above the roots of trees in the ordinary way." The explanation given is that the supposed toxic matter in the leachings is readily oxidisable, and thus made harmless. It may be supposed, however, that leachings poured into a flower-pot containing a tree would reach the roots in less than a minute, and that the degree of oxidation effected could not be very much greater than when the leachings reached the roots through a tray with a perforated bottom. Unless the tray, which had a slit in it to allow of fitting it around the stem of the tree, was kept there permanently, it could not affect any aëration that might take place after the watering with the leachings, and if it was kept there for the long period necessary to show the ill effects produced, these might result from keeping the surface of the soil constantly covered. Evidence more conclusive must be adduced before the theory is accepted that the bad effect of growing grass over the roots of trees is due to toxic excretions from the grass. Upon this subject and some other points alluded to above, further evidence, it may be hoped, will be afforded by a continuation of the interesting experiments at Woburn.

CYPRIPEDIUM SPECTABILE.

CYPRIPEDIUM SPECTABILE is generally planted in a bog on the rock-garden, but, in many localities, it will grow well and flower freely in an ordinary border, as may be seen on reference to fig. 13, which shows a batch of about 60 plants of this hardy Orchid growing on a north border at Straffan House, Co. Kildare. Mr. Bedford, the gardener, to whom we are indebted for the photograph, recommends October as the best time for planting, and the placing of the roots about 4 inches deep in a mixture of leaf-mould and peat. A north border is an advantage, as cool conditions suit the plants during hot weather. C. spectabile is a native of North America, where it is known as the Mocassin flower; the petals and sepals are white, the large, pouched lip being a bright shade of rose.

NEW OR NOTEWORTHY PLANTS.

A NEW IRIS.

THE description of new species from dried herbarium material alone is never entirely satisfactory, but, as the publication of what is known of the plants and of the localities in which they are to be found may lead to their introduction into cultivation, it seems at least worth while to give this information with regard to plants only known at present as herbarium specimens.

IRIS TENUISSIMA SP. NOV.*

This new species was found by H. E. Brown (No. 239), in 1897, near Pit River Ferry, in the Shasta County of California, at an elevation of 700-900 feet. The only specimens of it that I have seen are five flowering stems and a tuft of leaves on a single sheet, which I found recently among some herbarium specimens of American Irises lent to me by the kindness of Dr. Rose, from the United States National Herbarium, at Washington, D.C. It is distinguished at once from all other American Irises by the extreme fineness of the segments of the flower, and by the peculiar character of the spathes.

The leaves are linear, acuminate, about 12 inches or 14 inches long by ¼ inch wide, and the rhizome is evidently of the slender, wide-creeping kind that is so characteristic of the Western American species. The stems are about a foot in height, clothed with three or four reduced leaves, and each bears a single head of two flowers, enclosed in somewhat broad, acuminate, rigid spathes, about 2 inches long. The comparatively broad ovary is borne on a pedicel about ⅜ inch long, and passes abruptly into a perianth tube of over an inch in length.

Both the standards and the falls are narrow and tapering, about 1½ inch long, and another curious feature is that the narrow crests are almost as long as the styles themselves.

In some ways this Iris is an approach to I. Purdyi, which, however, has a much shorter stem, both absolutely and relatively to the leaves, much broader and more inflated, bract-like stem leaves, and much broader and more substantial segments. The only other species with which it might be compared are I. Douglasiana and I. macrosiphon; from the former, however, it clearly differs in the formation of the tube and ovary, as well as by its very elongated and narrow style crests and segments, and from the latter by the broader, shorter spathes and comparatively short perianth tube.

Unless the specimens described represent some abnormality, the flowers of this Iris must be strikingly different from those of any other species, and it would be interesting if seeds could be obtained and the plant introduced into cultivation. The flowers are apparently yellow in colour, though dried specimens are a very unreliable guide in this respect. *W. R. Dykes, Charterhouse, Godalming.*

* *I. tenuissima*, sp. nov., Apogon.—Caulis pedalis, foliosus, monocephalus foliis linearibus subæqualis; spathæ biforæ, valvis rigidis, ovatis, acuminatis; pedicellus ovario subæqualis; tubus ovario triplo longior; segmenta omnia tenuissima, acuminata; stigmatum cristæ stigmatibus æquilongæ.

LÆLIO-CATTLEYA MOSSEMILIANA. HORT.

THIS is a new hybrid, raised in the nursery of Mr. C. F. Karthaus, Potsdam, Germany, by crossing Cattleya labiata autumnalis with the pollen of Lælio-Cattleya bletchleyensis. The plants are of vigorous growth, the pseudo-bulbs being from 12½ cm. to 24 cm. long, and 31 mm. to 73 mm. in circumference. The leaves are rather narrow, 18 cm. to 34 cm. long, and 4.5 cm. to 7.3 cm. wide.

FIG. 13.—CYPRIPEDIUM SPECTABILE AT STRAFFAN HOUSE, CO. KILDARE. [*Photograph by W. Willcocks.*

The stalk, which rises from a large sheath, bears from two to five blossoms, of a diameter of about 14 cm. By reason of its ample dimensions, the aspect of the plant differs from that resulting from another cross of similar parentage, namely, L.-C. Lucasiana, which is distinguished by thick-set, compact growth. The sepals and petals in the two hybrids are similar, but the lip of L.-C. Mossemiliana more closely resembles that of Lælia callistoglossa var. inversa Cogn. Not only is the lip similar to that of the Gloxinia, but the colour also recalls this flower, the delicate hue deepening in parts to an intense violet-mauve. The golden, purple-striped patch in the throat is reduced to very small dimensions.

The plant always flowers in December, but we learn from Mr. Karthaus that his first seedlings only flowered after having been in cultivation for six years; and even then bore only two flowers on each spike. At present the best specimens are producing five blossoms, of good size, on each spray.

Mr. Karthaus desires the plant to bear the name of the late Mr. Emil Mosse, of Berlin, who was a keen amateur and untiring cultivator of garden Orchids. He was the publisher of the last volume of *Orchis*, a publication now combined with the *Gärten Zeitung*. *F. Kranzlin.*

THE BULB GARDEN.

LILIUM SULPHUREUM.

LILIUM SULPHUREUM is a handsome species, native of the higher regions of Burma. The hardiness of the plant has from time to time been doubted, but the accompanying illustration (see fig 14) shows a group planted two years ago in a Northamptonshire garden, and afforded normal conditions of cultivation.

Grown at Cheddar in quantity, and in all sizes ranging from one-year bulblets to mature specimens, it is a plant of great promise, and I can recommend it to all who will give it the necessary attention at the start.

It is necessary to remove from imported bulbs dried and damaged outer scales; pot the bulbs and start them into growth in a temperate heat and plant them in the open garden, say, when the stems are 6 inches high.

The first season's flowers will be good, but late in developing, and laggard plants may not develop all their flowers if the autumn is unusually cold, but the next season's growth is a month earlier, and each subsequent year's growth develops earlier still; the end of August being the earliest period for the general display. Home-grown bulbs with thick, unblemished scales and stout, white roots need no preparation, and may be planted directly they are received in the places allotted to them.

Shelter from strong winds, a fairly rich, deep soil, and, if possible, a carpeting plant, such as Lysimachia aurea or Lythrum virgatum, are practically all their cultural needs. My finest plants this year reached a height of 7 feet to 8 feet, but in less tropical summers they have grown even taller. The stems are exceedingly graceful, and bear flowers varying in number from two to six. The flowers average from 10 inches to 12 inches in length, are funnel-shaped, brushed with dull carmine or light purple on their exteriors, and flushed and suffused pale chrome-yellow internally. The fragrance of the blossoms is delicious, and the poise of the inflorescence is exceedingly graceful.

Where shrubberies are brightened by rift openings filled with low-growing flowering shrubs, this Lily may be grouped in such rifts in splendid environment. Groups of Rhododendrons, Azaleas, Kalmias, Andromedas and the dwarfer species of Magnolia would be enhanced in effect in the autumn season by a sprinkling of these Lilies amongst them.

All Lilies, save those of the cup-flowered race, should have an environment of low-growing shrubs.

Last season at Heligan, in Cornwall, a beautiful floral scene was provided by grouping L. sulphureum amongst broad rifts of Hydrangea paniculata grandiflora, whilst a further good combination in another section of this grand garden was Lilium tigrinum Fortunei and the lesser Rhododendrons.

Lilium sulphureum does not develop the disease which is common with the Japanese species L. auratum. It is a long-lived plant, and given genial soil and suroundings, should continue to flower for many years. *George B. Mallett, Cheddar.*

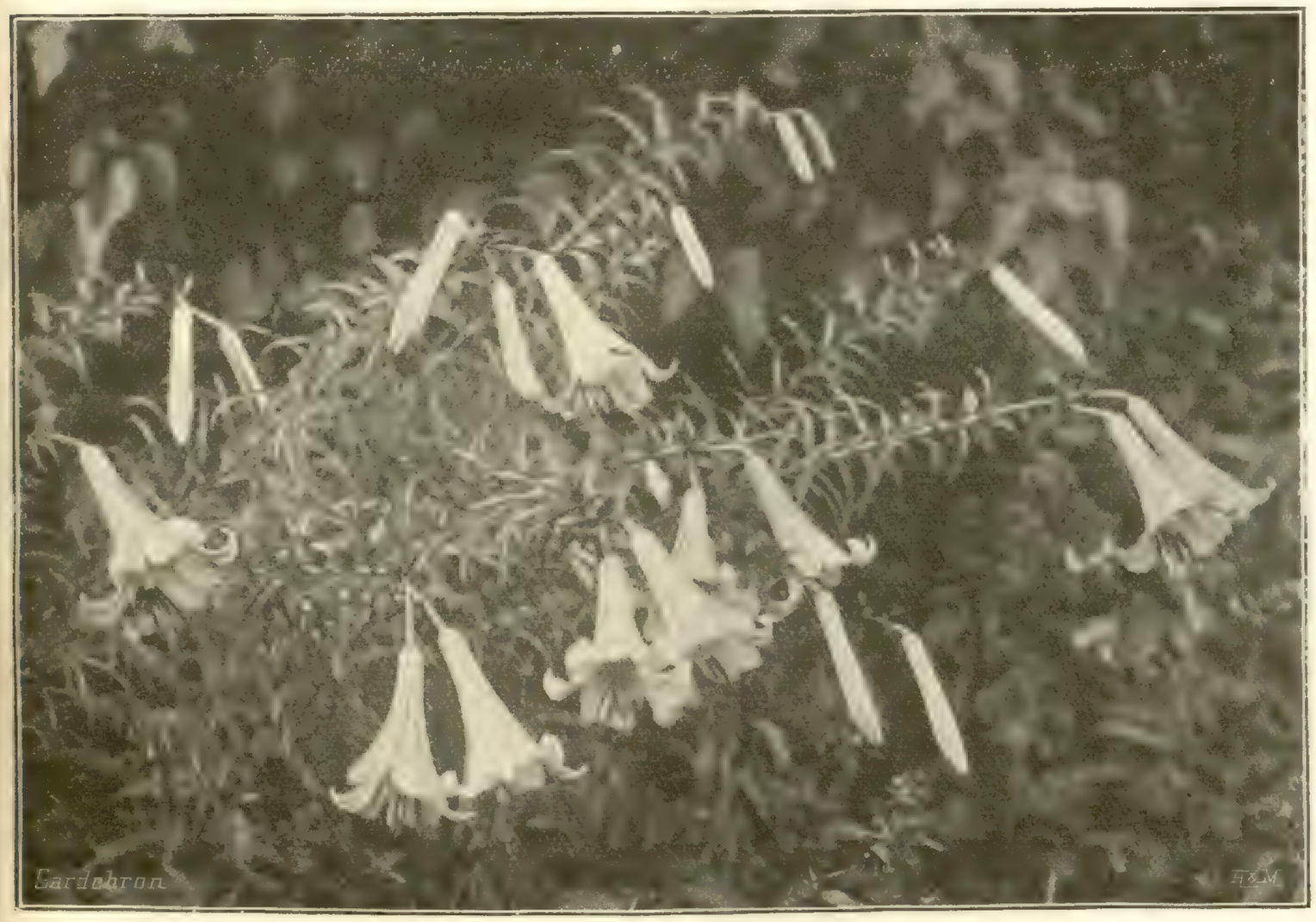


FIG. 14.—LILIUM SULPHUREUM IN A NORTHAMPTONSHIRE GARDEN.

NOTICES OF BOOKS.

HISTORY OF VEGETABLES.*

FOR many years past M. Gibault, the Librarian of the National Horticultural Society of France, has been a contributor to the French horticultural Press chiefly on matters relating to the historical, literary, and antiquarian side of horticulture, and in this respect he has probably no rival in Europe.

The volume under notice professes to be a history of vegetables, but it is a great deal more, for the author has packed into each chapter an immense amount of information from the very earliest times to the present on the subjects with which he deals. The references, historical, etymological, and even archæological, represent long years of labour and patient skill in collating them.

It is doubtful if M. Gibault has left anything unsaid that deserves to be said on the subject, and as a work of reference the *Histoire des Légumes* is bound to take a prominent place. All well-known vegetables are dealt with, and in addition there is a chapter at the end that treats of vegetables that are no longer used for culinary purposes. M. Gibault lays under contribution the classical authors who have written on gardening, beside many other of mediæval and modern times, who have in various climes and in diverse tongues dealt with vegetable culture in every way. The names of 95 kinds of vegetables appear in the index, and among these numerous headings are articles on the Garlick, Artichoke, Asparagus, Beet, Carrot, Chervil, Endive, Cabbage, Cauliflower, Spinach, Bean, Lettuce, Turnip, Onion, Parsnip, Leek, Pea, Potato, Radish, and Witloof.

* *Histoire des Légumes*, by Georges Gibault. (Librairie Horticole, Paris.) Five francs.

A NEW ENCYCLOPÆDIA.*

THOSE who want an inexpensive epitome of gardening may purchase this new volume of "Every Man's Library." Manifestly, it would be not quite fair to subject the contents of an encyclopædia at 1s. to a severe analysis, especially when the author introduces it to his readers as "a guide to the culture of popular plants and to garden practice," and who assures them that "the term" "popular plants" has a real meaning in my mind." Bulbs, the flower-garden, fruit, the greenhouse, and the kitchen garden are treated in a more comprehensive manner than other items. But the exigencies of space have caused the writer to treat of even these in very brief manner. Familiar names are absent from the book, lists of varieties are abbreviated excessively, and we are left to wonder why, instead of one volume, the promoters did not see fit to give the author a free hand and make this only an instalment of a better proportioned work. *R. P. B.*

* *An Illustrated Encyclopædia of Gardening*, by Walter P. Wright. (London: J. M. Dent & Sons. Ltd.) Price 1s. net.

IRIS SUSIANA.

THE accompanying illustration (fig. 15) shows Iris susiana flowering splendidly, and affords an idea of what might be gained if some means could be found of satisfying the requirements of the other oncocyclus Irises. Unfortunately, the difficulty in England lies chiefly in the climate, which induces the rhizomes to make fresh growths in autumn, only to do its best to destroy them in winter. It is for this reason that, if lasting success in the cultivation of oncocyclus Irises is to be obtained, there is the greatest chance of obtaining it by growing them in a position such as that in which these specimens of I. susiana are flourishing; that is to say, where they have the shelter and warmth of a greenhouse wall. Moreover, in such a position it is comparatively easy in summer to arrange some sort of roof over the plants, so that they can be kept dry and their rhizomes thoroughly ripened.

This covering in summer is perhaps less essential in the case of I. susiana than in that of any of its kind, for in some dry positions it has been known to flourish and flower for several years in succession. This greater amenability to cultivation is probably due to the fact that I. susiana has been in cultivation in Western Europe since the latter half of the 16th century, when it was first brought from Constantinople to Vienna. At the present day it is largely grown in market gardens in the South of France, and its cut flowers sold in the bud state, in which they travel well.

It is unfortunate for us that this partial acclimatisation has only been carried out in the case of I. susiana, which is perhaps the least pleasing of all the oncocyclus Irises. The flowers are of great size, it is true, but the colouring of black purple veins and dots on a grey-white ground is somewhat sombre.

The native habitat of I. susiana is unknown, so far as I am aware. It is not improbably confined to a small area, and it may even be that the species no longer exists in the wild state. Many of the other oncocyclus species appear to be extremely local in their distribution, and there is no small danger that ruthless collection by the trade dealers may result in their extermination. *W. R. Dykes, Charterhouse, Godalming.*

NOVELTIES OF 1911.

(Concluded from p. 2.)

THE appended list of new and noteworthy plants illustrated in the *Gardeners' Chronicle* during 1911 includes many of the Certificated plants of the year, novelties of equally good qualities which failed for one reason or another to secure awards, and novelties of other years, and which are now proving their value as garden plants.

Foremost among the novelties are the new Chinese shrubs contained in the fine group shown by the Hon. VICARY GIBBS, Aldenham House, Elstree (gr. Mr. E. Beckett). of which Cornus paucinervis and Itea ilicifolia obtained Awards of Merit. A large number of new and rare Chinese shrubs, which it is hoped to acclimatise, are on trial at Aldenham, and if success attends the trials the new acquisitions will add greatly to the interest of those famous gardens. Awards of Merit were also obtained for Asters Amethyst and Profusion, two Michaelmas Daisies of novel colouring, exhibited from the Aldenham House Gardens.

FIG. 15.—IRIS SUSIANA IN MR. PRENTIS'S GARDEN AT BORDEN, KENT.

(See p. 19.)

Messrs. JAS. VEITCH & SONS, Chelsea, continue to reap the benefit of the many fine Chinese highland shrubs sent them by their collector, Mr. Wilson. An interesting incident at the last Temple Show was the exhibit of flowering sprays of the remarkable Davidia involucrata, which secured a First-class Certificate. Other promising shrubs of the same class were Berberis verruculosa, Buddleia officinalis, and Lonicera nitida; all of which were accorded Awards of Merit. In decorative plants Messrs. VEITCH received Awards for Dracæna Deremensis Warneckii (a fine, ornamental foliage plant), Mussænda erythrophylla, some pretty flowering Cannas of which Terra Cotta was the best, and four new winter-flowering Begonias, continuations of their useful strain of B. socotrana hybrids, but exhibiting new colours.

Nymphæas have been augmented by the addition of several fine novelties. Those for which LEOPOLD DE ROTHSCHILD, Esq. (gr. Mr. Hudson), received Awards of Merit, were N. Mrs. Richmond, large and of a charming rose-pink colour; N. Gladstoniana, the best and largest pure white; and N. stellata rosea, a novel tint of the tolerably hardy blue Nymphæa.

The Earl of WARWICK (gr. Mr. Lister) also gained Awards for Nymphæa Listeri and N. Lord Brooke, both of them valuable acquisitions.

H. J. ELWES, Esq. (gr. Mr. Walters), who has done so much in raising Nerines of new tints, received Awards of Merit for four novelties in these flowers, namely, N. Mrs. Balfour, N. Miss Gibbs, N. Mrs. Meade Wolds, and N. Snowflake, all worthy of the good things which have previously been shown from the Colesborne gardens.

Messrs. R. VEITCH & SONS, Exeter, obtained an Award of Merit for Nerine Veitchii, a pale blush-pink variety of the N. Bowdenii class.

Sir TREVOR LAWRENCE, Bart., Burford, secured two of the very few First-class Certificates given by the Floral Committee in 1911, for Philadelphus Lemoinei virginal, which produces perfect bouquets of snow-white fragrant flowers, and the bright yellow Zephyranthes aurea. Sir TREVOR received also an Award of Merit for the handsome Crinum Johnstonii, which it is hoped will prove hardy.

The past season has been noteworthy for the large number of new or little-known Primulas which have been shown for awards, for Rhododendrons of good quality, and other good shrubs, including Oncoba Routledgei, introduced by Mr. SHEA, an exceptionally fine greenhouse shrub, which may prove hardy in sheltered situations. O. Routledgei was among the most important new plants of the year, and well deserved the First-class Certificate awarded. Roses, Carnations, Sweet Peas, Chrysanthemums, Daffodils and other florists' flowers have been well exploited, and each has given many novelties, a fair proportion of which will stand the test of time as desirable garden plants.

Messrs. SUTTON & SONS, Messrs. JAS. VEITCH & SONS, Messrs. CLIBRANS, Messrs. WEBB & SONS, Messrs. JAS. CARTER & CO., Messrs. BARR & SONS, Messrs. DOBBIE & CO., and other seed growers have made wonderful exhibitions of the showy flowers they cultivate from seeds. The efforts of seed growers are directed to improve the strains of the flowers of which they offer seeds or plants, and hence but little is seen of them as single specimens at the Royal Horticultural Society's meetings. Years of careful selection are necessary to perfect and fix a fine strain of a popular flower, but eventually it becomes available to every garden lover at a very small cost.

The following new and noteworthy plants have been illustrated in the *Gardeners' Chronicle* in 1911:—

Acacia melanoxylon, Aug. 12, p. 105.
Acrophylla squarrosa, Aug. 12, p. 106.
Adiantum tenerum Farleyense fertile, Feb. 4, pp. 73, 74.
Adenium obesum, July 22, p. 47.
Æthionema Kotschyana, Nov. 4, p. 317.
Aloe dichotoma, Sept. 16, p. 201.
Aloë Pearsonii, Sept. 9, p. 190.
Amaryllis Belladonna and A. Parkeri, Sept. 16, p. 211.
Apice tuberosa, Jan. 7, p. 4.
Apple Charles Eyre, Oct. 14, p. 279.
Aristolochia brasiliensis, Oct. 28, p. 301.
Aristolochia Kewensis (Supp.), Oct. 28.
Aristolochia trilobata, Oct. 28, p. 300.
Armeria cæspitosa, April 8, p. 211.
Augea capensis, Aug. 19, p. 125.
Auricula Henry Wilson, May 20, p. 317.
Bambusa fastuosa, Oct. 28, p. 308.
Banana King of Thousands, Dec. 23, p. 452.
Begonia Altrincham Pink, Dec. 9, p. 421.
Begonia Gloire de Sceaux, June 10, p. 373.
Begonia Glory of Cincinnati, Dec. 30, p. 469.
Begonia Mrs. Leopold de Rothschild, Dec. 23, p. 454.
Beaumontia fragrans (Supp.), May 20.
Beaumontia grandiflora, May 20, p. 306.
Berberis Thunbergii Silver Beauty, Jan. 7, p. 10.
Bomaria patacocensis, April 15, p. 227.
Buddleia officinalis (Supp.), April 1.
Callianthemum rutæfolium, Sept. 23, p. 219.
Campanula acutangula, Sept. 23, p. 220.
Campanula lactiflora, Dec. 16, p. 438.
Camassia Leichtlinii, Aug. 19, p. 122.
Canarina Campanula, April 22, p. 249.
Carnation Herbert Newman, July 29, p. 78.
Carnations King George and Queen Mary, July 1, p. 427.
Carnation Wivelsfield Wonder, Dec. 9, p. 424.
Chrysanthemum Miss Margaret Walker, Nov. 11, p. 313.
Chrysanthemum Caprice du Printemps, Dec. 2, p. 399.
Chrysanthemum Yellow Cap, Dec. 2, p. 398.
Cineraria Beauty of Cambridge, May 20, p. 307.
Citrus medica, Dec. 23, p. 459.
Clematis Thunbergii, Oct. 7, p. 253.
Colletia cruciata, Oct. 7, p. 255.
Cornus paucinervis, Aug. 5, p. 95.
Cotyledon linearis, Aug. 19, p. 135.
Cratægus gemmosa, Jan. 21, p. 37.
Cratægo-mespilus Asnieresii, Sept. 9, p. 185.
Cyananthus microphyllus, Jan. 21, p. 42.
Cytisus Adamii, Sept. 2, p. 162.
Cytisus purpureus, Sept 2, p. 163.
Crinum Johnstonii (Supp.), Sept. 2.
Dahlia Leslie Seale, May 6, p. 277.
Dahlia Mrs. Douglas Fleming, May 6, p. 282.
Dahlia Mme. van den Dael, May 6, p. 284.
Dahlia Sweetbriar, May 6, p. 283.
Davidia involucrata, May 27, p. 329.
Delphinium Moerheimii, Nov. 18. p. 352.
Dianthus neglectus, June 24, p. 415.
Diospyros Kaki at Kew (Supp.), Jan. 21.
Dolichodiera tubiflora, Oct. 7, p. 254.
Draba Dedeana and pyrenaica, July 8, p. 5.
Dracæna Deremensis Warneckii, July 15, p. 23.
Echinocactus macrodiscus, Aug. 19, p. 135.
Eritrichium nanum, July 8, p. 5.
Euphorbia Dregeana, Sept. 9, p. 191.
Euphorbia species, Aug. 19, p. 135.
Ficus lyrata (pandurata), Sept. 30, p. 235.
Fokienia Hodginsii, Feb. 4, p. 66.
Freesia Conquest, April 1, p. 196.
Galanthus Melvillei major, Jan. 21, p. 34.
Galanthus William Thomson, Jan. 21, p. 35.
Gaya Lyallii (Supp.), Sept. 23.
Grevillea robusta compacta, June 10, p. 375.
Helenium autumnale Riverton Beauty, Nov. 25, p. 373.
Hippeastrum Queen Mary, March 18, p. 169.
Hippeastrums at Messrs. William Bull's, May 20, p. 314.
Homeria collina, Dec. 30, p. 476.
Hydrangea Mme. E. Moullière, April 1, p. 204.
Incarvillea lutea (Supp.), Aug. 19.
Ipomœa rubro-cœrulea, Aug. 12, p. 112.
Iris Luna, June 10, p. 365.
Isopyrum grandiflorum (Supp.), Dec. 2.
Itea ilicifolia, Aug. 5, p. 96.
Juglans cathayensis (Supp.), Sept. 9.
Kigelia pinnata (Supp.), Aug. 12.
Lagenophora Forsteri, Feb. 4, p. 69.
Lewisia Cotyledon, May 27, p. 337.
Ligustrum ovalifolium multiflorum, Sept. 30, p. 237.
Lilium leucanthum (Supp.), April 29.
Lilium tenuifolium Golden Gleam, May 27, p. 336.
Linum Lowii, Nov. 4, p. 318.
Linum narbonense, Dec. 30, p. 468.
Loranthus amplexifolius, Aug. 12, p. 104.
Lycopodium squarrosum, Sept. 23, p. 218.
Mandevilla suaveolens fruit, Jan. 14, p. 30.
Meconopsis Delavayi, July 22, p. 51.
Meconopsis hybrid, July 15, p. 22.
Meconopsis integrifolia in China (Supp.), Nov. 11.
Medinilla magnifica, April 15, p. 226.
Mesembryanthemum digitiforme, Aug. 19, p. 125.
Mussænda erythrophylla, Aug. 5, p. 91.
Mutisia decurrens, Dec. 23, p. 450.
Mutisia ilicifolia, Dec. 23, p. 449.
Narcissus Coronation, May 6, p. 286.
Narcissus Miss Willmott, May 6, p. 275.
Narcissus Queen of Hearts, May 6, p. 275.
Narcissus Socrates, May 6, p. 275.
Nerium odorum (Supp.), July 8.

Nymphæa Mrs. Richmond, Sept. 2, p. 176.
Œnothera ovata, June 24, p. 418.
Olearia Forsteri, Jan. 28, p. 52.
Olearia Haastii, Jan. 28, p. 62.
Olearia insignis, Jan. 28, p. 53.
Olearia macrodonta, Jan. 28, p. 57.
Olearia myrsinoides, Jan. 28, p. 59.
Olearia semidentata (Supp.), Jan. 28.
Oncoba Routledgei, May 27, pp. 323-4 and Supp.
Ophioglossum pendulum (Supp.), July 29.
Opuntia missouriensis, Nov. 11, p. 340.
Osmanthus armatus, Aug. 12, p. 113.
Osteomeles anthyllidifolia, Dec. 16, p. 433.
Oxalis enneaphylla, June 24, p. 414.
Paliurus australis, Nov. 25, p. 377.
Pelargonium Lord Bute, July 22, p. 44.
Pelargonium Souvenir de Chas. Turner, Nov. 11, p. 333.
Pentstemon campanulatus, Aug. 5, p. 93.
Philadelphus hirsutus, Aug. 5, p. 83.
Philadelphus Lemoinei virginal, July 8, p. 6.
Phœnix Roebelinii, inflorescence of male flowers, July 22, p. 42.
Pinguicula Rosei, Feb. 11, p. 82.
Plagianthus Lyallii, July 22, p. 56.
Pleiocarpa mutica, April 22, p. 242.
Plum Blackbird, Sept. 16, p. 198.
Plum Prosperity, Sept. 16, p. 199.
Polypodium iridioides ramosum, July 29, p. 71.
Polypodium rigidulum Vidgenii, July 29, p. 72.
Portulacaria namaquensis, Sept. 9, p. 191.
Primula Beesiana (Supp.), Sept. 30.
Primula dryadifolia, Sept. 16, p. 207.
Primula Gagnepainii, Aug. 12, p. 102.
Primula lichiangensis (Supp.), Dec. 30.
Primula membranifolia, Sept. 16, p. 207.
Primula Reidii, April 1, p. 195.
Primula Winteri, March 4, p. 130.
Pyrus floribunda, Dec. 2, p. 390.
Ravenala madagascariensis, Dec. 23, p. 460.
Rhododendron Corona, May 27, p. 334.
Rhododendron Cynthia, June 24, p. 406.
Rhododendron Littleworth corallina, May 27, p. 335.
Rhododendron Loderi (Supp.), July 15.
Rhododendron irroratum (Supp.), June 3.
Rhododendron Pengaer (Supp.), July 1.
Rhododendron Smirnowii, June 24, p. 417.
Rhododendron sublanceolatum, June 3, p. 342.
Rhododendron Wightii, Oct. 14, p. 269.
Rose Marcella, April 22, p. 251.
Rose Gloire de Chedane Guinoisseau, Oct. 7, p. 263.
Rose Heinrich Münch, Nov. 11, p. 335.
Rose Mme. Hector Leuilliot, Dec. 9, p. 412.
Rose Orleans Rose, May 27, p. 324.
Rose Sylvia, June 3, p. 344.
Rose Portia, May 27, p. 333.
Saussurea Veitchiana, Aug. 5, p. 85.
Saxifraga bursiculata, March 11, p. 158.
Saxifraga lingulata Albertii, Nov. 4, p. 316.
Saxifraga Obristii, April 15, p. 229.
Saxifraga Petraschii, March 18, p. 172.
Saxifraga Sundermannii, April 15, p. 228.
Schizandra chinensis, July 8, p. 2.
Sedum pilosum, June 3, p. 347.
Senecio Heritieri, Nov. 11, p. 332.
Solandra Hartwegii, June 17, p. 383.
Solanum tubingense, Sept. 2, p. 161.
Spathodea campanulata, Dec. 23, p. 458.
Symphoricarpus occidentalis (Supp.), Feb. 18.
Symphytum peregrinum, Aug. 19, p. 127.
Thlaspi rotundifolium, Feb. 25, p. 116.
Trachymene cœrulea, Feb. 25, p. 114.
Tulipa Batalinii, June 17, p. 382.
Ulmus Plotii, Dec. 9, p. 408.
Utricularia montana, June 24, p. 405.
Veltheimia viridifolia, March 18, p. 164.

FLORISTS' FLOWERS.

SWEET PEA NOVELTIES FROM AMERICA.

AMONG the many novelties in Sweet Peas for 1912 offered to the general public, those mentioned below come from America:—

MARGARET MADISON.—This is the result of a cross between the varieties Mrs. Geo. Higginson, Junr. and White Spencer, and is described in America as the leading novelty for 1912. It is a clear, self-coloured azure-blue flower, and was certificated by the National Sweet Pea Society of America under No. 3875.

VERMILION BRILLIANT is an Irish-American, as it originated at Newtownards, Ireland. The colour is described in the name. Vermilion Brilliant was awarded the Silver Cup given by the *Philadelphia North American* at the National Sweet Pea Society's Show held in Philadelphia, June 29, 1911, for the best variety not in commerce. It was also grown in the trials of the N.S.P.S. at Guildford, but in its class the award was given to another variety, namely "Red Star."

RAINBOW SPENCER.—The ground colour is ivory-white, flaked and lightly streaked with rose, beautifully waved, and of true Spencer form.

PEARL GREY SPENCER.—This variety might be described as a pearl or dove-grey, suffused with light rose, showing a trifle more of the delicate rose shading on the standard. The old grandiflora "Lady Nina Balfour" is the nearest to this colour that has heretofore been exhibited.

NATONA, being of a light buff-pink, is best described as "Venus Spencer." As the season advances the flowers show a little more of the pink shading.

DUKE OF CLARENCE SPENCER.—The English counterpart of this is "Arthur Green," sent out in 1911, so that description is unnecessary.

GAIETY SPENCER.—A striped or flaked variety after the style of "America Spencer," but perhaps a little brigter.

IRISH BELLE is of good Spencer form; the colour is rich lilac flushed with pink, which gives the flower a very distinct and soft tone.

CAPTIVATION SPENCER.—A beautifully waved flower of true Spencer form; the rich rosy-wine red-coloured flowers make a delightful vase.

There are also several double Spencer varieties to be introduced in 1912, but whether they will become popular or not with the public the future will decide. Among the varieties are "Duplex Spencer," a double form of "Constance Oliver," which gives many double and triple standards, and has nearly always four flowers on each stem. For cutting and market it has no superior.

DUPLEX CRIMSON KING is a giant blood-red.

DUPLEX XENOPHON is a selection out of "Phenomenal"; the colour is a very delicate light blue.

DUPLEX MARY GARDEN, a lovely soft buff suffused with salmon-pink. *J. B. M.*

REGISTERED CARNATIONS.

BELOW is a list of Carnations registered by the Perpetual-flowering Carnation Society from January 1 to December 31, 1911. The names of raisers are given and the colours and descriptions are those of the raisers themselves:—

Afonwen, seedling, pink ground overlaid with mauve. W. J. Smith.
Atmah, seedling, salmon-red. C. Engelmann.
British Triumph, seedling, brilliant crimson. C. Engelmann. (This variety was originally registered "Triumph," but as it has since transpired that the name was already appropriated in America, the variety has been re-registered as "British Triumph.")
Cheltonia, seedling, red. Young & Co.
Constance, seedling, white, very heavily lined with pink. Bertie E. Bell.
Coronation, seedling, soft light pink. Bertie E. Bell.
Fairmount, origin, California, heliotrope. Allwood Bros.
Frank Godding, seedling, deep cerise. F. W. Godding.
Hon. Lady Audley Neeld, seedling, rich carmine, with white margin. Young & Co.
Judith, seedling, pure white. Bertie E. Bell.
La Rayonnante, origin, France, yellow. Allwood Bros.
Lady Fuller, seedling, warm salmon. Charles Wall.
Lady Northcliffe, seedling, clear salmon-pink. C. Engelmann. (This variety was originally registered "Al," which name is herewith cancelled.)
Mandarin, seedling, orange-yellow marked cerise-pink. H. Burnett.
Mrs. C. F. Raphael, seedling, cherry-red. H. Burnett.
Mrs. F. C. Harwood, seedling, purple. F. C. Harwood.
Mrs. Greswolde Williams, seedling, pink on opening, but develops to a soft mauve. Young & Co.
My Favourite, seedling, clear shade of old rose-pink. Stuart Low & Co.
Pluto, seedling, brilliant velvety-crimson. H. Burnett.
Princess, seedling, pure glistening white, lightly striped pink. C. Wall.
Queen, seedling, yellow ground, light-pink markings. Young & Co.
Queen Mary, seedling, pale pink. A. Smith.
Salmon Britannia, sport, salmon-pink. W. H. Page.
Sultan, seedling, crimson. H. Burnett.
Sunstar, seedling, deep yellow, with few pink stripes. C. Engelmann.
Una Wallace, seedling, bright cerise. W. E. Wallace.
White Chief, seedling, white. H. Burnett.
Wivelsfield Wonder, origin, America, white, marked delicate rose-pink at edge of petals. Allwood Bros.

Correspondence regarding registration of varieties should be addressed to the Secretary to the Society's Floral Committee, Mr. Hayward Mathias, Lucerne, Stubbington, Fareham, Hants.

ELSHOLTZIA STAUNTONII.

THIS is one of the hardy shrubs recently introduced from China which may be advantageously added to the list of autumn-flowering plants. Succeeding in any soil except heavy clay, and attaining under ordinarily favourable conditions a height of about 5 feet, its growth has been compared with that of Perowskia atriplicifolia, but it resembles much more nearly in its straggling habit, Caryopteris Mastacanthus. The plant is exceedingly floriferous, every branch being terminated by what strongly resembles a vigorous spike of pink Heather. The colour, as seen in the fervid imaginations of catalogue compilers, has been heralded far and wide as brilliant carmine, but it may be more accurately described as light rose, with a slight yet decided tinge of magenta. In winter the Elsholtzia presents an appearance of withered twigs, courting the presentment of extinction as perfectly and convincingly as Jamesia americana, so that the inexpert might be tempted to relegate it forthwith to the rubbish heap.

FIG. 16.—ELSHOLTZIA STAUNTONII: FLOWERS ROSE-COLOURED, TINGED WITH MAGENTA.

The name of this plant is proving a veritable pitfall to horticultural orthographers, with whom it generally figures as Eschscholtzia Stauntonii, and in one south-country nursery, in addition to this original error, the order "Papaveraceæ" had been carefully inscribed within brackets on the label, thus making confusion worse confounded. *T. Arnold Hyde, Ringinglome Vicarage, Hythe, Kent.*

The Week's Work.

THE ORCHID HOUSES.

By J. COLLIER, Gardener to Sir JEREMIAH COLMAN, Bart., Gatton Park, Reigate.

CYPRIPEDIUM.—Many of the Cypripediums have passed out of bloom, particularly those of the C. Fairrieanum section. As soon as possible after blooming the plants should be examined, and those that require repotting should receive attention, also any that need to be divided. It is much the best time to divide when repotting, as it can then be better seen how to carry out the operation without cutting through the roots, and on a divided plant every root is valuable. When the plants are broken up, the strong growths should be selected to make the larger specimens and the weaker growths potted into smaller pots. A growth that has flowered is most valuable for propagating purposes, as it will often break with two or three shoots, whereas a new shoot will complete its growth before giving off-shoots. Care should be taken, in potting the plants, not to break the roots; spread them out and work the compost carefully between them. Cypripediums are unlike most other Orchids, and they benefit by a fair amount of pot room. Better flowers are obtained from plants with plenty of material for the roots to feed upon than from those that are pot-bound. The compost I recommend for the majority of Cypripediums is as follows:—Good fibrous loam, three-fifths; peat or A1 fibre, one-fifth; and Sphagnum moss, one-fifth; all broken up and sifted through a ¼-inch sieve to remove the small particles. Mix the materials in bulk, and pass them through a 1-inch sieve. This is the best method of thoroughly mixing all the ingredients together. To such a compost should be added a good sprinkling of crushed crocks and some silver sand. The compost should be allowed to warm through before being used. Plants that have been newly potted should be placed in rather more heat than is required for established specimens. They should be sprayed two or three times daily until the roots have become active. If the potting material is already moist, the plants will not require much water, as the syringe will keep them going until they produce new roots. At Gatton we have a house containing about 300 of the more hardy class of these plants that have been making a very fine show for some time past. The collection includes the best varieties of the C. insigne type with many of the finest varieties of C. Leeanum, C. Sallieri, C. Actæus, C. Thomsonii, C. Euryades, C. Mons. de Curte, C. Swinburnii, C. G. F. Moore, and others. The night temperature of this house during the winter months is from 52° to 55°. Many Cypripediums such as C. niveum and its many hybrids, C. bellatulum and hybrids, C. callosum and its variety Sanderæ, C. Maudiæ, C. Alcibiades, C. Earl Tankerville, and C. Beeckmani require a higher temperature. Cypripedium seedlings should be placed in the warmest house, and an endeavour should be made to encourage growth. They should be kept potted on as they require it, using a compost similar to that already mentioned, and endeavouring always to prevent the plants from suffering in any way. Thrips are very injurious to Cypripediums if allowed to attack the young leaves; they should be destroyed by frequent fumigations.

THE KITCHEN GARDEN.

By EDWIN BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

SEAKALE.—The stools of Seakale may now be lifted carefully and the roots trimmed, preserving the stronger thongs to furnish next year's supply. These should be cut into pieces about 6 inches long, tied into small bundles, and placed in boxes filled with fine soil. Stand the boxes in a cool place, so that the roots may start into growth gently. Introduce into heat sufficient crowns to provide a regular supply to meet the demands of the establishment. Seakale is appreciated in most households, and it will be doubly valuable this year in many places, owing to a scarcity of other winter vegetables. A temperature of 55° to 60° should be maintained in the forcing pit, and the darkest place available under such conditions should be selected to ensure perfect blanching of the growths. The main stock of roots should be stored in sand or fine ashes, and under a north wall for preference.

RHUBARB.—Strong roots of any variety of Rhubarb suitable for forcing should be lifted as required and grown under the same conditions as Seakale. Rhubarb may be forced readily if the plants are lifted and allowed to remain exposed to the weather for about 10 days before they are placed in heat.

CHICORY.—Chicory is a useful plant for furnishing a regular supply of blanched foliage during winter and spring, and its cultivation is an easy matter. The plants are best, at this season of the year, lifted as required and placed in the darkest part of the Mushroom house, or a similar structure, at intervals of about 10 days. The blanched leaves are highly esteemed either cooked as a vegetable or for use as a salad. The large-leaved Witloof and Christmas Salad are both desirable varieties.

DANDELION.—The large-leaved variety of Dandelion provides an excellent winter crop, and may be treated precisely in the same manner as the foregoing.

FRENCH BEANS.—French Beans should be sown at intervals of about a fortnight. Five seeds may either be sown in a 5 inch or 6 inch pot, to be transferred later to larger pots, or they may be sown directly in well-drained pots having a diameter of 7 inches. Use a compost of a moderately light texture mixed with a fair amount of road grit. Water the seeds immediately they are sown, and germinate them in the forcing-house. Earlier-raised plants should be afforded all the sunlight possible, and for this reason the plants should be stood on shelves near to the roof glass. Maintain a temperature of from 60° to 65°. The shoots should be stopped by pinching immediately they are long enough to pinch out the tops. Whenever the weather permits, the foliage should be syringed once or twice daily to keep the plants free from red spider. The growths should be supported either by tying each plant separately to a neat stake or placing fine twigs from old Birch brooms in the pots. Plants in full bearing should receive moderate supplies of liquid manure, which should always be warmed to the temperature of the house before it is applied. Ne Plus Ultra and Canadian Wonder are two excellent varieties for forcing.

POTATOS.—No time should be lost before commencing the forcing of the earliest batch of Potatos. I have found it a capital plan to grow this crop either in 8-inch pots or shallow boxes. Under this system tubers are more readily formed, owing to the growth being impeded, whilst the plants may be moved easily from one structure to another. Sharpe's Victor Express and May Queen are two excellent valuable varieties for early forcing.

CARROTS.—Young Carrots are always in demand, and seeds should be sown now on mild hotbeds or in slightly-heated pits in a well-prepared mixture, to provide an early supply. Any of the stump-rooted kinds are suitable for sowing in January and February.

PLANTS UNDER GLASS.

By THOMAS STEVENSON, Gardener to E. MOCATTA, Esq., Woburn Place, Addlestone, Surrey.

FORCING PLANTS AND BULBS.—Late Chrysanthemums are a little earlier than usual this season, and these forming one of the staple supplies of cut blooms during the month of January will be much missed if they fail to hold out; therefore, every endeavour must be made to forward some of the early forcing shrubs and bulbs. Indian Azaleas are among the plants that may be easily forced into bloom at this season, and, as many of them are very forward in bud, they may be introduced into a moderately warm house when the atmosphere is kept fairly moist by light dampings. Other plants that may be brought forward are Azalea mollis, Prunus in variety, Deutsia gracilis, Laburnums, and Wistarias. If a house can be devoted to this class of plant, so much the better, for as those plants fairly advanced in bloom are drafted out into the flowering house, others may be brought in and so keep up a good succession. A temperature of 50° at night, allowing a rise during the day when there is a little sun, is quite sufficient to begin with, advancing it 5° towards the end of the month. Where a special house is not available, a Peach house or vinery just started will prove a good substitute. Good batches of Tulips, Narcissi, and Hyacinths should now be placed in this house, the quantity depending on the demand for such subjects. I prefer good batches of one plant rather than a few specimens of several varieties; then if there should be a sudden demand for floral decoration there will be sufficient of one kind at hand to make a good display. Tulips may be allowed a few degrees more heat than Narcissus or Hyacinths, and they should be put under a canvas shading in the house to draw them up a little, taking it off as the blooms begin to show colour. Later in the season it is not necessary, but at this season of the year the practice is to be commended. If the bulbs were potted up early they should all be ready for taking out of the ashes; there is no advantage in keeping them there after the growth has attained some 3 or 4 inches. In the case of Hyacinths it is often harmful, the points of the flower spikes being very susceptible to injury if left in too long. After removal from the ashes they should be left in the cold frames and the lights covered for a time with mats. Those required to flower late should be given all the air possible; if these can be put in a frame on the north side of a wall it will prolong the bulb season for some two or three weeks.

LILIUMS AND SPIRÆAS should be potted up as soon as they are received from the nursery and placed in a cool, dry frame. Some of the early imported clumps of Astilbe (Spiræa) japonica may be placed in heat, but the pink varieties do not succeed with early forcing, for the flowers present a washed-out colour early in the season.

RICHARDIA AFRICANA.—Callas will now be growing freely, and as there is usually some dearth of large-flowering plants towards the end of the month, they may with advantage be given an intermediate temperature and a weekly application of manure water.

FREESIA.—Freesias should be placed as near as possible to the glass. Too high a temperature is not good for them, the flowers coming thin and not keeping well when cut; 50° at night is quite warm enough. Successional batches should be brought in as required, taking care to stake the plants before there is danger of them being broken down. If bulbs are potted now they will give good results during May and June, thus prolonging the season of bloom.

CLEANSING OPERATIONS.—As the cleansing operations progress and the houses become free of the smell of paint, lime, &c., batches of Cinerarias, Cyclamen, Primulas in variety, and any soft-wooded plants that may have been wintering in frames or pits should be brought in and arranged so that each plant is exposed to the light and air. No matter how carefully they have been treated in the frames, they are apt to keep a little soft, but, with a little extra space and air, the foliage will soon stiffen up: in the case of Cinerarias I have sometimes found it necessary to spray clear water beneath them occasionally for a few days after taking them in. After a few days indoors all these subjects should be fumigated to ensure their being quite clean, but it will be found that Primulas do not like much of this treatment, being apt to turn a little at the edges of the foliage if they do not happen to be absolutely dry at the time of the operation.

POT ROSES.—Wherever possible all pot Roses should be got under cover, except perhaps some of the climbing varieties, such as Dorothy Perkins, Hiawatha, Tausendschön, Excelsa, Paradise, and those that have been recently potted, and even these would be better for being protected from heavy rain and severe frosts. Keep them quite cool and allow them to become fairly dry before pruning, or they may bleed badly. Some of the Teas and hybrid Teas do not require so much pruning as do the H.P.s and flower better if some of the stronger growths are left fairly long, but Hybrid Perpetuals must be pruned fairly hard if high-class blooms are required, and gardeners cannot afford to produce Roses of poor quality now that such quantities of good, long-stemmed blooms may be seen as early as February in most florists' windows.

THE HARDY FRUIT GARDEN.

By F. JORDAN, Gardener to Lady NUNBURNHOLME, Warter Priory, Yorkshire.

APRICOTS.—These are generally the first trees that require protection from frost, and the buds are now swelling fast. The latest rains will, however, have put matters right below the surface. Few, I imagine, who treat their trees methodically will be in arrears with the pruning and tying of these trees, especially where the old spurs required thinning. Should, however, this be the case, the work must be completed at the earliest opportunity. Board or some other material should be placed on the borders to prevent treading the soil into a pasty mass, and, as soon as the operations are completed and the trees syringed, the next question will be that of providing protection for the flowers. Those who have permanent fixtures may almost dispense with extra coverings, but the majority are obliged to depend on any rough-and-ready materials. Two or three folds of fish-netting make a very good protection, and the netting catches the atmospheric moisture before it reaches the blossoms. The careful gardener will soon be fixing his poles, but will defer putting on the nets until the flowers are ready to open, which will possibly be in February this year, unless frosts come quickly to check them. The largest flowers produce the finest fruits, and all possible care should be taken of the first flowers that open.

PRUNING AND TRAINING APPLES.—This work is invariably left to the last, and yet I see no reason for this, as Apples, Pears, and Plums may be pruned immediately after the leaves fall. It is a question if this practice is not preferable if American blight is present, as the trees may at once receive a dressing of some compound, which can be repeated occasionally through the winter months. The Paradise stock is now generally used for bush and cordon trees, which are the best trees for garden cultivation. Pruning is often overdone; still, the knife cannot be dispensed with altogether; but, beyond shortening extra strong shoots to preserve the balance of the trees, and the thinning out occasionally of crowded spurs, the less trees on Paradise stocks are pruned the better. Pinch in all side shoots in June, July and August if necessary, and as long as the balance of the tree is maintained, allow the terminal shoots to grow, suppressing only those that are running away. In training, do not attempt to twist the trees into fancy shapes; beyond judiciously thinning the shoots and occasionally tying a branch here and there to prevent crowding, which should always be prevented, the trees may safely be left to form perfect specimens. By good cultivation and careful attention to pinching and other details the trees soon become complete cordons of healthy spur wood.

THE FLOWER GARDEN.

By J. G. WESTON, Gardener to Lady NORTHCOTE, Eastwell Park, Kent.

PROTECTING TENDER SHRUBS AND PLANTS.—Very cold weather may occur at any time now, and protecting material should be got in readiness. It is a mistake to coddle plants unnecessarily, as this makes them tender and more susceptible to injury by frost; it is better to leave them exposed until the weather is very cold. Branches of evergreens, such as Laurel and Rhododendron, may be utilised to ward off much of the frost, tying them round the stems of such tender plants as Palms and Cordylines, and working in a little dry Bracken Fern between the evergreens and the branches. A piece of wire netting may be enclosed around a plant needing protection, and filled in with dry leaves, placing a few shoots of evergreen over the netting to render it less conspicuous. Eryngium pandanifolium survived for several winters quite unharmed when protected in this manner; but left exposed for one winter, the plant was crippled and unsatisfactory the next season.

ORNAMENTAL GRASSES.—When replanting herbaceous borders or in front of shrubberies, a free use should be made of the many beautiful ornamental grasses. Grasses are, as a rule, very strong-rooting subjects, not at all fastidious as to soil, and, when once established, will thrive in almost any position. Many of them may be planted under the shade of large trees, and will flourish where other plants would fail. The Eulalias, though a small family, are particularly useful subjects. E. gracillima has light, elegant foliage, and a single plant is charming in a border. E. zebrina, with its yellow bars across the leaves, is a very striking plant, and about half-a-dozen specimens should be grouped to form a bold clump. The flower-spikes appear in autumn, when the plants are at their best condition; but they often remain attractive till midwinter. They are excellent subjects for the waterside, and associate well with Gynerium (Pampas Grass) and Bamboos. Arundo conspicua makes an ideal specimen, throwing up its stately plumes quite early in the season, and, on this account, is often called the summer-flowering Pampas. This species is very distinct from A. Donax (the Giant Reed), which is not planted as often as its merits deserve. This plant thrives best in a fairly warm and sheltered situation, where, with a liberal treatment and plenty of moisture, it will attain to a height exceeding 12 feet. After cutting the growths down in winter, a heavy mulch of manure should be applied. The variegated form is much more tender than the type, and requires an extra warm corner, with protection in winter. The ordinary Pampas Grass (Gynerium argentium) should be planted in bold groups by the water side, or on the edge of a shrubbery, with a background of dark foliage. We have planted it largely in combination with the stronger-growing forms of Kniphofia (Torch Lily), which, if planted in the foreground, provides brilliant colouring in the autumn. Several of the small perennial grasses are useful edging plants. Festuca glauca has bluish, thread-like foliage, and is a very attractive plant. Dactylis glomerata elegantissima is a dwarf Grass, with silver variegation, and is, perhaps, used for edging purposes more than any other kind. Several species of Carex are worth growing, C. japonica pendula being one of the best for gardens. This plant will thrive in a shady place. C. Morrowii is a compact-growing plant, suitable for planting in the front of a flower border. Apera arundinacea is also a very elegant plant.

FRUITS UNDER GLASS.

By E. HARRISS, Fruit Foreman, The Royal Gardens, Windsor.

STRAWBERRIES IN POTS.—The plants which were placed into gentle heat early in December will now be showing their flower-spikes, and the temperature must be increased to about 60°. They should occupy a position quite close to the roof-glass, where they will get the full benefit of light; the glass must also be kept quite clean. The plants may now be watered occasionally with diluted liquid manure and soot-water, but stimulants should be withheld for a time when the flowering period arrives. Except when the flowers are opening, the foliage must be vigorously syringed with luke-warm water twice a day, paying particular attention to the underside of the leaves, where red spider may be present. It is advisable also to fumigate the plants before they come into flower, to destroy aphides, which, if allowed to remain, are injurious to the ripe fruits. During the flowering period the atmosphere must be kept dry, and air carefully admitted more or less in accordance with outside conditions. The flowers must be pollinated at mid-day by passing a camel's-hair brush lightly over them. When the fruits have set, the atmosphere must again be kept moist and syringing resumed as before. Stimulants must also be given more often and with increased strength. To bring on successional batches of plants, there is no place better than a shelf near to the glass in a Peach house or vinery which has just been closed; but they should not be placed too near the permanent occupants of the house, as Strawberries are very subject to attacks of red spider. Before placing the plants indoors, lay them on their sides and thoroughly drench the foliage with an insecticide.

TOMATO.—The season has been very favourable for the winter fruiting plants which are still carrying plenty of fruits. These late fruits may be assisted to ripen more readily by removing most of the foliage, thus exposing them to the light. The old plants may be encouraged to set further fruits if necessary by selecting some of the strongest shoots near the base of the plants and training them thinly over the trellis. Top-dress the roots with a mixture of fibrous loam, well-decayed horse manure, and wood ashes. If white fly is present on the foliage, gather all the ripe fruits, then fumigate the house with a nicotine vaporising compound. The young plants which were raised here from seed sown on October 6 were potted into their fruiting pots on the 4th inst. They are already showing two trusses of flowers, and give promise of furnishing ripe fruits at a very early date. The potting materials for Tomatos at this time of year should be much lighter than later on when growth is quicker. A suitable compost is one consisting of good fibrous loam, manure from a spent mushroom bed, and a good sprinkling of old mortar rubble and wood ashes. To every barrow-load of soil add one 8-inch potful of crushed bones. The plants should be potted firm, but not excessively so. Another batch of plants should be raised now for succession. Sow the seeds thinly in pans in a light compost, and place them in a warm house till the seedlings are through. Then keep them growing quite near to the glass in a minimum temperature of 60°.

THE FRENCH GARDEN.

By PAUL AQUATIAS.

WINTER CROPS.—The last of the three batches of Chicory Witloof have been placed in trenches as previously described. The paths between the frames have been lined with dry manure. The first batch is ready for cutting, and a constant supply of this crop is assured till the end of February. The Cabbage Lettuces planted in frames in the middle of September have proved a very good and useful crop. When the frames are cleared the soil will be stirred and some black soil added previous to planting Passion Lettuces, which will be ready for the market in April.

SPRING CROPS.—The first batch of Lettuce "Little Gott" is very forward. Ventilation is afforded day and night to keep the plants in check until the hotbeds have been made. The plants of the other varieties are of medium size, which is preferable at this time of the year; as Lettuces grow very rapidly during January and often become drawn should the final planting be delayed. The Cos Lettuces are well established after their second transplanting. Ventilation is afforded whenever the weather is favourable. The Cauliflowers have grown too luxuriantly, though ventilation was given freely, and it has become necessary to replant them deeper, setting 180 instead of 250 plants as hitherto in each light.

CROPS GROWN WITHOUT HEAT.—These crops as a complement to those on the hotbeds, are always remunerative, especially where black soil is plentiful. The ground should be well manured and prepared at an early date. The frames need to be set straight and level and sunk 2 inches in the ground, so as to economise the black soil and have the plants close to the glass. A path 9 inches or 10 inches wide should be provided between each row of frames. From three to six barrow loads of black soil may be placed in each frame. The lights should be placed on the frame to keep the soil in a good condition until the time of planting arrives.

HOTBEDS.—The extent of the hotbeds for the coming season should be decided upon, taking into consideration the markets and local requirements. At this establishment two-fifths of the hotbeds are devoted to growing Strawberries and Turnips and the remainder to Carrots. Lettuces (56 per light) will be grown before the Turnips are sown or the Strawberries forced. No Radishes will be sown as an intercrop. The first hotbed will be made on the 16th of the present month. A quicker growth with less manure is more certain than when starting at an earlier date, and should snow fall or severe frost set in, the work may be delayed with advantage. In this case preparation must be made to hasten the making of the hotbeds, all frames and lights being placed handy. Some fine soil should be brought under shelter for covering the seeds.

SEEDS.—The purchase of seeds this year will represent an important item in the working expenses. The wholesale rate is trebled on the Carrots and Radishes, whilst Turnip and Cauliflower seeds are very dear. Great care must be taken to prevent waste when sowing; trial sowings will repay the trouble. A certain number of seeds should be placed on a piece of cloth or felt, kept damp by infiltration and placed in a warm house. In a few days the seeds will germinate, and the percentage of good seeds may then be easily ascertained.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, *as well as specimens of plants for naming, should be addressed to the* **EDITORS, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Special Notice to Correspondents.—*The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.*

Local News.—*Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Illustrations.—*The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c., but they cannot be responsible for loss or injury.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.*

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, JANUARY 15—
Nat. Chrys. Soc. Executive Com. meet.

TUESDAY, JANUARY, 16—
Scottish Hort. Assoc. Ann. Meet.

WEDNESDAY, JANUARY 17—
Roy. Meteorological Soc. Ann. Meet. North of England Hort. Soc. Ann. Meet. at Leeds. (Lecture by Mr. W. Cuthbertson on "The Development of the Sweet Pea.")

THURSDAY, JANUARY 18—
Gard. Roy. Benev. Inst. Ann. Meet. and election of pensioners at Simpson's Restaurant, Strand, at 2.45 p.m. Linnean Soc. meet. Meeting at Preston in support of Roy. Int. Hort. Exh.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—37·9°.

ACTUAL TEMPERATURES:—
LONDON.—*Wednesday, January 10* (6 P.M.): Max. 49°; Min. 39°.
Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—*Thursday, January 11* (10 A.M.): Bar. 29·9°; Temp. 47°; *Weather*—Dull.
PROVINCES.—*Wednesday, January 10:* Max 51° Sligo; Min. 34° Yorkshire.

SALES FOR THE ENSUING WEEK.

MONDAY AND WEDNESDAY—
Rose Trees, Fruit Trees, Perennials, &c., at 12.30, at Stevens's Auction Rooms, 38, King Street, Covent Garden.

MONDAY AND FRIDAY—
Liliums and other Hardy Bulbs, Herbaceous Plants, &c., at 12; Roses and Fruit trees, at 1.30; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

WEDNESDAY—
Herbaceous Plants and Perennials, Liliums and Hardy Plants, at 12; Roses and Fruit Trees, at 1.30; Palms and Plants at 5; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

Cotton Breeding.

Mr. H. M. Leake contributes, in the *Journal of Genetics**, a valuable paper on the results of his experiments in the breeding of the Cotton plant. Though his main problem is the production of races of Cotton which shall be an improvement—from the commercial point of view—on the poor types commonly in cultivation in India, Mr. Leake resolved very wisely to attack the problem on Mendelian lines.

At the outset of his experiments, he discovered that, contrary to general opinion, cross-pollination occurs not uncommonly in Cotton flowers. Thus the old method of "plant-to-plant" breeding had to be discarded and the usual precautions of emasculation and covering adopted.

The task of finding improved races of Cotton suitable for the United Provinces is rendered peculiarly difficult owing to the extremes of climate characteristic of those regions. The winter is so severe as to give a severe check to the growth of the Cotton plant, and the hot, dry summer follows so quickly on the vanished track of winter that the plants have barely time to produce fruit before they are scorched. Further, though the races of Cotton generally grown in the Central Provinces are precocious as to flowering, their staple is poor; whereas Cottons of good staple are generally late with respect to time of flowering. As a result of his investigations on the various types of Cotton, Mr. Leake has discovered that they may be classified according to their modes of branching into two groups. In one group—the sympodial—the flowers are borne on the secondary branches, and in the other—the monopodial—they are borne on the branches of the third order. As might perhaps be expected, the sympodial type is "early" and the monopodial type is "late": a difference of something like two months separating the main periods of flowering of the two classes.

The cross between a sympodial (early) and monopodial (late) plant gives an intermediate (F_1), the period of flowering of which is nearer to that of the early than to that of the late parent.

In F_2, complete segregation does not appear to take place, though from the practical point of view this would seem to be unimportant, for early plants arise in F_2, and there is no evident reason why such "earlies" should not bear characters which give to them the high quality possessed by the monopodial, or late, parent.

One reason for the apparent lack of segregation in F_2 has been discovered already by Mr. Leake, who finds that the presence of red sap in the plant induces a prolongation of the vegetative period and hence a retardation of the time of flowering.

Superficially-informed critics of Mendelian investigation may be pleased to discover what looks like a breaking down of the fundamental Mendelian law of segregation; but we for our part are prepared to maintain that that pleasure will be short-lived.

In such difficult matters as the mode of inheritance of "time of flowering" the experimenter soon discovers that his task is to elucidate the behaviour of a number of separate yet mutually interacting characters. Thus in the case of the common Pea (Pisum sativum) we know that time of flowering of an F_1 between early and late varieties is intermediate, and that complete segregation does not appear to occur in F_2. But we know also that various morphological factors interfere with the proper expression of the character for earliness or lateness. Among these disturbing characters are the node at which flower formation occurs and also the extent to which branching takes place at the ground level. Thus a Pea may possess the character for earliness and also that for flowering at a high node. The inevitable result is a compromise—for Mendelian law is not magic—and the plant flowers when it can, that is later than "it would like" to flower.

To determine the mode of inheritance of such a character as precocity or tardiness of flowering, the first thing the experimenter has to do is to produce pure strains, from which the disturbing characters are absent: in the case of Pisum sativum he must raise a strain of unbranched, low-flowering early varieties and another of unbranched low flowering later sorts, cross them and raise very large numbers of F_2 plants.

Mr. Leake has made a notable contribution to the problem, to which he is devoting himself, and we are convinced that not only will it result in an amelioration of the quality of the Cotton of the vast United Provinces of India but also in the vindication of the serviceableness of the method of Mendelian analysis to the elucidation of the laws of heredity.

* No. 3, Vol. i.

INTERNATIONAL HORTICULTURAL EXHIBITION.—A meeting in support of this exhibition will be held in the Town Hall, Preston, on the 18th inst. The Mayor, Councillor R. S. SIMPSON, J.P., will preside, and Mr. EDWARD WHITE and others will address the meeting.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—In connection with the seventy-second Annual General Meeting of the members of this institution, which we announced last week for the 18th inst., we are asked to state further that the usual Friendly Supper will also be held at Simpson's on the same day at 6 p.m., when the chair will be taken by S. M. SEGAR, Esq., a member of the committee.

ROYAL METEOROLOGICAL SOCIETY. — An ordinary meeting of this society will be held at the Institution of Civil Engineers, Great George Street, Westminster, on the 17th inst., followed by the annual general meeting at 7.45 p.m.

THE WOMEN'S AGRICULTURAL AND HORTICULTURAL INTERNATIONAL UNION.—We are asked to state that the room placed at the disposal of the Union by the hon. secretary, Mrs. CHAMBERLAIN, having become inadequate for the requirements, a new and enlarged office has been secured at 45, Queen Anne Chambers, Westminster, S.W., where full information concerning the object of the Union may be obtained.

FLOWERS IN SEASON.—We have received from Mr. H. JUNIPER, of Dyrham Park Gardens, Barnet, blooms of Chrysanthemum "King of the Plumes." The flowers are a rich yellow colour, and have fimbriated florets. This excellent late variety is very serviceable for conservatory and greenhouse decoration.

"IRISH GARDENING."—Mr. C. F. BALL, of Glasnevin Botanic Gardens, has been appointed editor of *Irish Gardening*, one of the most attractive of our contemporaries. The new editor has our best wishes in the enterprise he has undertaken.

LONDON'S OPEN SPACES.—The Parks Committee of the London County Council have prepared a scheme for laying out Kilburn Grange as a public open space, which includes the provision of a pond for boating, lawn-tennis courts, and a large grass area for general recreation.

PROTECTING FRUIT TREES FROM HARES.—A correspondent writing in the *Agricultural Gazette of New South Wales* of November 2, 1911, states that the best method of protecting young fruit-trees from injury from hares is by means of a band of paper wound twice around the stem of the tree and tied lightly at the top, bottom, and middle.

M. GEORGES GIBAULT.—The National Horticultural Society of France has, upon a report written by M. PH. DE VILMORIN, awarded the Gold Medal of the Society to M. GEORGES GIBAULT for his work *Histoire des Légumes*, a review of which appears on p. 19.

A "SPORTING" APPLE. — M. GUSTAVE RIVIÈRE records in the *Journal de la Société Nationale d' Horticulture de France* (November, 1911) the sudden appearance during the past year of red fruits on a tree of the Cider Apple Senlis, which variety is characterised by yellow fruits. Mr. RIVIÈRE recalls the fact that his father observed a similar "mutation" in 1871, in the case of an Apple of the variety Ménagère. In that case also a yellow-fruited tree bore fruits with dark red skins, side by side with those of the normal yellow colour.

NEW PLANTS COLLECTED FOR U.S.A.—The list of seeds and plants imported October 1 to December 31, 1910, and listed in *Bull.* No. 227, Bureau of Plant Industry, contains those collected by Mr. F. N. MEYER in Central Asia. Among them, mention may be made of eight new Roses from Russian Turkestan, and of several new species of Cherry. The latter include Prunus prostrata, a bush Cherry, from 1 foot to 8 feet in height, which grows on stony and sterile mountain slopes in Turkestan; Prunus microcarpa, a Cherry which grows as a tall bush up to 10 feet high; and several species of Plums, the hardiness and early-fruiting quality of which may render them of value for hybridisation.

THE SAND DUNES OF NEW ZEALAND.*—The problem of reclaiming land for the purposes of cultivation presents aspects of peculiar fascination alike to the botanist, the agriculturist, and the forester; and the special knowledge appertaining to these several crafts is necessary for successful reclamation. The botanist notes the peculiar local conditions and learns from the local associations of plants which of the latter to press into his service. The agriculturist may take over the partially reclaimed dune and convert it into remunerative pasture, and the forester must be at hand to form shelter belts and perchance to convert the dune land into forest. Dr. COCKAYNE combines in himself the qualities of botanist, agriculturist, and forester, and as the result of his practical experience in New Zealand has produced a valuable report on the geology, botany, and reclamation of the dune areas of the Dominion. As in Europe, so in New Zealand Marram grass (Ammophila arundinacea) is easily first among sand-building grasses, and is the pioneer in the work of reclamation. Where it has done its work, Lupinus arboreus, the Tree-Lupin, serves in New Zealand to fix both sand and nitrogen, and so to render the soil suitable for pasture grasses. Not any seed mixture serves, however, for sowing down the dune pasture. There the special difficulty to be overcome is the shifting by winds of the surface layers of the sand; and to this end plants which yield a rich supply of humus are utilized. When they have done their work, grasses, clovers, and fodder plants may be sown with good prospects of success. In New Zealand more has been done in the way of establishing dune pastures than in afforestation of these areas. Dr. COCKAYNE enumerates the various trees which are capable of growing in the sand of the dunes of the Dominion and the trees, such as species of Pinus and Olearia Traversii, which may be planted furthest seaward to protect the more delicate trees, which would in their absence be destroyed by the salt-laden winds.

* *Report on the Dune Areas of New Zealand, &c.*, by J. Cockayne. (New Zealand: Department of Lands.) 1911.

"BULLETIN" OF AGRICULTURAL STATISTICS.—The *Bulletin* of Agricultural Statistics of the International Agricultural Institute for December has just been published. The first part of the *Bulletin* contains tables showing the production of the more important cereal crops in the Northern Hemisphere, after making such alterations and additions as have been rendered necessary by the new official data received at the Institute up to December 19, 1911. The most important additions consist in the returns of area and production of the cereal crops in Germany, Austria and Bulgaria, while the principal alterations refer to the figures for Russia and the United States. The second part of the *Bulletin* contains information regarding the sowing of winter cereals in the Northern Hemisphere. Winter sowing is now almost finished; the seeds are, in general, germinating well, and development is uniform. Further information is given as to the cereal crops in the Southern Hemisphere for the crop year 1911-12. In Argentine it is expected that the whole of the area sown with Wheat and Oats in that country will be harvested, which means a considerable increase over the area harvested in the previous year. The coming Wheat crop in Australia is estimated at only 79.2 per cent. of last year's crop. In Chile, on the contrary, an out-turn of Wheat 7 per cent. above last year's production is predicted, and a crop of Barley remarkably above last year's output is expected. The harvest estimates in New Zealand are also generally good. The most interesting figures of Cotton production are those of the United States, where the crop is 66,432,073 cwts., or 130.3 per cent. of last year's production, and in India, where the crop works out at 11,075,450 cwts., or 81 per cent. of last year's crop. The *Bulletin* also contains information as to the production of Sugar Beet and of wine in 1911 in a few countries of the Northern Hemisphere. The production of Sugar is 558,390,447 cwts., or 75.7 per cent. of last year's production in the following group of 11 countries:—Prussia, Belgium, Bulgaria, Denmark, France, Hungary (not including Croatia and Slavonia), Italy, Roumania, Russian Empire, Servia and Canada. The production of wine is 2,388,883,156 gallons, or 136.4 per cent. of last year's production in the following group of countries:—Spain, France (43 departments), Hungary (including Croatia and Slavonia), Italy, Luxemburg, Roumania, Switzerland, Algeria and Tunis.

THE KINGDOM OF FLOWERS.—The National *Geographic Magazine* of the United States for November, 1911, contains an admirably illustrated article by Mr. E. H. WILSON on the flora of China, bearing the above title. It is almost superfluous to state that the article is as full of interesting information as only an enthusiastic and accomplished traveller could produce. The illustrations are mostly of individual trees and scenic; a few domestic and industrial. All are from the author's own photographs. Extracts without the illustrations would have relatively little interest, but it may be noted that "Dr. SARGENT's enterprise has resulted in the acquisition of some thousands of seedlings, covering about 1,200 species of plants new to cultivation. These embrace ornamental trees and shrubs, evergreen and deciduous in character; new Lilies, Irises, Pæonies, and other striking herbs; new conifers of probable value as timber trees for afforestation work, and many economic plants valuable to the plant-breeder as a source of new races of fruits, more especially berries. These new introductions contain not only new forms of genera already known to us in this country and in Europe, but also several entirely new genera." It may be added that Mr. WILSON formed a herbarium of some 50,000 sheets of specimens, which will be distributed to the botanical centres of the world. Truly a grand enterprise!

A "SLEEPING" OAK.—A correspondent to the German Dendrological Society (*Mitt. d. Deutschen Dendrolog. Gesell.*, 1911) records an interesting case of an Oak which remained 20 months without leaves. A specimen of Red Oak (Quercus rubra), about 10 feet in height, was planted in November, 1909, and remained leafless throughout the following year (1910). It awoke in June of the next year (1911), and produced, after a sleep of 20 months, a healthy crown of leaves.

THE RENOVATION OF POOR PASTURES.—*Farmers' Bulletin* No. 22 of the County Council of the County Palatine of Lancaster contains the report of an experiment carried out at several centres by Messrs. T. MILBURN and R. C. GAULT, on the modes of renovation of poor pasture land. The chief conclusions reached as a result of the experiments are:—(1) That phosphatic manures were the most effective agents in ameliorating the pastures. (2) That the several phosphatic manures used—basic slag, super-lime and boiled bones—did equally well. (3) Sowing white Dutch Clover has not proved efficacious in effecting speedy improvement.

"LE JARDIN."—The 25th volume of *Le Jardin* is dedicated to M. ANATOLE CORDONNIER, the eminent Grape grower, of Bailleul, whose large establishment is one of the wonders of modern French horticulture.

"LA VIE A LA CAMPAGNE."—The issue for January 1 of this excellent journal contains a full paged portrait of the great French gardener, ANDRÉ LE NÔTRE, with an illustrated article on his gardens. In the same issue there are several other articles of practical interest to horticulturists.

PUBLICATIONS RECEIVED. — ***The Housing Reformer,*** vol. I., No. 1. December. (Cardiff: 4, Park Place.) Price 1d.—***National Insurance Act.*** A full explanatory digest by "An Old Parliamentary Hand." (London: Wm. MacDonald & Co.) Price 6d.—***The North of England Horticultural Society.*** Monthly Magazine and Circular for December. Secretary, The Rev. J. Bernard Hall, Rawdon, Leeds.—***Sweet Peas:*** Cultural Notes by Thomas Stevenson. (Moseley: Hallam's)—***The British Weather Chart, 1912,*** edited by Miss Jenkins. Price, large size 6d.; small size 1d.—***The British Astronomical Weather Almanac, 1912,*** edited by Miss Jenkins. (London: R. Morgan, 65, Westow Street, Norwood, S.E.) Price 2d.

THE ROSARY.

FRAGRANT ROSES.

I WOULD advise Rose growers to add the new Hybrid Briar Juliet to their collections, on account of its extraordinary and pleasing fragrance. Apart from this quality, its colour is unique, and I predict for it a future of great popularity. Magna Charta is one of the older types of flower, but this variety also is particularly rich in fragrance. It is, in point of fact, among Hybrid Perpetuals that we get the most fragrant flowers. Many of the newer H.T. sorts are devoid of scent, and this inevitably lessens their popularity, although it would be difficult to select in any other sections varieties more pleasing than Liberty and Richmond.

The new Claudius is highly fragrant; it is spoken of as a H.T., but to me it has all the appearance of a H.P. However this may be, it is a beautiful variety from every point of view. A. K. Williams, Général Jacqueminot, Marie Baumann, Senateur Vaisse, and Xavier Olibo are a few varieties that occur to my memory as having quite distinctive scents. Going further back, the old Géant des batailles, Eugène Appert, and Chénédolé were remarkable for their fragrance;

but, unfortunately, in consequence of the present craze for novelty in Roses, these old varieties are neglected.

ROSE WILLIAM ALLAN RICHARDSON.

Roses are grown abundantly in this neighbourhood, but the variety above named seems to be greatly losing in popularity. Twenty years ago every cottage gardener had a plant of this fine Rose, and on many a garden wall one or more magnificent specimens were to be found. Gradually, however—from some cause apparently unknown—the colouring degenerated, and now it is the exception rather than the rule to see a flower of the correct hue, although an abundance of new plants have been put in. The loss of colour has been the chief factor in the growing unpopularity of this variety. It has been stated by Mr. Piper in these columns that many of the flowers produced are of no deeper a yellow than those of Lamarque, but he has not given any reason for this loss of colour. Many growers never recommend the plant, on account of this defect; and I myself should be unable to point to a single specimen that produces blooms of the true, original colour. I always prefer to recommend Claire Jacquier, a much more constant climber, which was introduced by Bernaix in 1888. *E. Molyneux, Swanmore, Bishop's Waltham.*

A CURIOUS OAK.

Nearly every species of tree that has long been cultivated in, or is a native of, the British Isles, has produced a number of varieties showing great diversity of growth. The dwarf and weeping forms are the more common, and next to these those of a fastigiate or erect-growing habit. Weeping trees frequently show considerable variation. Take the common Ash for example: the ordinary variety pendula has all its branches weeping; var. pendula Wentworthii has the trunk and leading shoot erect, whilst the branches are very pendulous; aurea pendula (the young shoots are yellow) has all its branches arching or weeping, but much stiffer and more umbrella-like than the common variety pendula. Among the weeping Beeches there is an even greater diversity of form.

Of the common Oak the most striking deviation from the type is the variety fastigiata (Cypress Oak) with a spire-like growth as marked as that of the Lombardy Poplar (see *Gardeners' Chronicle,* March 9, 1907, p. 149). There is also a very elegant weeping variety (pendula) of the same type as the Wentworth Ash, having an erect-growing head and the branches only weeping. In the remarkable variation of the common Oak shown in fig. 17, the branches grow out horizontally at first, then take a right-angled turn, the whole ultimately forming a dense interlacing mass of branches and twigs. So far as we can learn the tree has never been trained or mutilated in any way.

FIG. 17.—A CURIOUS OAK TREE IN MR. HENRY B. MAY'S GARDEN AT CHINGFORD.

SCOTLAND.

PRESENTATION TO MR. J. D. CROZIER.

On p. 10 it was announced that Mr. John D. Crozier, forester, Durris, Aberdeen, had been appointed to the staff of the Irish Forestry Department. Prior to leaving to take up his appointment, Mr. Crozier was entertained to a complimentary luncheon and presented with a token of esteem by a number of gentlemen connected with the Aberdeen branch of the Royal Scottish Arboricultural Society. The function took place in the Imperial Hotel, Aberdeen, and was very largely attended by those interested in forestry. Mr. C. S. France presided, and Mr. A. Robson was croupier. Apologies for absence were read from Sir John Stirling Maxwell, President of the Royal Scottish Arboricultural Society, Mr. Irvine, of Drum, and Mr. S. J. Gammell, of Drumtochty, the present and past presidents of the Aberdeen branch.

THE LIFE OF SIR JOSEPH HOOKER.

(Continued from p. 12.)

THE LINNEAN SOCIETY.

Sir Joseph was elected a Fellow in 1842, yet in spite of this early election he was never the "Father" of the Society, for Frederick Holsey Jason, who was elected in 1837, is still living. The previous "Father" was Thomson Hodgson Archer-Hind, who was elected in March, 1834, and died in January, 1911. Hooker never became president, but he was a staunch supporter of the Society for a long series of years, both as a Councillor and a contributor to the publications. He served on the Council during five terms, between 1846 and 1884, and was a Vice-President from 1861 to 1874, and from 1882-1884; the year preceding his retirement from the Directorship of Kew. His contributions rank with the most important published by the Society, and the principal ones are noticed in this review. Hooker was awarded the Linnean Medal in 1888, but the culminating event in the bestowal of medals was the presentation of the Darwin-Wallace Medals, on the occasion of the Darwin-Wallace celebration at the Society's rooms, on July 1, 1908, to Wallace and Hooker. A highly-distinguished company had assembled to witness the auspicious and unparalleled ceremony, and the President, Dr. D. H. Scott, made the presentations with a few happily-chosen words. Both recipients were present and replied in speeches of enduring interest and of the utmost value in historical truth. These two veterans, the one in his eighty-eighth year, the other in his ninety-second year, and both still hale and hearty, together with the surrounding company of naturalists of all ages, formed a never-to-be-forgotten scene. There were other recipients of the medal, including some distinguished foreigners, and there were other speeches of great import. And there were delegates from various universities and other learned bodies, entrusted with greetings and congratulations and learned effusions. Altogether it was a memorable meeting. In this connection it may be mentioned that Hooker contributed an Introductory Letter to the notable volume entitled *Darwin and Modern Science,* Cambridge, 1909.

PRESIDENT OF THE ROYAL SOCIETY, 1873 TO 1878.

Hooker was elected a Fellow of the Royal Society in 1847, and he served five biennial terms on the Council, between 1853 and 1886. He also acted as Vice-president during four terms, between 1857 and 1886. He was chosen President in 1873, and held this post until 1878. The Copley, Royal and Darwin Medals were successively awarded to him. Apart from his Annual Addresses, he contributed comparatively little to the Society's publications, most of his work com-

ing within the province of the Linnean rather than the Royal Society. One of the exceptions is the *Botany of Kerguelen Island*, in which he dealt with the collections of vascular plants made by the "Transit of Venus" Expedition during 1874 and 1875. Nevertheless, his period of office was an unusually active one, both in natural and physical science, and the results are admirably summarised in his successive Addresses. Of expeditions, for example, there were the British Polar, the Transit of Venus, the Total Solar Eclipse of 1875, and the continuation of the Voyage of the "Challenger." These expeditions gave the Council of the Society much work, as the manning of the scientific staffs and the planning of their operations, as well as the publication of results, were largely effected on the suggestions and recommendation of this body. Dr. I. B. Balfour's *Botany of Rodriguez* was another valuable outcome of the "Transit of Venus" Expedition. Meteorology and the exhibition of

scientific instruments were engaging the attention of the Council in 1875. In his Address for the same year, the President gave an instance of the unwisdom of the House of Lords. He said: "In my last year's Address, I announced that arrangements had been made by the Council for the administration, under the authority of the Trustees of the Gilchrist Bequest, of a grant of £1,000 per annum in promoting original research, thus aiding in the fulfilment of the wishes of the testator, that the proceeds of his large fortune should be devoted 'to the benefit, advancement and propagation of education and learning.' The scheme for the administration of this grant was approved by the Trustees and laid before you in detail; but since then its operation has been frustrated by a most unexpected judicial decision formally given in the House of Lords as to the meaning to be assigned to the terms of the Gilchrist Bequest, namely, that 'the promotion of original research' could not be held to be 'benefiting the advancement and propagation of education and learning,' for that it was expressly laid down by the Law Lords that 'learning is to be construed as synonymous with education,' and the whole fund is to be devoted to the propagation of knowledge." The President continued that he "could only hope for a more enlightened posterity, the outcome of a more liberal and scientific education." The following year, 1876, the President had a much more welcome announcement to make concerning the finances of the Society, which had been so much improved by the liberal bequests and donations of Dircks, Carrington, Handley, Wheatstone and Jodrell. Some of the provisions of a proposed Vivisection Bill before Parliament caused much stir in the profession, and they were successfully opposed by the Society. The return of the "Challenger" this year, after a voyage of 69,000 miles, was an event of almost exciting importance. No expedition ever returned with such a wealth of collections and observations. Apart from microscopic organisms, the deep-sea specimens fit for mounting were estimated at 100,000. The Polar Expedition had furnished evidence that there was no cessation of animal or vegetable life in the highest latitudes reached. Indeed, in some considerably lower latitudes the conditions were less favourable to life. The Presidential Address for 1877 includes a summary of the more important discoveries by the various expeditions in all the branches of science investigated. One of the principal features of Sir Joseph's last Presidential Address is a review of Darwin's experiment with carnivorous plants. The equally important researches by Downes and Blunt on the influence of light on bacteria were, it was stated, yielding the most interesting results towards the conclusion that exposure to strong solar light checks and even arrests the development of such organisms.

The presentation by the Royal Society of the Copley Medal to Sir Joseph Hooker, at the anniversary dinner in 1887, was the occasion of a brief and highly appreciative eulogy of Hooker by Sir Michael Foster, and an equally remarkable reply by Sir Joseph to the "Toast of the Medallists." Some incidents of Sir Joseph's childhood, and a contrast of the botanical teaching of that day and in the 'eighties were among the topics of his speech.

Insular Floras.

As already mentioned, Hooker's studies of insular floras began on the outward voyage of the Antarctic Expedition, and his first important contribution to the literature of the subject has already been passed in review. This was followed by:—

"An Enumeration of the Plants of the Galapagos Archipelago," *Transactions of the Linnean Society*, vol. xx. (1851), pp. 163-234.

"On the Vegetation of the Galapagos Archipelago," *Ibid*, pp. 235-262. Embodies all that was then known of the botany of this interesting group of islands, including Darwin's most important collection of dried plants, made on the voyage of the "Beagle." It is now known that the endemic element in the flora is by no means so large and so highly characterised as was assumed then. Out of a total of 253 species of vascular plants, 123 were regarded as endemic. The vegetation is compared with that of some other tropical islands and with that of continental America. An abridged Report of these two papers appeared in the *Journal of the Proceedings of the Linnean Society*, vol i. (1849), pp. 276-279 and 313-314.

Other papers dealing with insular floras are:—

"Notes on Madeira Plants," *London Journal of Botany*, vol. vi. (1847), pp. 125-139.

"On the Discovery of Phylica arborea . . . in Amsterdam Island in the South Indian Ocean, with an Enumeration of the Phanerogams and Vascular Cryptogams of that Island and of St. Paul," *Journal of the Linnean Society*, vol. xiv. (1875), pp. 474-480.

Hooker dealt with the subject of insular floras in a general and popular style in an address before the British Association at Nottingham, in 1866. He described the nature and composition of the vascular floras of the Canaries, Azores, Madeira, Saint Helena, Ascension, and Kerguelen Island, and followed with an examination of the alternative theories of their origin, whether derived or remnants of former more extensive floras. While accepting no theory as deserving of finality, he expressed himself as strongly in favour of Darwin's theory of transoceanic migration, a theory now regarded by a section of botanists as unsound beyond certain limits. This paper was reprinted in the *Gardeners' Chronicle*, January, 1867.

Carnivorous or Insectivorous Plants.

Darwin's book on *Insectivorous Plants* was not published till 1876, but he and Hooker had separately carried on a series of experimental investigations in this branch of biological inquiry during a number of years, and "Carnivorous Plants" was the title of an address delivered by Hooker before the British Association at Belfast in 1874. This seems to have been the first occasion of the subject being brought before the public. Darlingtonia, Dionæa, Drosera, Nepenthes, and Sarracenia were the plants on which the successful experiments were made. The address appeared in the Association's annual Report, and a translation was given in *La Revue Scientifique*, 1874, pp. 481-489. The term "carnivorous" was employed, because it was discovered that certain plants were capable of absorbing and assimilating other animal substances besides insects.

Phytogeography.

Sir Joseph's address to the Geographical Section of the British Association, at York, in 1881 (*Nature*, vol. xxiv. [1881], pp. 443-448) is an admirable essay on geographical distribution, in which he dealt mainly with plants. The leading feature of this essay is the history of the development of the science of phytogeography. Beginning with Tournefort (early eighteenth century), to whom has been ascribed the earliest correlation of altitudinal and latitudinal distribution of plants, and continuing with Linnæus, the author briefly reviews the work of Stromeyer, Humboldt, Schouw, Lyell, Forbes, De Candolle, Darwin, Wallace, A. Gray, Thiselton-Dyer, Saporta and others. Prominence is given to the theory of the probable northern origin of all the successive phases of plant-life. *W. Botting Hemsley.*

(To be continued.)

NEW INVENTION.

SAUGHTON PLANT LABEL.

We have received from Mr. W. Hunt, of 13, Westfield Road, Edinburgh, samples of his "Saughton" plant label. The label consists of a wood slab, about 2½ inches by 1½ inch, covered with glass, both glass and wood being held together by means of a japanned tin frame, having the two ends open so as to admit of sliding the label in and out. The wood is painted white, the glass protecting it from the weather. The chief disadvantage would seem to be the inevitable swelling of the wood (which is not sufficiently covered to prevent the damp from penetrating) and the consequent difficulty of sliding the label in an out of the frame. Possibly two coats of paint would prevent such swelling.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

"Garden by the Sea," and "Poppies on the Rockies."—The Sketch Society at the Royal Institute Galleries, in Piccadilly, is holding its third exhibition. The hanging is admirable, for each member's works are grouped together, thus conveying a distinct impression of the artist's different styles and techniques. As a congenial subject should be noted the "Garden by the Sea," by Fred. Whitehead, a pleasing colour combination of Sea Pinks and pale-yellow flowers harmonising with the sandy foreground, and set off by the dull-grey sky and dunes of the distance. Geoffray Strahan, in his several exhibits painted at Rye, Dorset, and elsewhere, shows a feeling for the underlying and varying spirit of nature in movement which is quite apart from the dull level of surface tone and harmony which of late have contented so many unaspiring painters. His distinctive gifts and genius are manifested especially in a breezy sketch, "The Storm," in which a shepherd boy fights his way through tall Reeds against the wind—Reeds which catch on the under leaves the reflected light of the clouds overhead and flash like silver across the gloom of the landscape. Cyrus Cuneo, as one of the most successful exhibitors, carries off a palm in his brilliant sketch of "Sunset," and again in an unusual scene entitled "Poppies in the Rockies." These are the Yellow and Orange Poppies of the variety we attribute to Iceland. Here they flourish wild on the steep, grey cliffs of the new world. Miss A. M. Youngman shows a capital study of a remarkably fine specimen of the "Dandelion," and another of "Pyrus japonica." "An Old-world Cottage and its Garden," by Mr. Bernard Evans, exemplifies the value of clipped Box trees in giving an appearance of support and substantial background to the airy and lighter effects of our gaily-coloured old English flowers. Again, the sloping, grey-thatched roof of the cottage enhances the cheerful reds and yellows of the parterres below. J. Shaw Crompton is responsible for an admirable study of what all good gardeners abhor, "Weeds." *Mary L. Breakell.*

Treatment of Asparagus.—The treatment of Asparagus beds described by Mr. D. Calthorpe (see p. 469, vol. I.) doubtless results in the plants making strong growth. The winter dressing which many give the beds is both a waste of time and material, for the roots do not need protecting, and the loss of the soluble parts of the manure which form the dressing—through being washed by rain and the drainage of the moisture from the beds—is deplorable. Where there is no forcing department the earlier Asparagus can be produced outdoors the more valuable it becomes, and on this account the dressing of the beds in spring is open to objection, for it excludes the sun-heat from the crowns and consequently growth is retarded. Where the old practice of dressing the beds in winter is still carried out the object of raking it off in spring is to allow the sun-heat to penetrate more readily to the crowns, but why such dressings are put on is beyond my conception. The best time to dress the beds is after the crop has been taken; they should then be given a heavy dressing of rotted manure, which stimulates the growths that have been retained and causes strong buds to form which will give a good crop the following season; the dressing also forms a mulch which obviates the necessity of giving the beds such frequent waterings, as would otherwise be required, and by the following spring there is no occasion to rake the beds, for the summer dressing of manure has been reduced to a thin layer of black humus that absorbs the sun-heat readily. All that is needed is a light forking of the surface of the beds to render them more porous, strong growths are then freely produced, and, if weak sprinklings of nitrate of soda—in solution—are given, growth is hastened. *F. W.*

Sweet Pea Sport.—If I used the word "Mrs. Routzahn is a dark-coloured flower," I used an expression which conveys a wrong impression. The term "dark-coloured" in Sweet Peas is generally understood to refer to maroons and possibly deep crimsons. Mrs. Routzahn is a deep pink on cream ground. *W. Cuthbertson.*

TRAINING YOUNG STANDARD FRUIT TREES.—The remarks on this subject by Mr. A. Petts (see p. 476, vol l.) are opportune, but if he had tackled the old, well-worn subject of pruning versus non-pruning the same season as planting he would have gone at once to the crux of the question. Few advocate the non-pruning method outside of a nursery; there, of course, they have ample opportunity of testing the subject more fully than anyone else, because they plant later than others, as they have to make up their quarters of fruit trees of all sorts after others have had their pick of the trees. When such late planting, as is frequently the case, has to be done, I would not say but that the non-pruning method is best for that season, but where trees are planted, of any form of training, before the end of March they should be pruned at once. How to obtain a maximum of growth the first season is the main point to study, as the sooner a large area is properly covered with the tree the earlier is a full crop of fruit obtained. I am a strong advocate of close pruning to induce extra vigour and quick progress of the tree, having seen so many practical illustrations in coppice work and the remaking of hedges, apart from experience in fruit-tree growth. Trees that are not pruned when planted make so little progress for two or three years that I regard this treatment as causing a gross waste of time. Those who plant two fruit trees can test the matter for themselves if so inclined; they will find the experience thus gained of distinct value. *M.*

THE POTATO AND FLORAL STERILITY.—The letter on this subject from Mr. A. Dean (p. 13) notes a circumstance of considerable importance to those interested in the breeding of Potatos. The absence of pollen in many modern Potatos seems to me to be a sure sign of degeneracy, and is not, as Mr. Dean suggests, the result of exhaustion caused by excessive tuberation. I question very much if we are getting such heavy crops at the present time as were secured by our forefathers, and there is room for considerable improvement among Potatos by means of scientific hybridisation. I have spent considerable time among Potatos when the plants were in flower, and the paucity of pollen in many varieties and its sterility in others were features which I could not fail to observe. One of the heaviest-cropping and best-known main-crop varieties in commerce will not, I find, yield a grain of pollen out of thousands of flowers, while another similar sort, but of a much later introduction, will yield it in plenty. Excessive propagation by asexual methods has much to do with floral sterility. *George M. Taylor, Midlothian.*

A THEORY OF RAT-CATCHING.—It is an unfortunate circumstance that the most destructive of rodents should be the most difficult to trap. The caution and the cunning of the common rat render all forms of wire trap practically useless, even in the hands of those well acquainted with the habits and peculiarities of the animal. It is confidently asserted—in the writer's opinion with but small justification—that the use of certain essential oils, such as oil of aniseed, increases to a great degree the catching power of a wire trap; yet it will be found that rats so caught belong almost exclusively to a young and inexperienced generation. The "clam" or steel trap is effective but brutal. The "break-neck" is an improved form, but rats appear to avoid this style of trap like the plague once they have seen or heard it catch a comrade, or, worse still, if it is "sprung" prematurely, as often happens. Perhaps the most effective form of spring trap is a modification of the "clam" or gin, made entirely of copper wire; but even this is open to the vital objection that it cannot be relied upon. The only method of overcoming the difficulty—always supposing that expert rat-catchers cannot be employed—is to meet the rat on his own ground, and match human against murine cunning. The reason that so many traps and other devices fail is that the subject is approached in an unimaginative way. We expect to catch rats year after year with the same old traps, by the same old tricks. Variety and a bewildering combination of devices, new and old, are essentials. This principle was tacitly adopted by the inventor of the following scheme. For it the writer is indebted to a German, whose work appeared in 1741. He says (in fairly close translation):—"Take a cask and beat the top out. In the bottom place a brick on end, and pour water to the level of the top of the brick. Cover the cask with a skin, fastened at the edges. On this place corn, tallow, or other things beloved of rats. Make access to the top of the cask easy by means of boards. The cask must remain in this condition for several nights and the bait must be constantly renewed. After this period has elapsed, cut the skin in the form of a cross and put bait on as before. The rats, accustomed to feast in security, approach confidently to the bait, and several at least must fall through into the water. These swim about seeking an exit, and find the brick, whereon one probably takes his stand. The others, finding no other means of salvation, fight desperately for a place on the brick. The noise and commotion below give the rats above on the boards and the top of the cask the idea that their struggling comrades are fighting for some rare delicacy, and in they rush pell-mell to the fray. The result is that a large number of rats either kill each other or are drowned, since the skin above them prevents their jumping out, even if they are fortunate enough to get the brick or the bodies of other rats to spring from." The above method has one drawback—it is inhuman; that struggling, biting, shrieking mass of rats is not pleasant to contemplate. The present writer would suggest corrosive sublimate or other non-odorous poison in the water. The plan has great advantages over poisons, since the bodies remain *in situ* and can be disposed of. The same old German has other quaint schemes. One is to cut a sponge into small cubes and to throw these for a few seconds into melted fat. When removed from the fat the cubes are put in places frequented by rats, and water is supplied near at hand. The idea is that the rats, having eaten the pieces of sponge, will be overcome by sudden and great thirst; they will rush to the water, drink deeply, and die as the result of the swelling of the bits of sponge. The present writer offers this scheme with all due reserve; he has never tried it, and includes it here chiefly as a contribution to that variety of methods which he recommends. The depredations of rats are apt to induce a complete inhumanity in dealing with them. Thus an old writer has the following simple recipe for blinding rats, and remarks quite coolly:—"Its results are extraordinary." Dry common spurge, rub it through a clean sieve, and mix with an equal part of flour. Rats are said to eat it greedily. Another barbarous practice was to roast live rats in an iron pot in front of a roaring fire, when their squealing was said to attract all the other rats in the house. Tarring a live rat and letting it escape is a practice unhappily not dead yet. If ordinary traps be used at all, they should be in as great a variety as the market will allow. They should be baited and not set for several nights to inspire confidence. Oil of aniseed fairly well masks the human smell which makes rats so cautious. In a wire trap the bait should be poisoned to prevent the night-long agony of captivity. Even rat-catching has, or should have, its ethics in a civilized age. *Sydney H. Kenwood, B.A.*

THE COLOURING OF APPLES.—Colour is influenced to some extent by the root conditions of the trees; if the soil does not contain a sufficiency of moisture at a time when the colour is developing, naturally the tree cannot perform its function. Apples, as a rule, colour remarkably well here where the soil is of a heavy, moisture-retaining character; but last season was an exception in the lack of colour in many varieties, particularly in Bramley's Seedling. When we get a normal season for moisture regularly through the various months this Apple colours richly; but last year was an exception, mainly because there was drought in August and September. The average rainfall here for the year is 30 inches; in September we were 12 inches behind the proper quantity up to that period, and although that deficiency has now been more than made up, the experience is sufficient to convince me that if trees do not obtain sufficient moisture at the root the fruit will be deficient in colour. An absence of sun, too, has an effect upon colour. It is useless to say that sun has no effect upon the colour of Apples. How many times have we found a green or a yellow blotch, as the case may be, on a single Apple, while the remainder of the fruit has been a brilliant red, this blotch of green caused by a single leaf covering that portion of the fruit. Again, where trees are covered with nets to protect the fruit from birds, how often the fruit bears the impress of the nets, denoting clearly whether the nets are square meshed or otherwise. Why are these significant signs so prevalent if the sun has but little to do with the colouring process, and the latter is developed from within? Take another example of the effect which the sun has upon the colour

[*Photograph by G. E. Low.*

FIG. 18.—BEGONIA LUXURIANS; FLOWERS CREAM COLOURED.

(See p. 29).

or otherwise. How seldom do we see highly-coloured fruit from trees grown near to towns such as Birmingham, Sheffield, Leeds, or Hull? Generally the fruit from those localities is green; the only tint of colour of many sorts is the yellow the fruit assumes with age. No varieties will display this lack of colour, more decisively from trees near towns, where they obtain less sun than in the open country, than Cox's Orange Pippin, Worcester Pearmain, Lane's Prince Albert, and Bramley's Seedling. Again, if the colour comes from within, and the sun and root moisture have little to do with colour, how is it that abroad, where the sun is brilliant and irrigation is largely practised, we get the most intensely-coloured fruit? I do not think anyone will say that pale-coloured fruit is equal in point of flavour to that which is brilliantly-coloured. No Apples will prove this more conclusively than Cox's Orange Pippin or Blenheim Pippin. *E. Molyneux.*

THE MILD WINTER.—I am enclosing examples of shrubs and other plants in flower on New Year's Day in a garden two miles from the city of Birmingham. Some, such as the Veronicas and Arbutus, have been flowering for some time past; Primroses and Hepaticas are just throwing up their blooms. All varieties of Berberis, besides the two enclosed, are forward in showing their blossom, and I fear there will be a poor display at the proper season. Jasminum nudiflorum is flowering profusely in this district. *C. D. A., Birmingham.* [The specimens sent were Berberis Darwinii, B. japonica Bealii, Escallonia langleyensis, Menziesia purpurea, Helleborus niger, H. atrorubens, Veronica speciosa, V. salicifolia, Jasminum nudiflorum, Cassinia leptophylla, Arbutus Unedo, Viburnum Tinus (Laurestinus), Arabis albida fl. pl., and Hepatica triloba cœrulea.—EDS.]

BEGONIA LUXURIANS.

BEGONIA LUXURIANS is a native of Chili. It is not a showy species, but is worth cultivating on account of its distinct foliage. At the Edinburgh Botanic Gardens this Begonia is used for covering a back wall, and on account of its strong growth is well suited for this purpose. When grown as a pot plant it requires to be stopped frequently, otherwise the plant soon becomes bare at the base. An intermediate temperature is suited to its requirements.

The deep green leaves are serrated, about 3 inches to 6 inches long by nearly an inch broad; the under surface is quite glabrous, but stiff, short hairs are scattered over the upper surface, and both stem and leaf stalk are freely covered with hairs. The leaf stalks have a reddish tint and pointed membraneous stipules are found at the younger nodes. The flowers are small, of a creamy colour, freely produced on a branched inflorescence. *C. F. Ball.*

SOCIETIES.

ROYAL HORTICULTURAL.

JANUARY 9.—The first meeting of 1912 was held on Tuesday last in the Society's Hall at Westminster. The exhibition was a small one, but two Gold Medals were awarded, these being given to exhibits of fruit. The FRUIT AND VEGETABLE COMMITTEE also granted an Award of Merit to a new Pear raised by Messrs. JAS. VEITCH & SONS.

The exhibits of Orchids were again excellent, and the ORCHID COMMITTEE recommended one First-class Certificate and eight Awards of Merit to novelties.

The principal exhibits before the FLORAL COMMITTEE were Carnations, Camellias, and other greenhouse plants, including Ferns and Pelargoniums. The FLORAL COMMITTEE granted an Award of Merit to a variety of Carnation. There was no lecture on this occasion.

Floral Committee.

Present: Messrs. W. Marshall and Henry B. May (Chairmen); and Messrs. Jno. Green, H. J. Jones, Chas. Dixon, W. Bain, J. F. McLeod, J. Dickson, A. Turner, Herbert J. Cutbush, Charles E. Shea, Chas. E. Pearson, W. P. Thomson, E. H. Jenkins, W. J. James, G. Reuthe, C. Blick, J. Jennings, W. J. Bean, J. T. Bennett-Poë, Chas. T. Druery, E. A. Bowles, W. B. Crawfield, Walter T. Ware, Rev. F. Page-Roberts, W. G. Baker, James Hudson, and R. Hooper Pearson.

Messrs. WM. PAUL & SON, Waltham Cross, Hertfordshire, filled a corner of the hall with a group of Camellias in pots. The plants made a fine show and attracted much attention. In addition to such well-known sorts as alba plena, Donckelaari elegans, Eugene Massina, Lady Hume's Blush, fimbriata, and Apollo, there were several seedlings, principally with semi-double flowers. One of the finest of these was named Snowflake, but the neatest white single was Kotepe. (Silver-gilt Banksian Medal.)

Messrs. WM. CUTBUSH & SON, Highgate, London, filled a table with greenhouse flowering plants and Carnations. There were bright batches of Liliums, Ericas, Manettia bicolor, Begonias and Rhododendron præcox in a setting of Palms and Ferns, and a background of Orange trees in fruit. Next to these was a small rockery, on which we noticed the striking yellow Iris Danfordiæ shown splendidly. The Carnations were exhibited in large sheaves arranged in tall vases, the more noticeable varieties being Lord Rothschild (vinous-red), Mrs. Drummond Astor (a yellow-ground fancy flaked with deep rose) and Mrs. Lucy MacKinnon (a sweetly-scented flower of very large size). (Silver-gilt Banksian Medal.)

Messrs. JAMES VEITCH & SONS, LTD., King's Road, Chelsea, showed a splendid assortment of greenhouse flowering plants, the various subjects being mingled to produce the best colour effects. For instance, a charming combination was seen in a batch of the white Moschosma riparium set off with the rich blue-flowered Coleus thyrsoideus. Freesias in pale shades of yellow and cream blended well with the rich-red Begonia Winter Cheer, whilst Exacum macranthum (dark blue) associated well with Camellias. Besides those named, there were Azaleas, Daphne odora (indica) rubra, Manettia bicolor, Primula malacoides, and Rhododendrons of the javanico-jasminiflorum type. (Silver Flora Medal.)

Messrs. STUART LOW & Co., Bush Hill Park, Enfield, showed large pans of Cyclamen in distinct sorts, including Rose Queen, Salmon King, Giant White and Eileen Low (purplish-rose with white-tipped cresting). Intermingled amongst the Cyclamen were similar pans filled with Daphne odora (indica) rubra. Next to these were vases of Carnations, a prominent place being afforded the beautiful pink variety named Baronesse de Brienen. Other choice sorts were Scarlet Glow, Beacon, White Wonder, R. F. Felton, May Day, and Lady Alington. (Silver Flora Medal.)

Messrs. H. CANNELL & SONS, Swanley, Kent, showed Zonal-leaved Pelargoniums better than ever. The exhibit was a very extensive one, and embraced all the finer varieties in cultivation. (Silver Flora Medal.)

Messrs. H. B. MAY & SONS, The Nurseries, Upper Edmonton, showed exotic Ferns and a comprehensive collection of crested and plumose forms of hardy Polypodiums. Amongst these latter we noticed such choice varieties as P. vulgare cambricum, P. v. Prestonii, P. v. Barrowii, P. grandiceps Foxæ, P. g. Forsteri, P. g. Parkeri, P. multifidum, P. glomeratum, and P. trichomanoides. (Silver Flora Medal.)

Mr. L. R. RUSSELL, Richmond, displayed remarkably well-grown plants of Hamamelis (Witch Hazel) and Garrya elliptica. This exhibitor also had splendidly-bloomed Azaleas and a large batch of the pretty Primula malacoides. (Silver Banksian Medal.)

Messrs. ALLWOOD BROS., Wivelsfield, Haywards Heath, staged numerous fine Carnations, including Wivelsfield Wonder, which received an Award of Merit. Others of special merit were La Rayonnante (a splendid yellow variety of French origin), Fair Mount (heliotrope), White Wonder, Gloriosa, and Messrs. Fairbairn & Son's novelty, Geisha (a pretty flower of heliotrope shade). (Bronze Flora Medal.)

Mr. H. BURNETT, Guernsey, put up a splendid collection of Carnations of the perpetual-blooming type, flowers which he exhibits consistently well at all seasons. (Silver Flora Medal.)

Mr. C. ENGELMANN, Saffron Walden, showed a large group of the pretty pink Carnation named after Lady Northcliffe, the flowers being set off with Asparagus plumosus and A. Sprengeri.

Other exhibitors of Carnations were Messrs. W. WELLS & Co., Merstham, Surrey, who had White Wonder, White House, Merstham Beauty, Mrs. C. W. Ward, and others; Messrs. YOUNG & Co., Hatherley, Cheltenham, who showed a general collection; and Mr. E. GUILE, Newport, Essex, this exhibitor having a seedling named Lady Meyer, an addition to the already numerous pink varieties. (Bronze Banksian Medal.)

Messrs. SUTTON & SONS, Reading, exhibited Lachenalia pendula exceedingly well, the fine quality of the flowers being recognised by the award of a Cultural Commendation.

Messrs. BARR & SONS, King Street, Covent Garden, showed early bulbs in flower and a selection of Alpines in bloom.

Messrs. J. CHEAL & SONS, Crawley, Sussex, showed a small rock garden exhibit and models of garden seats, summer-houses, trellising, and garden gates.

The Misses. HOPKINS, Mere Gardens, Shepperton-on-Thames, showed a small rock-garden exhibit in which the sweet-smelling Petasites fragrans and the less pleasant Helleborus fœtidissima were conspicuous.

Messrs. JOHN PEED & SONS, West Norwood, exhibited a large number of Alpines in pots, and a similar exhibit was made by Mr. G. REUTHE, Keston, Kent.

AWARD OF MERIT.

Carnation Wivelsfield Wonder.—An Award or Merit was voted to this perpetual-flowering variety, which was figured in *Gardeners' Chronicle,* December 9, 1911, p. 424. The flowers are white with bright rose-coloured markings on the edges of the petals. Shown by Messrs. ALLWOOD BROS.

Orchid Committee.

Present: J. Gurney Fowler, Esq. (in the Chair); and Messrs. Jas. O'Brien (hon. sec.), Harry J. Veitch, Gurney Wilson, J. Wilson Potter, R. Brooman-White, de B. Crawshay, W. H. White, A. Dye, H. G. Alexander, J. E. Shill, W. H. Hatcher, J. Cypher, W. P. Bound, Walter Cobb, J. Charlesworth, A. A. McBean, T. Armstrong, F. J. Hanbury, C. H. Curtis, J. S. Moss, Stuart Low, Harry J. Veitch, and Sir Jeremiah Colman, Bart.

FRANCIS WELLESLEY, Esq., Westfield, Woking (gr. Mr. W. Hopkins), showed an admirable selection of new hybrid Cypripediums, including C. Little Gem, a model in form and good in colour; C. Memoria Mostynii, a fine yellow flower with white upper half to the dorsal sepal; C. Miss A. Willan, C. W. J. Mills, C. Duke of Argyll, all very good flowers; C. San-Actæus "Westfield" variety, and the very beautiful Lælio-Cattleya Mrs. W. Hopkins.

Sir JEREMIAH COLMAN, Bart. (gr. Mr. Collier), was awarded a Silver Banksian Medal for a group in which the fine Gatton Park forms of Lælio-Cattleya Epicasta were well represented. With them was a noble specimen of Dendrobium speciosum nitidum with many spikes, and which secured for Mr. Collier a Cultural Commendation; also Phaio-Calanthe Colmanæ rosea; Dendrobium superbiens violaceum, and others.

Messrs. SANDER & SONS, St. Albans, were awarded a Silver Flora Medal for a representative group containing some new hybrids and many rare species. Among the Cypripediums the most remarkable were the new C. Golden Oriole (insigne × Sanderianum × Dreadnought), which has all the fine size and shape of C. Dreadnought, but in colour is of a clear greenish-yellow with pure white upper half of the dorsal sepal, and a few faint purple lines up the middle; and the very attractive C. Jucundum (see Awards). In the centre of the group was an arrangement of the yellow and crimson Lælio-Cattleya Cappei with good forms of Lælia anceps and white Phalænopsis on each side; Phalænopsis Stuartiana, Odontoglossums, including a finely-blotched form of O. crispum Bonnyanum, and some good hybrids. Specially noteworthy among the species were Cypripedium caudatum Sanderæ, a yellow-tinted form of the C. caudatum Wallisii section, and with very long drooping petals; Cymbidium Ballianum ?, a form of C. eburneum with purple callus to the lip, said to be imported from Annam; the rare Sievekingia sauvis, Mormodes Lawrenceanum, Polystachya campyloglossa, Cymbidium Holfordianum; a very singular natural hybrid, apparently between Lælia anceps and a Barkeria; and several unknown species from Peru.

Messrs. ARMSTRONG & BROWN, Tunbridge Wells, were awarded a Silver Flora Medal for a pretty and interesting group in which their fine strain of Cattleya Maggie Raphael alba, which obtained an Award of Merit, were a leading feature. With them were arranged the large Cypripedium eboriacum "Orchidhurst variety," C. Yeno, C. Cupid (a very pretty hybrid); fine examples of the best forms of C. Leeanum, Odontoglossum eximium, O. amabile and other hybrids, Odontioda Bradshawiæ of a brilliant scarlet, Calanthe Bella, and the white C. Harrisii very finely grown and large plants of Masdevallia Schroderiana.

Messrs. JAS. VEITCH & SONS, Chelsea, were awarded a Silver Flora Medal for an effective group, the centre of which was of well-flowered plants of the pretty and fragrant Zygopetalum Mackayi, with showy Cypripediums, and Odontogossum crispum, on each side. Specially good were Cypripedium Iolanthe, C. insigne Sanderæ, and other forms of C. insigne.

Messrs. J. and A. A. MCBEAN, Cooksbridge, were awarded a Silver Flora Medal for an effective group, in the middle of which was a fine show of Lælia anceps Schröderæ, the best and richest in colour of any of the L. a. amesiana section, and of which about 27 spikes were staged, together with the large L. anceps Chamberlainiana and others. Good Odontoglossums, the rich red Odontioda Charlesworthii, the pretty Sophro-Cattleya Thwaitesii, the dark-coloured Cypripedium Memoria Jerninghamiæ, C. Earl of Tankerville and good Calanthes were also shown.

Messrs. STUART LOW & Co., Bush Hill Park, secured a Silver Flora Medal for a good and varied group, the centre of which was of Calanthe Veitchii and other Calanthes. Among the Cattleyas noted were the clear white C. Percivaliana alba, C. Trianæ alba, C. Maggie Raphael alba, and some light forms. Others noted were Dendrobium superbiens, Sophro-Cattleya Saxa, Angræcum arcuatum, Saccolabium bellinum, Masdevallia polysticta and other Masdevallias; Cypripedium Thalia, Mrs. Francis Wellesley, and other good Cypripediums; Lælio-Cattleya Cappei, and other hybrids, and Oncidium varicosum concolor.

Messrs. CHARLESWORTH & Co., Haywards Heath, were awarded a Silver Banksian Medal for a select group of good things. The novelty was Odontioda Schröderi (Bradshawiæ × Odontoglossum crispum), a fine flower of a rich red colour with white tips to the sepals and lip, and yellow crest. A good selection of hybrid and other Odontoglossums; Lælio-Cattleya Bella alba, L.-C. Ariel, L.-C. Andromeda, Cattleya Octave Doin, &c., were also included.

Messrs. J. CYPHER & SONS, Cheltenham, staged an excellent group of Cypripediums, for which a Silver Flora Medal was awarded. Cypripedium Mrs. Godman, C. Leoniæ Gratrixiæ, C. Leeanum Corona, C. L. Clinkaberryanum (seven flowers), C. Miss Camm, C. aureum Surprise, C. Curt-Mannii, C. Euryades splendens, and others were specially good. With them were the fine white Calanthe Harrisii, Lycaste lasioglossa, the white Cattleya Dusseldorfei Undine, and other Cattleyas, Masdevallia Bocking Hybrid and other Masdevallias.

Mr. E. V. Low, Vale Bridge, Haywards Heath, was awarded a Silver Banksian Medal for a small group of specially well-grown Orchids comprising Cypripedium Leeanum Clinkaberryanum, C. Tracyanum, and others with many flowers; C. The Nizam, C. Kismet, and C. Dryad, three good new forms; a clear white variety of Dendrobium Phalænopsis, Bulbophyllum Siamense and other good plants.

Sir TREVOR LAWRENCE, Bart., K.C.V.O. (gr. Mr. W. H. White), showed Maxillaria arachnites with many pale yellow flowers, Cypripedium semilunare, with a half-moon-shaped, white upper part to the sepal, Cypripedium Hera "Burford variety," and C. Eury-biades (Euryades × Alcibiades).

DE B. CRAWSHAY, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), showed the fine Cymbidium rosefieldiense (see Awards), Lælia anceps Schröderæ rosefieldiense, and L. a. S. Seuenacca, both of fine colour.

Lieut.-Col. Sir GEORGE L. HOLFORD, K.C.V.O., Westonbirt (gr. Mr. H. G. Alexander), sent Cattleya Peetersii "Westonbirt variety" (labiata G. G. Whitelegge × Hardyana alba), a beautiful white flower with deep-rose-coloured lip with gold veining; Cypripedium Bronzino (parentage unrecorded), with rich rose dorsal sepal edged with white and bronzy yellow petals and lip, the bronze hue extending over the dorsal sepal also; and C. nitens-Leeanum aureum, a good flower.

F. J. HANBURY, Esq., Brockhurst, East Grinstead, showed Cypripedium J. F. Alcock, a good hybrid of C. insigne Wallacei.

G. HANBURY, Esq., Blythewood, Burnham, (gr. Mr. Branson), showed two finely-flowered plants of the best form of Calanthe vestita, both the yellow- and red-eyed forms.

Earl STANHOPE, Chevening Park (gr. Mr. Sutton), showed Calanthe vestita grandiflora.

Messrs. HASSELL & Co., Southgate, were awarded a Bronze Banksian Medal for a group of hybrid Odontoglossums, Masdevallias, and Cattleyas.

AWARDS.

FIRST-CLASS CERTIFICATE.

Lælio-Cattleya Bella alba (L. purpurata × C. labiata, white variety), from Baron BRUNO SCHRÖDER, Englefield Green (gr. Mr. J. E. Shill).—One of the finest of Lælio-Cattleyas, and a magnificently-grown plant, the spike bearing six large flowers. The sepals and petals are pure white, and the lip rich crimson-purple, with some fine yellow lines from the base.

AWARDS OF MERIT.

Lælio-Cattleya Mrs. W. Hopkins (L.-C. Haroldiana × L. Iona nigricans), from FRANCIS WELLESLEY, Esq., Westfield Woking.—A pretty novelty of good shape, and distinct. Sepals Indian yellow; petals, broad, lighter yellow, flecked with rose; lip, plain-edged, glowing violet-crimson, and specially bright.

Cypripedium San-Actæus "Westfield variety," from FRANCIS WELLESLEY, Esq.—A charming flower. Dorsal sepal large, pure-white, with effective purple spotting. Lip and petals broad, yellow, tinged with purple.

Odontoglossum crispum "Queen of the Morn," from WALTER COBB, Esq., Normanhurst, Rusper (gr. Mr. C. J. Salter).—A grand flower of the best old type, white, flushed with lilac-rose.

Cypripedium Jucundum (Alcibiades × Veronica), from Messrs. SANDER & SONS, St. Albans.—A novelty of good size and delicate colour. Dorsal sepal snow-white with a small green base and beautiful dotted lines of rose-purple. Petals broad, white tinged with purple and with small purple spots, lip cream-white, tinged purple.

Cattleya Maggie Raphael alba "Orchidhurst variety" (Trianæ alba × Dowiana), from Messrs. ARMSTRONG & BROWN, Tunbridge Wells.—The two plants put before the Committee were representatives of a small batch of a very fine strain of this pretty winter Orchid raised by Mr. Armstrong. The flowers are of fine shape, pure white with magenta-crimson lip veined with gold colour.

Cymbidium rosefieldiense (grandiflorum × Tracyanum), from DE B. CRAWSHAY, Esq., Rosefield, Sevenoaks (gr. Mr. Stables).—One of the best Cymbidiums yet raised and intermediate between the plants. The broad sepals and petals are emerald green with uniform red spotting. The lip resembles that of C. Tracyanum; cream-white with some red-brown spots.

Cypripedium nitens-Beeckensis (nitens × Beeckmani), from J. GURNEY FOWLER, Esq., Glebelands, South Woodford (gr. Mr. J. Davis).—A very fine, bold flower with white dorsal sepal having a green base and large claret-crimson spots. Petals and lip yellow, tinged with reddish-brown, and shaped like C. Beeckmani.

C. Catiline (Mrs. Wm. Mostyn × Leonidas superbum), from the Duke of MARLBOROUGH, Blenheim Palace (gr. Mr. Hunter).—Flower large and of good shape. Dorsal sepal showing much of the rose-purple marking of C. Mrs. Wm. Mostyn, the upper third pure white. Petals and lip honey yellow, tinged purple.

Fruit and Vegetable Committee.

Present: J. Cheal, Esq. (in the Chair); and Messrs. C. G. A. Nix, H. S. Rivers, O. Thomas, G. Wythes, J. Jaques, G. Reynolds, H. E. Humphreys, W. Poupart, J. Lyne, H. Markham, A. W. Metcalfe, A. R. Allan, J. Willard, A. Dean, G. Woodward, E. Beckett, W. Bates, and G. Kelf.

Fruits of Apple Northern Spy, a variety which is said to be immune from attacks of American blight, were shown by two exhibitors.

Mr. G. WOODWARD, Barham Court Estate Gardens, Maidstone, Kent, showed unusually large and finely-finished fruits of Pear Passe Crassane. The fruits had been secured to the trees to prevent premature falling, and the roots had been well manured. (Cultural Commendation.)

Some 50 pot-trees of Orange, Lemon, Citron, and Lime, with quantities of gathered fruits of the same, were staged by Messrs. T. RIVERS & SONS, Sawbridgeworth. The chief varieties of Oranges were Maltese Blood, Bittencourt, St. Michael's, White Orange, The Egg, and Excelsior. Lemons included the White and Imperial varieties; there were also Sweet Limes and very large and solid fruits of Citrus. The exhibit was not only seasonable, but one of the best of the kind we have seen. (Gold Medal.)

Messrs. JAMES VEITCH & SONS, LTD., King's Road, Chelsea, staged a collection of 100 dishes of Apples from their Langley Nursery, the display occupying a long table. The fruits were of medium size, and many of them brilliantly coloured, including Gascoyne's Scarlet Seedling, Mrs. Phillimore, Parroquet, Baumann's Red Reinette, Norfolk Beefin, Mère de Ménage, Newton Wonder, Blue Pearmain, Lord Burghley, King of Tompkin's County, and Barnack Beauty. Other fine cooking varieties were Dumelow's Seedling, Northern Greening, Gloria Mundi, Lane's Prince Albert, Christie Manson, Royal Late Cooking, Bismarck, Royal Jubilee, Bramley's Seedling, Lady Henniker, Alfriston, Lord Derby, and Edward VII. Excellent dessert Apples were seen in Cox's Orange Pippin, Claygate Pearmain, Bowhill Pippin, Scarlet Nonpareil, Allington Pippin, Baxter's Pearmain, Reinette de Canada, Autumn Pearmain, Fearn's Pippin, Cornish Aromatic, and Manchester Pippin. (Gold Medal.)

F. BIBBY, Esq., Hardwicke Grange, Shrewsbury (gr. Mr. Taylor), set up a collection of 30 dishes of Apples and 8 dishes of Pears. The Pears included Josephine des Malines, Olivier de Serres, Glou Morceau, Easter Beurré, Bergamotte Esperen, and Beurré Rance. The best Apples were Mère de Ménage, Royal Jubilee, Gloria Mundi, Bramley's Seedling, Dumelow's Seedling, Lady Henniker, Alfriston, Annie Elizabeth, Charles Ross, Rymer, and Blenheim Pippin. (Silver Knightian Medal.)

Mrs. DENISON, Little Gaddesden, Berkhamsted (gr. Mr. Gentle), exhibited a collection of Potatos. The tubers were not extra large, but they were bright and clean-skinned. White varieties included Warrior, Windsor Castle, Excelsior, Factor, Royalty, Express, Long Keeper, Early Favourite, and Monarch. King Edward VII., Purple Eyes, Red Emperor, Exhibition Red and Invicta are good coloured varieties. (Silver Banksian Medal.)

Messrs. SUTTON & SONS, Reading, displayed choice vegetables, a prominent centre feature of the group being 12 heads of New Year's Savoy. Three mounds of Winter Mammoth Broccoli were also exceptionally fine, the curds being white and solid. April Cabbage, raised from seeds sown last July, had already firm, white hearts. Dwarf Gem Brussels Sprouts were excellent and Salads were represented by Dandelions and Endives. The collection included Couve Tronchuda, Reliance Savoy and dishes of Tender and True and Princess of Wales climbing French Beans. (Silver Knightian Medal.)

AWARD OF MERIT.

Pear Mrs. Seden (Seckle × Bergamotte Esperen).—The cross was made with the object of obtaining a late variety with the Seckle flavour. The fruits were comparatively small, yet large enough for dessert purposes, very pretty in form and brightly coloured. The flesh is soft, smooth and pleasantly flavoured.

NATIONAL SWEET PEA.

TRIALS FOR 1912.

The Committee of the National Sweet Pea Society will hold trials of Sweet Peas at the *Times* Experimental Station, Sutton Green, Guildford (conducted by Mr. Harry Foster), and at Burbage Experimental Station, Leicestershire (conducted by Major C. C. Hurst), in 1912. No Awards or Certificates will be granted to novelties unless they are sent for trial. For the novelty trials a charge of 5s. per variety will be made, and novelties will be accepted only from the raiser or introducer; 40 seeds of each

novelty must reach the Hon. Sec., Mr. C. H. Curtis, Adelaide Road, Brentford, Middlesex, not later than January 20, 1912. The seeds must be divided and placed in plain packets, 20 seeds in each, and every pair of plain packets representing one variety must bear the same number or letter for purposes of identification. With each set of seeds there must be a letter bearing the sender's name at the top, the number or letter of each variety sent, and, opposite such letter or number, the name of the variety (if any), the colour section to which it belongs, and (if orange or salmon) whether it should be shaded.

Sweet Peas will also be tested for purity at a charge of 10s. per stock or variety sent; not fewer than two dozen seeds should be sent, and the sender may elect to which set of trials these be sent.

The proceedings of the Floral Committee will be printed in the autumn of 1912, and a copy will be sent to every person or firm sending seeds to the trials.

FLORAL COMMITTEE FOR 1912.

The following gentlemen have been elected members of the Floral Committee for 1912:—Mr. Robt. Bolton, Commander Humphrey, Mr. George Herbert, Mr. Andrew Ireland, Mr. Thomas Jones, Mr. Alex. Malcolm, Mr. Herbert Smith, Mr. A. G. Stark and Mr. W. J. Unwin.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

DECEMBER 28.—*Committee present:* Rev. J. Crombleholme (in the Chair); and Messrs. R. Ashworth, C. Parker, Z. A. Ward, J. C. Cowan, J. Cypher, J. Evans, W. Holmes, A. J. Keeling, D. McLeod, and H. Arthur (secretary).

The following Medals were awarded for collections of Orchids:—

Silver Medals to W. R. LEE, Esq., Heywood (gr. Mr. Branch), for a group composed principally of Cypripediums; Z. A. WARD, Esq., Northenden (gr. Mr. Weatherby), for Odontoglossums and Cypripediums; R. LE DOUX, Esq., West Derby (gr. Mr. Fletcher); Col. J. RUTHERFORD, M.P., Blackburn (gr. Mr. Lupton), for a miscellaneous group; R. ASHWORTH, Esq., Newchurch (gr. Mr. Gilden), for a mixed group; J. MCCARTNEY, Esq., Bolton (gr. Mr. Holmes), for a general collection; Messrs. J. CYPHER & SONS, Cheltenham, for an excellent exhibit of Cypripediums; and Mr. J. EVANS, Congleton, for a small but choice group. *Bronze Medals* to Rev. J. CROMBLEHOLME, Clayton-le-Moors (gr. Mr. Marshall), for Cypripediums; the LIVERPOOL ORCHID Co., Gateacre, Liverpool, for Cypripediums; and O. O. WRIGLEY, Esq., Bury (gr. Mr. Rogers). A Cultural Commendation was granted to Mr. WRIGLEY. Other exhibitors were: S. GRATRIX, Esq., Whalley Range (gr. Mr. Brown); J. J. HOLDEN, Esq., Southport (gr. Mr. Johnson); H. J. BROMIELOW, Esq., Rann Lea (gr. Mr. Morgan); Messrs. A. J. KEELING & SONS, Bradford; Messrs. HASSALL & Co., Southgate; and W. SHACKLETON, Esq., Great Horton.

AWARDS.

FIRST-CLASS CERTIFICATES.

Odontoglossum crispum "Anami," O. c. Xanthotes variety "Golden Gem," and *Cypripedium Helen II. "Westonbirt" variety,* all shown by W. R. LEE, Esq. *Cypripedium Royal Sovereign* (Hera robustum × Urania, variety "Martin Cahuzac"), and *C. Helen II. "Westonbirt" variety,* both from S. GRATRIX, Esq.

AWARDS OF MERIT.

Cypripedium Magog ("Adrastus" × "Euryades splendens"), from S. GRATRIX, Esq.; *C. Aurora Borealis,* from J. J. HOLDEN, Esq.; *C. Bernal Bagshaw* (Alcibiades × Standard), *C. Hazel Vicars* (Lord Ossulston × Actæus Langleyense), and *C. Dora Jameson,* all from R. LE DOUX, Esq.; *C. Actæus Ashlandense Nos. 1 and 2* and *Odontoglossum Æsopus,* from RICHARD ASHWORTH, Esq.

GARDENING APPOINTMENTS.

Mr. H. FINCHER, for the past 4 years Foreman at Bettes-hanger Park Gardens, Eastry, Kent, and previously at Somerleyton, as Gardener to Captain TOWNSHEAD, Caldecote Hall, Nuneaton.

Mr. J. G. P. COCKS, as Gardener to L. SCHLENTHEIM, Esq., Cheam House, Cheam, Surrey.

MARKETS.

COVENT GARDEN, January 10.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—EDS.]

Cut Flowers, &c.: Average Wholesale Prices.

	s.d.	s.d.
Arums (Richardias)	2 6	3 0
Azalea, per dozen bunches	4 0	5 0
Camellias, per box of 18's and 24's	1 6	2 0
Carnations, p. doz. blooms, best American var.	2 0	3 0
— smaller, per doz. bunches	18 0	21 0
— Carola, crimson, extra large	5 0	—
Chrysanthemum sprays, all colours, per dz. bunches	6 0	10 0
— blooms p. doz: White	2 0	3 0
Yellow	2 0	3 0
Bronze	2 0	3 0
Pink	2 0	3 0
Eucharis, per doz,	2 6	—
Euphorbia pulcherrima (Poinsettia), per doz. blooms	10 0	12 0
Freesia refracta alba, p.dz. bun.	2 0	—
Gardenia, per doz.	6 0	9 0
Helleborus (Christmas Roses), p. dozen	1 6	2 0
Hyacinth (Roman), pr. doz. bnchs.	6 0	8 0
Lilium auratum per bunch	4 0	5 0
— longiflorum, long, per doz.	3 0	3 6
— short, per doz.	2 6	3 0
— lancifolium alba, long	2 0	2 6
— — short	1 6	2 0
— speciosum rubrum, dz. blooms: — long	2 0	—
— short	0 9	1 0
Lily of the Valley, p. dz.bunches: — extra special	15 0	18 0
— special	10 0	12 0
— ordinary	8 0	—
Marguerite, per doz. bunches: — Yellow	1 6	2 0
Narcissus, per doz. bunches: — Golden Spur	8 0	9 0
— Henry Irving	4 0	5 0
— Paper white	1 6	2 0
— Soleil d'Or	2 0	3 0
Orchids, Cattleya, per doz.	12 0	—
— Odontoglossum crispum	3 0	4 0
Pelargoniums, p. dz. bunches: — Double Scarlet	8 0	12 0
Roses, 12 blooms, — Bridesmaid,	3 6	4 0
— C. Mermet	3 6	4 0
— Liberty	5 0	6 0
— Mme. Abel Chatenay	5 0	8 0
— Niphetos	2 6	3 6
— Richmond	5 0	6 0
Tuberose, gross	6 0	—
— long, p. bunch	1 6	—
Tulips, per dozen bunches: — white	6 0	8 0
— yellow	7 0	9 0
— scarlet	8 0	10 0
— bronze	9 0	10 0
— pink	10 0	15 0
Violets, per dozen bunches	1 3	2 0
— Princess of Wales, per doz. bunches	3 0	4 0
— Parma	3 0	3 6

Cut Foliage, &c.: Average Wholesale Prices.

	s.d.	s.d.
Adiantum Fern (Maidenhair), best, per doz. bunches	6 0	8 0
Agrostis (Fairy Grass), per dz bunches	2 0	4 0
Asparagus plumosus, long trails, pr. ½ doz.	1 6	2 0
— medium, doz. bunches	12 0	18 0
— Sprengeri	10 0	12 0
Carnation foliage, doz. bunches	4 0	—
Croton foliage, various, per dozen bunches	12 0	15 0
Cycas leaves, artificial, per doz.	3 0	12 0
Eulalia japonica, per bunch	1 0	1 6
Moss, per gross	6 0	—
Myrtle, dz. bchs. (English), small-leaved	6 0	—
— French	1 0	—
Smilax, per bunch of 6 trails	1 0	1 3

Plants in Pots, &c.: Average Wholesale Prices.

	s.d.	s.d.
Aralia Sieboldii, p. dozen	6 0	7 0
Araucaria excelsa, per dozen	18 0	21 0
Asparagus plumosus nanus, per dozen	10 0	12 0
— Sprengeri	8 0	9 0
Aspidistra, p. dz., green	21 0	30 0
— variegated	30 0	60 0
Azaleas, per dozen	36 0	42 0
Chrysanthemum, in pots, white, per dozen	8 0	12 0
— Yellow, p. doz.		
— Pink, per doz.		
— Bronze, p. dz.		
Cocos Weddeliana, per dozen: — 60's	6 0	12 0
— larger, each	2 6	10 6
Croton, per dozen	18 0	30 0
Cyclamen, in 4½ inch pots (48's), per dozen	10 0	12 0
Cyperus alternifolius, per doz.	5 0	6 0
— laxus, per doz.	4 0	5 0
Dracæna, green, per dozen	10 0	12 0
Ericas, per dozen: — hyemalis	10 0	12 0
— alba	10 0	12 0
— melanthera	18 0	24 0
— white and pink, small	3 6	6 0
Ferns, in thumbs, per 100	8 0	12 0
— in small and large 60's	12 0	20 0
— in 48's, per dz.	6 0	—
— choicer sorts, per dozen	8 0	12 0
— in 32's, per dozen	10 0	18 0
Ficus elastica, per dozen	9 0	12 0
Geonoma gracilis, 60's, per dozen	6 0	8 0
— larger, each	2 6	7 6
Kentia Belmoreana, per dozen	5 0	42 0
— Fosteriana, 60's, per dozen	4 0	6 0
— larger, p. dozen	18 0	60 0
Latania borbonica, per dozen	12 0	30 0
Lilium longiflorum, per dozen	20 0	24 0
— lancifolium rubrum in pots, per dozen	15 0	18 0
— lancifolium alba	15 0	18 0
Marguerites, white, per dozen	8 0	10 0
Pandanus Veitchii, per dozen	36 0	48 0
Phœnix rupicola, each	2 6	21 0
Solanums	6 0	10 0
— white	10 0	12 0

Fruit: Average Wholesale Prices.

	s.d.	s.d.
Apples (English cookers, per bushel	4 0	5 0
— Cox's, per doz.	3 0	4 0
— Nova Scotian per barrel	14 0	24 0
— Wenatchee, per case	10 0	15 0
— Californian Newtowns, pr. case	9 0	13 0
— Oregon (Hood River), p. case	16 0	18 0
— Canadian, per barrel	20 0	—
— American, per barrel	19 0	13 6
Apricots (Cape), p. case	4 0	6 0
Bananas, bunch: — Doubles	10 0	12 0
— No. 1 „	8 0	10 0
— Extra	10 0	12 0
— Giant „	14 0	18 0
— Loose, per dz.	0 6	1 0
— Red coloured	5 6	6 6
— Jamaica Giants, per ton	£10	£12
— Jamaica Ordinary, per box (9 doz.)	4 0	5 0
Cranberries, per case (30 qts.)	10 0	11 0
— Cape Cod, per case (30 quarts)	9 6	—
Dates (Tunis) doz. boxes	4 6	5 6
Grape Fruit, case: — 96's	22 0	24 0
— 80's		
— 64's		
— 54's		
Grapes (English), per lb.: — Muscat of Alexandria	3 0	8 0
— Cannon Hall Muscat	3 0	8 0
— Black Alicante	1 0	2 0
— Gros Colman	1 0	2 6
— (Guernsey), Gros Colman	0 8	1 0
— (Belgian), Gros Colman, p. lb.	0 8	1 0
— Almeria, p. brl.	11 6	15 6
Lemons — (Naples), case	26 0	30 0
— Messina, per case	4 0	15 0
Limes, per case	4 0	—
Mangoes, per doz.	4 0	6 0
Nuts, Almonds, per bag	52 6	—
— Brazils, new, per cwt.	85 0	100 0
— Spanish, per sack	40 0	42 0
— Barcelona, per bag	35 6	36 6
— Chestnuts, per bag	3 6	19 0
— Cocoanuts (100)	18 0	23 0
— English Cobs per lb.	0 6	—
— Walnuts (Naples) kiln dried, cwt. cases	54 0	—
— French Grenobles, per bag	6 6	7 0
— Boeris, per bag	6 0	7 0
Oranges, Jamaica per case	9 0	11 0
— Californian	14 0	16 0
— Denia, case	12 0	33 6
— Valencia	12 0	—
— Jaffa, p. case	9 6	—
— Mandarins, per box	0 6	3 6
— Bitter, per ½ chest, 400 to 500	14 0	16 0
Peaches (Cape), pr. case	12 0	20 0
Pears (Californian), per case	10 6	16 6
— Glou Morceau	10 0	12 6
— Easter Beurré	8 0	—
— Winter Nelis	10 6	16 6
— Doyenné du Comice, per case	18 0	20 0
— White Comice	11 0	—
— (French), per crate	7 6	8 6
— (American) per barrel, 180 lbs.	25 0	26 0
— cases	7 0	—
Pineapples, St. Michael	2 9	6 0

Vegetables: Average Wholesale Prices.

	s.d.	s.d.
Artichokes (Globe), per dozen	3 0	4 0
— Ground, per ½ bushel	1 0	1 3
Asparagus, Sprue	0 9	—
— Cavaillon	3 0	—
— Paris Green	4 0	4 6
Aubergines, p. dz.	1 6	2 0
Beans, Madeira, per basket	5 0	—
— Guernsey, Dwarf, per lb.	2 0	2 6
Beetroot, per bushel: — Long	2 6	3 0
Brussel Sprouts, per ½ bushel	1 0	1 6
— half bags	2 0	2 6
Celeriac, per doz.	2 6	3 0
Cabbages (English), per tally	5 0	6 0
Cauliflowers, p. dz.	1 6	2 0
— (Italian), p. pad	1 6	2 0
— (Cornish), per crate	3 6	4 0
Celery, per. dozen bundles	8 0	12 0
— (washed), per dozen bundles	12 0	18 0
Carrots (English), pr. doz. bun.	2 0	3 0
— per cwt.	3 0	4 0
— (washed) p. bag	4 0	5 0
Chicory, per lb.	0 4	—
Cucumbers, p. doz.	12 0	18 0
Endive, per dozen	2 0	—
Greens, per bag	1 0	1 6
Herbs (sweet), pkts., p. gross	7 0	—
Horseradish, 12 bundles	11 0	12 0
Leeks, per doz.	2 0	2 6
Lettuce (French), per doz.	1 0	1 3
Mint, per dozen bunches	2 6	5 0
Mushrooms, cultivated, p. lb.	0 6	0 8
Mustard and Cress, per dozen punnets	1 0	—
Onions (Dutch) per bag	8 0	8 6
— English	9 0	9 6
— (Spanish), per case	8 0	8 6
Parsley, ½ sieve	1 0	1 6
— per doz. bun.	2 0	—
Parsnips, per bag	5 0	5 6
Radishes (English), per dozen	0 9	1 0
Rhubarb, forced, per 12 bundles	1 0	1 2
Savoys, per tally	5 0	8 0
Spinach, per bushel	4 0	7 0
Seakale, p. punnet	0 10	1 3
Tomatos (Canary Islands), per bundle	12 0	14 0
Turnips (English), per dz. bunches	1 6	2 0
— bags (washed)	4 0	4 6
— (unwashed)	3 0	3 6
Turnip Tops, per bag	1 6	2 0
Watercress, p. dz. bunches	0 6	0 6½

REMARKS.—Grapes are a limited supply, and are meeting with a moderate demand. Consignments of seedless Oranges received from California this week amounted to about 1,200 cases. The last shipments of Apples from Washington State are to hand. The total shipments of Apples from the Colonies this week amounted to 28,164 packages, including barrels, boxes and cases. Apricots and Peaches from the Cape arrived in an unsatisfactory condition. It is anticipated that next week about 8,000 boxes will arrive, including the first consignments of Plums and Pears. It is expected that the output of fruit from the "Rhodes" fruit farms will show a very considerable increase on past seasons' shipments. English Asparagus is now available. Tomatos from Teneriffe are a full supply and are meeting with a slow demand. Cauliflowers and Broccoli are a record supply, and in finer condition than they have been for many seasons past. Other vegetables are much in excess of the demand. A few days frost would no doubt cause an improvement in the vegetable trade. *E. H. R., Covent Garden, January 10, 1912.*

Potatos.

	per cwt. s.d. s.d.		per cwt. s.d. s.d.
Kents—		**Lincolns—**	
Queen's	4 0– 4 6	Maincrops ...	4 0– 4 3
Up-to-Date ...	4 0– 4 6	Blacklands ...	2 9– 3 3
Lincolns—		**Bedfords—**	
Up-to-Date ...	4 0– 4 6	Up-to-Date ...	3 9 4 0
British Queen ...	3 9– 4 6	Puritan	4 0– 4 3
King Edward ...	3 9– 4 3	**Dunbars—**	
Epicure	3 0– 3 6	Up-to-Date ...	4 9– 5 0
Northern Star ...	3 0– 3 9	Maincrop ...	5 3– 5 6
Evergoods ...	3 0– 3 9		

REMARKS.—Trade shows no improvement and consignments are still very large. Stocks in London are increasing. Prices promise to decline still lower. *Edward J. Newborn, Covent Garden and St. Pancras, January 10, 1912.*

Obituary.

M. ROWAN.—We regret to announce the death of Mr. Rowan, who was for many years an auditor for the Royal Gardeners' Orphan Fund.

WILLIAM BAILLIE.—Mr. William Baillie, of the Millfield Nurseries, Haddington, died on the 4th inst. at Haddington, aged 72 years. Mr. Baillie was a prominent public man, being a member of the Haddington Town Council; a bailie of the burgh; and dean of guild, also a member of the parish council and school board.

J. DOIG.—We regret to record the death of Mr. J. Doig, late of Warren House Gardens, Stanmore, and for several years gardener to E. J. Johnstone, Esq., Rougham Hall, Bury St. Edmunds, which occurred on January 6, at the Royal Tunbridge Wells Hospital, after a few days illness. The cause of death was blood poisoning, attributed to a scratch on the arm by a thorn.

ARCHIBALD GRAHAME.—The death of Mr. Archibald Grahame, formerly Superintendent of Hampton Court Gardens, occurred on the 6th inst., at his home at Hampton-on-Thames. Mr. Grahame had charge of the famous Hampton Court Gardens for a period of some 20 years, and on his retirement in 1897 was succeeded by Mr. J. A. Gardiner, now Superintendent of Hyde Park and Kensington Gardens.

A. R. BROWN.—The death of Mr. A. R. Brown, Superintendent and Garden Instructor of the Chertsey School of Handicrafts, occurred a few days ago. Deceased took great interest in the instruction of youths in the principles of horticulture, and during his long period of office, many hundreds of lads came under his tuition. Not only had each lad a plot to cultivate, but all had to work in association on the large area of land attached to the school. Mr. Brown had good training as a gardener, and this helped him in the position he filled so well. He was a keen supporter of the Royal Gardeners' Orphan Fund and the Gardeners' Royal Benevolent Institution.

ANSWERS TO CORRESPONDENTS.

BASIC SLAG AND CLUB ROOT: *Basic Slag.* Basic slag is useful to prevent land from getting infected with "Club Root," but it does not contain sufficient lime to check that disease when the ground has become infested. In the latter case, quick-lime should be applied at the rate of about 2 lbs. per square yard when the green crop is removed, and a dressing of half that amount should be repeated immediately before sowing or planting again. The land should be rested for as long a time as possible between two crops of the Brassica tribe.

BOILER: *E. W.* It will be advisable to lower the boiler as you suggest, or even to a greater depth if this is practicable.

CEDRUS ATLANTICA GLAUCA: *Perplexed.* It will be quite safe to transplant the specimen of Cedrus (14 feet high) if care be taken in carrying out the operation. Autumn and April are the best seasons to do the work. Lift the specimen with a good ball of earth attached to the roots, and be careful not to injure these latter. All bruised roots should be cut off with a sharp knife, not chopped off with a spade, as is too often practised. Spread the fibrous roots out in all directions, and work the fine soil between them. If the tree has to be conveyed any great distance the rootlets should be protected from drying winds by means of mats or tiffany bound round the ball of soil. Select mild, moist weather for transplanting, and give a good watering immediately after the operation is completed.

CHRYSANTHEMUMS: *E. T. W.* We assume that you require what are termed "decorative" varieties of Chrysanthemum. We enumerate 18 double-flowering varieties and 12 single varieties, which should provide blooms over a season of from three to four months. *Doubles:* La Pactole, Mme. Marie Masse, Horace Martin, Soleil d'Octobre, Market Red, Caprice du Printemps, Kathleen Thompson, Source d'Or, Mrs. Roots, Foxhunter, Moneymaker, December Gold, Alice Byron, Princess Victoria, Yellow Victoria, White Cheer, Mdlle. Louise Charvet, and Maud Jefferies. *Singles:* Ladysmith, Miss Mary Pope, Kitty Bourne, Hilda Lawrence, Mary Richardson, Altrincham Yellow, Edith Pagram, Bronze Pagram, White Pagram, Mr. H. Williams, Sylvia Slade, and Merstham Jewel.

GARDENER'S NOTICE: *British Nurseryman.* (1) In our opinion an employer is not justified in putting an employee on "short time" and accordingly deducting from the agreed weekly wages unless and until the old agreement for service is finished and a new one began on the fresh terms. For instance, if a servant is subject to a week's notice and is informed by the employer that the new conditions will come into effect in a week's time, then the fact that the servant continued in the situation would imply that he had entered into a new contract of service on the fresh terms, and the deductions would therefore be quite legal and reasonable. (2) The week's notice to terminate the contract of service can be given at any time by either party, and there is no necessity to wait until the end of the week or other pay-day. (3) The best book for your purpose is *The Art and Craft of Garden Making*, by Thomas H. Mawson, which can be obtained from our publishing department, price, including postage, 35s. 8d.

HELIOTROPE: *H. S. Wilton.* Stand the flowers in a cool, dark place, and cut off the ends of the stems each morning.

HERRING BOXES: *E. F. C.* The boxes used for plants are about 16 inches long, 12 inches wide, and 8 inches deep. They are made of boards ½ inch thick, and the boards forming the bottom are fixed sufficiently far apart to admit of surplus water passing through when applied at the roots of the plants. The boxes may be obtained from any fishmonger at from 1s. 9d. to 2s. per dozen. We have seen early Tomatos cultivated successfully in herring boxes placed on shelves suspended from the rafters on either side in Cucumber houses 15 feet wide; the shelves were supported by 2-inch square upright posts fixed at short intervals with a narrow strip of 1 inch board, the same width of the shelves, nailed on the top of each so as to relieve the roof of the weight of the shelves and boxes. Potsherds to the depth of 1 inch should be placed in the bottom of each box, following this with a layer of half-rotten manure as much to keep the drainage clear as for providing food for the plants. The boxes should be only half filled with the compost, and the plants should be planted at 3 inches from the ends of the individual boxes, two plants being set in each box. Afterwards top-dress with the same kind of compost as the plants extend in growth and roots are produced from the stems. Stop the plants when they have shown three or four good clusters of flowers, and after the fruit has set give liberal supplies of weak liquid manure at the roots in addition to occasional surface-dressings of an approved fertiliser. With regard to the other matter you refer to, we need only say that your seedsman would be able to procure for you the two new vegetables mentioned in our issue for December 30, p. 470. Model Carrot is well known to most gardeners, and you appear to know where to obtain it.

IRIS SUSIANA: *W. R.* An article on the cultivation of this Iris is given on p. 19 of this issue.

LAPAGERIA ALBA: *J. C.* Flowers of Lapageria alba often assume a blush tint, especially when the plants are afforded cool treatment.

NAMES OF PLANTS: *J. M.* The fruit is that of the Black Walnut (Juglans nigra), the leaf probably Sweet Chestnut (Castanea sativa). The specimens could not possibly be from the same tree.—*W. S.* Cattleya Trianæ.—*Constant Reader.* The variegated form of Hibiscus rosa-sinensis known in garden as Hibiscus Cooperi.—*T. T.* 1, Epidendrum floribundum; 2, Oncidium barbatum; 3, Pleurothallis macroblepharis; 4, Oncidium flexuosum.—*Scot.* 1, Chimonanthus fragrans; 2, next week; 3, Begonia subpeltata rubra; 4, B. s. argentea; 5, B. incarnata; 6, B. multiflora rosea. All these Begonias are garden forms.

ORCHIDS DISEASED: *Weekly Reader.* The Orchids are attacked by the Cattleya Fly (Isosoma orchidearum). The yellow maggots escape and pupate in moss, &c., leaving behind small, round exit holes. If the Orchid is a valuable one, the swellings formed by the larvæ may be lanced by a sharp-pointed knife to kill the grubs.

ORCHIDS UNHEALTHY: *K. E. M.* The injury to the Cattleyas has been caused by too much moisture with a falling temperature in the evening. The leaf of Vanda has been scorched. In the other plants the trouble is due to excessive moisture at the roots.

PLANTS FOR A COLD GREENHOUSE: *E. T. W.* The following plants should live in a cold greenhouse without any fire heat and withstand a little frost. All are perennials, and most of them are dwarf evergreens:—Choisya ternata, Phormium Tenax, Fatsia japonica (Aralia Sieboldii), Deutsia gracilis, Dracæna australis, Agapanthus umbellatus, Rhododendron indicum (Azalea indica) in variety, Bambusa nigra and B. aurea, Acacia armata, Campanula pyramidalis, Himalayan Rhododendrons, Daphne odora (indica) and the variety alba, shrubby Veronicas, Lapageria alba (climber) and L. rubra (climber), Orange, Lemon, Citron, Myrtles, and Tecoma radicans (climber). In addition to those mentioned above Yuccas would thrive in a cold greenhouse, as would also Crinums and Funkias and British Ferns, but the Ferns would die down in winter. Many of the dwarf polyantha Roses would flower during a good portion of the year and keep quite dwarf. The following books may be useful: *The Amateur's Greenhouse*, by T. W. Sanders, price 5s. 4d.; *Gardening in Town and Suburbs*, by H. H. Thomas, price 2s. 9d.; and *The Book of the Greenhouse*, by J. C. Tallack, 2s. 9d.; all obtainable from our publishing department; the prices quoted include postage.

SWEET PEAS FOR EXHIBITION: *G. T.* The main points to observe are good tillage and thin planting. In most gardens all annuals are grown too thickly together. Think of the Sweet Pea plant as capable of forming a bush if well cultivated and properly staked. Your gravelly subsoil should not require extra drainage. The manures you mention, omitting the horseflesh, will be helpful, or cow manure well decayed would be better than the bones. Respecting the depth necessary for the roots, you will find a note on the subject in this column of last issue. Further details on the subject of Sweet Peas for exhibition you will find in the volume by Mr. Horace J. Wright and Thomas Stevenson, entitled "*Sweet Peas*" (Present-day Gardening series), price 1s. 9d., post free, from our publishing department.

TENNIS COURT AND CROQUET GROUND: *Ignoramus.* Particulars as to the dimensions of a tennis court and a croquet ground were given in the issue for August 27, 1910, p. 172.

Communications Received.—F. T. T.—A. D. S., Belgium—G. G.—W. R. R.—J. B. A.—T. H.—E. S.—W. J. V.—J. B. M., Scotland—R. A. M.—Iris—A. E. T. R.—Enquirer—W. B. & Sons—H. G. A.—W. H. W., Derby—F. J. C.—W. E. B.—S. H. S.—W. H. B. F., Bognor—Out-of-work Gardener—C. G.—A. C. B.—J. H.—W. A., Penrith—J. E. C.—J. A. T.—G. M. T.—W. J. K.—G. F.—W. R. D.—G. F. B., Sidcup—Mrs. I. S. E.—International Horticultural Exhibition—T. S.—C. F. M.—W. H. J.—S. A.—C. P.—A. G. B.—W. P.

GARDENERS' BENEVOLENT: RESULT OF ELECTION.

THE GARDENERS' CHRONICLE

ESTABLISHED 1841

No. 3708

No. 1,308.—Vol. LI. {THIRD SERIES.} SATURDAY, JANUARY 20, 1912. {Registered as a Newspaper. WITH SUPPLEMENT: PRICE 3d. POST-FREE, 3½d.

SUBSCRIPTION—Inland, 15/-; Foreign, 17/6 [22fr. 10c.] [$4 26c.] per annum. Entered at the New York Post Office as second-class matter.

Postal Address—41, Wellington Street, Covent Garden, W.C. Telegraphic Address—"Gardchron, London." Telephone—Gerrard, 1543.

☞ For CONTENTS see page 33.

Sow Now—Under Glass.

WEBBS' EARLY FAVOURITE PEA, 2s. per pint; 3s. 6d. per quart.

Mr. A. TUMMEY, Head Gardener to Sir Thomas Barclay, writes:—"Your New Early Favourite Pea did remarkably well with me. It is a strong, robust grower and very heavy cropper, whilst the flavour is excellent. It is the best Dwarf Pea I have ever grown."

WEBBS BOUNTIFUL CUCUMBER, 1s. 6d. and 2s. 6d. per packet.

Mr. W. STRUGNELL, Head Gardener to The Right Hon. W. H. Long, M.P., writes:—"Bountiful Cucumber has a beautiful outline, refreshing colour, and handsome shape, as good for table as it is for exhibition."

WEBB & SONS, The King's Seedsmen, WORDSLEY, STOURBRIDGE.

BARR'S SEED GUIDE FOR 1912 contains a select List of the best VEGETABLES, and the most beautiful ANNUALS and PERENNIALS for Garden and Greenhouse, including many fine Novelties of Sterling Merit. Sent free on application.
BARR & SONS, 11, 12 & 13, King St., Covent Garden, London.

BARR'S REMOVAL SALE OF HARDY PLANTS.—Clearance List of surplus plants at greatly reduced prices (prior to removal of nurseries from Surbiton to Taplow), sent post free on application.
BARR & SONS, 11, 12 & 13, King St., Covent Garden, London.

PERPETUAL FLOWERING CARNATIONS—My stock is the largest in Europe; Inspection invited. Export to the Colonies a speciality. Catalogue free on application.
C. ENGELMANN, Saffron Walden.

GISHURST COMPOUND is harmless in use; its soluble Sulphur, &c., has for 40 years cured Blights and Fungus on Plants, and is good for washing unhealthy dogs. Gishurstine keeps boots dry in all weathers; they will polish. Good for Harness.
Wholesale from—
PRICE'S PATENT CANDLE CO. LTD., London.

THE Popularity of "XL ALL" Specialities increases every year. All gardeners proclaim that nothing equals these celebrated preparations. "XL ALL" NICOTINE VAPORISING COMPOUND, the gardeners' favourite Fumigant, both Liquid and Cake. "XL ALL" NICOTINE INSECTICIDE WASH for Syringing, Dipping and Dressing Fruit Trees and Plants; Mealy Bug, Scale, etc., cannot exist where this is used. "XL ALL" INSECTICIDE WASH B (*sine* Nicotine), best non-poisonous Wash on the Market. No licence required to sell this. Other preparations of great renown, both poisonous and non-poisonous, are:—"XL ALL" WEED KILLER, "XL ALL" FERTILISER, "XL ALL" WINTER WASH for Fruit Trees, RICHARDS' BANDING GREASE, etc. Don't forget to ask your Nurseryman, Seedsman or Florist for Richards' small pink list.—G. H. RICHARDS, Manufacturer, 234, Borough High Street, London, S.E.

POULTRY and KENNEL APPLIANCES of every description. Write for latest Catalogue free on application.
BOULTON & PAUL, Ltd., Norwich.

WM. DUNCAN TUCKER & SONS, Ltd., 27, Cannon Street, London, E.C.; Works, Tottenham. Conservatories, Winter Gardens, Vineries, Peach-houses, Portable Buildings, etc. Catalogue gratis.

AUTO SHREDS FUMIGANT kills Leaf-mining maggot, insects in greenhouses, frames. For 1,000 cubic feet, 6d.; 10,000, 3s. 6d. No apparatus.
WM. DARLINGTON & SONS, Patentees, Hackney, N.E.

Sow Now Under Glass.

SUTTON'S SELD. AILSA CRAIG ONION. Per packet, 1s. 6d. & 2s. 6d., post free.

Mr. A. W. LETTS, Leamington, writes:—"I have grown your Selected Ailsa Craig Onion for 14 years, winning many prizes, and having no failures. The keeping qualities are all that can be desired."

SUTTON & SONS, The King's Seedsmen, READING.

IRON & WIRE FENCING for GARDENS, Tree Guards, Gates, Arches, Espaliers, Rose Stakes, and Ornamental Garden Iron and Wire Work of every description. Send for Illustrated Catalogue, free.
BOULTON & PAUL, Ltd., Manufacturers, Norwich.

PRIVATE COLLECTION OF ORCHIDS for Sale, property of Executors of the late James Douglas, V.M.H., containing over 70 Cypripediums, about 150 Lælio-Cattleya and Cattleyas, 50 Lælio anceps, including fine varieties of Chamberlainiana, Sanderiana, Schroderiana, Bull's alba, etc., about 60 various Dendrobiums, Vandas, etc. On view by appointment.
JAMES DOUGLAS, Edenside, Gt. Bookham.

ALPINES AND PERENNIALS. Rare Rhododendrons and other Shrubs, Daffodils and Bulbous Plants; Construction of Rockeries. Catalogues ready
G. REUTHE, Keston, Kent.

BUNYARD'S CATALOGUES, free on application.

FRUIT TREES AND VINES.

SHRUBS AND CONIFERS.

ROSES AND OTHER CLIMBERS, in Pots.

HERBACEOUS & AQUATIC PLANTS for Autumn planting.

GEORGE BUNYARD & CO., LTD., Royal Nurseries, Maidstone. Established 1796.

WELLS' CATALOGUE OF CHRYSANTHEMUMS, Perpetual Carnations, Herbaceous Plants, Alpine and Rock Plants, now ready, post free on application. Wells' Book, "The Culture of the Chrysanthemum," post free, 1s. 6d.
W. WELLS & CO., Merstham, Surrey.

Roses and Herbaceous Plants.

GUNN & SONS were awarded the 25 Guinea Challenge Cup in each collection at the Leamington Show. Up-to-date List for each now ready. Address: Olton, Warwickshire.

OSMUNDA for Orchids.—Consignments arrive fortnightly. 2s. 6d. per bushel; per bag, 8s. 6d.
SANDER & SONS, St. Albans.

LANDSCAPE GARDENING.—W. INNES STUCKEY, Landscape Gardener, Piccadilly Mansions, Piccadilly Circus, W. (With the late Mr. H. E. Milner).

WALTERS & CO., Morland Rd., Croydon, Makers of Lath Roller Greenhouse Blinds; Trellis Screens and Fences, Arches, Arbours, Rose Pillars. Established over 20 years. Catalogues free.

FIDLER'S NEW ILLUSTRATED CATALOGUE of CHOICE GARDEN SEEDS will be sent post free to any address on receipt of postcard. Write at once for a copy; it may help you to save 50 per cent. on your seed bill this season.
FIDLER & SONS, Royal Berkshire Seed Stores, Reading.

For Advertisement Charges see page xii.

KELWAY'S "Manual of Horticulture" is the best of all Garden Books, 2s., post free. From ——, Esq., Northwood, Middlesex, September 28th, 1911: "I find that I have never forwarded 2s. for your lovely Catalogue you sent me some weeks since. It would be cheap at five times the price, and I sincerely regret the oversight."—KELWAY & SON, Langport, Somerset.

THE MODERN HERBACEOUS BORDER.—Full particulars and prices of Kelway Borders packed, arranged for planting, to flower in tasteful schemes of colour, from—KELWAY & SON, The Royal Horticulturists, Langport, Somerset. "—— Palace, W., December 28th, 1911 (the year of great drought). The new herbaceous border has done *extremely well*—much better than Her Royal Highness anticipated."

CHRYSANTHEMUMS.—Descriptive Catalogue of choice up-to-date varieties and novelty list for 1912, sent free. Apply
H. W. THORP, Durrington, Worthing.

New Phloxes.

GUNN & SONS were Awarded a Silver Cup at the Great Show at Olympia. New Lists now ready. Address: Olton, Warwickshire.

DICKSONS Horticultural Manure & other high-class Fertilizers; also Dicksons Improved Mushroom Spawn. Priced Circulars free on application to DICKSONS, Royal Seed Warehouses & Nurseries, Chester

GREENHOUSE PAINTING & GLAZING "Vitrolite" superior to White Lead Paint, 9/- per gall. "Plastine" supersedes Putty, 16/- per cwt. Full particulars from W. CARSON & SONS, Grove Works, Battersea.
Agents throughout the country.

BATH'S SELECT SEEDS.—New Illustrated Catalogue of Choice Vegetable and Flower Seeds, with full cultural notes, is now ready, and will be sent post free on application.
(Dept. A), R. H. BATH, Ltd., The Floral Farms, Wisbech.

CROLL'S ROSES.—Catalogues now ready, and post free on application.
D. & W. CROLL, 63, Commercial Street, Dundee.

LAXTON'S NEW SEED CATALOGUE for 1912, descriptive and fully illustrated, including grand new "Laxtonian Pea," and many other novelties, gratis on application.
LAXTON BROS., Seed Merchants, Bedford.

GARDEN PESTS.—Cross's "Clubicide" is the Gardeners' Insurance against damage by Eelworm, Wireworm, Slugs, Maggot, and all Disease Germs and Insect Pests. Kills all harmful Bacteria, reinvigorates the soil, stimulates plant life. In 1s. flasks and ½-gall. and 1 gall. drums. From all Seedsmen.
Sole Manufrs.: A. CROSS & SONS, Ltd., Glasgow.

FRUITING VINES IN POTS.—Muscat of Alexandria, and leading Market varieties. We make Vines a speciality.
G. COLEMAN, The Vineries, Burgess Hill, Sussex.

THE COMING OF THE SPRING reminds you of the importance of sowing the Best Seeds. These are John K. King & Sons', grown on their great Essex Seed Farms.

THE COMING OF THE SPRING.—Send for John K. King & Sons' Manual of Gardening for 1912, the best Seed Book of the year, replete with cultural instructions, charming illustrations, and correct descriptions—post free on application.
JOHN K. KING & SONS, Seed Growers to H.M. The King, Coggeshall, Essex.

SALES BY AUCTION.

Rose Trees, Shrubs, Fruit Trees, Lilies, Perennials.

MR. J. C. STEVENS begs to announce that his Sales by Auction are held every

MONDAY and WEDNESDAY,

at 12.30.

Catalogues post free.

Lots purchased, packed and forwarded to all parts.

STEVENS' AUCTION ROOMS

(Established 150 Years),

38, King St., Covent Garden, London, W.C.

Monday, Wednesday and Friday Next.

MONDAY and FRIDAY NEXT, JANUARY 22nd and 26th, at 12 o'Clock.—Japanese Liliums, Gladiolus, Montbretias, Begonias, Gloxinias, Lily of Valley, &c., Herbaceous Plants, Flowering and Decorative Shrubs, Spiræas, Iris, Pæonies, &c.

At 1.30 o'Clock.—2,000 ROSES, Standard, Dwarf, Climbing, &c., also Fruit Trees in variety, Azaleas, and Rhododendrons.

WEDNESDAY NEXT, JANUARY 24th, at 12 o'Clock.—Choice Herbaceous Plants, Perennials, and Rock Plants, Lily of Valley, Gladiolus, Begonias, Japanese Lilies and Iris, Carnations, Pinks, Pæonies, &c.

At 1.30 o'Clock.—8,000 ROSES, English, French, and Dutch grown, comprising Standard, Dwarf, Climbing, T., H.T., and H.P., together with Standard, Pyramidal, and Dwarf-trained Fruit Trees.

At 5 o'Clock.—Azaleas indica and mollis, Rhododendrons, Aspidistras, Standard Bay, Ornamental, and Decorative Palms and Plants from Belgium, also Stove and Greenhouse Plants in variety.

MESSRS. PROTHEROE & MORRIS will SELL the above by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, E.C. On view mornings of Sale and Catalogues had.

Wednesday Next, January 24th, at 12 o'Clock.

Trade Sale of thousands of miscellaneous Hardy Bulbs, Roots, and Forcing Plants, Gladiolus, Begonias, Gloxinias, Hyacinthus Candicans, Hardy Lilies, Spiræas, Crozy Cannas, &c., 40,000 Berlin Crowns Lily of the Valley, 1,500 choice young Fruit Trees of approved varieties, suitable for trade requirements.

At 2.30 o'Clock,

A consignment just to hand of

1,750 CASES JAPANESE LILIUMS,

comprising

65,400	LILIUM AURATUM.	
825	,, ,,	PLATYPHYLLUM.
400	,, ,,	RUBRO-VITTATUM.
230	,, ,,	WITTEI.
21,410	,, SPECIOSUM	ALBUM.
25,735	,, ,,	RUBRUM.
7,825	,, ,,	RUBRUM MAGNIFICUM.
6,320	,, ,,	MELPOMENE.
3,650	,, LONGIFLORUM	EXIMEUM.
2,750	,, ,,	GIGANTEUM.
1,830	,, TIGRINUM	FORTUNEI.
660	,, MACRANTHUM.	

4,750 JAPANESE IRIS, 280 HERBACEOUS PÆONIES and P. MOUTAN.

MESSRS. PROTHEROE & MORRIS will SELL the above by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, E.C. On view morning of Sale and Catalogues had.

Friday Next, January 26th, at 12.45 o'Clock.

By order of Messrs. Sander & Sons, St. Albans.

A grand lot of choice imported Dendrobiums in fine condition, comprising D. Nobile, the famous Lang Tang variety, D. Wardianum giganteum, D. Primulinum, D. Falconeri, D. Crassinode, D. Thrysiflorum, D. Devonianum, D. Brymerianum, and D. Chrysotoxum. Choice established cool, intermediate, and hothouse Orchids in variety from various sources. Orchids in flower and bud.

MESSRS. PROTHEROE & MORRIS will SELL the above by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, E.C. On view morning of Sale and Catalogues had.

The Nurseries, South Woodford.

Important Four Days' Sale of well-grown Nursery Stock, by order of Mr. John Fraser.

MESSRS. PROTHEROE & MORRIS will SELL by AUCTION on the above premises on TUESDAY, JANUARY 30th and three following days, at 11.30 o'Clock each day, thousands of Evergreen and Flowering Shrubs, Ornamental Trees, Fruit Trees, Rhododendrons, Hollies, Climbing Plants, Standard and Climbing Roses, Hardy Herbaceous and Rock Plants. Lotted to suit all buyers. May be viewed. Catalogues had on premises, and of the Auctioneers, 67 and 68, Cheapside, E.C.

BUSINESSES FOR SALE, &c.

PENRITH (Main line, London and North-Western Railway).—For Sale, owing to ill health of proprietor, a genuine NURSERY, MARKET GARDEN and FLORIST'S BUSINESS, with or without shop in town; established 60 years; grounds of about seven acres; one mile from town; five glasshouses, practically new, modern heating arrangements; quantity of frames; varied and general stock of growing plants, florists' requisites, &c.; shop in central position; total valuation £1,500; offers invited for quick sale; splendid opportunity for energetic man with moderate capital.—Full particulars from THORNBORROW & CO., St. Andrew's Churchyard, Penrith.

FOR SALE, with immediate possession, in well-known growing district, 14 miles from London and 10 minutes from rail and tram, FREEHOLD NURSERY, comprising 4½ acres of land with 2,100 feet run of good glasshouses, fully heated with boilers and hot-water pipes; also good packing shed, &c.; part could remain on mortgage.—M. P., Box 1, 41, Wellington Street, Covent Garden, W.C.

NURSERY BUSINESS (Midlands); splendidly situated in excellent Market centre; 11 glasshouses (heated), &c; genuine; low price.—WARRINGTON BENNETT, Warwick Road, Kenilworth.

OWNER GOING ABROAD.—Capital FREEHOLD NURSERY, situate in an important town in Warwickshire; facing main line station; four capital greenhouses, and large show house; excellent stock; shop could be rented in town if desired for sale of produce; price as a going concern, £900.—Full particulars of Messrs. PROTHEROE & MORRIS, 67, Cheapside, E.C.

BUSINESSES TO LET.

TO LET.—NURSERY, 1¼ acre, Market Town 10,000; fine range glass, 400 feet, planted Peaches, &c.; stock small; rent moderate, including dwelling house, five rooms.—"PERSICA," Box 14, 41, Wellington Street, Covent Garden, W.C.

BUSINESSES WANTED.

WANTED to RENT, one to two acres of good land, with cottage, 2 to 300 feet run of glass; Sussex or Surrey.—Full particulars to RILEY SCOTT, Station Nurseries, Horsham.

PARTNERSHIPS.

WANTED, WORKING PARTNER in large Nursery in Northern Provinces; now growing Cut Flowers and Pot Stuff in variety for Wholesale Market; an experienced practical grower with exceptional references and recommendations essential; no capital requisite.—Address, H. F., Box 15, 41, Wellington Street, Covent Garden, W.C.

BUSINESS CARDS.

PROTHEROE AND MORRIS, HORTICULTURAL, MARKET GARDEN, and ESTATE AUCTIONEERS and VALUERS, 67 and 68, Cheapside, London, E.C., and at Leytonstone, E. Monthly Horticultural Register had on application.

BRITISH COLUMBIA.—A practical Man will be pleased to send particulars, gratis, to anyone requiring information on climate and soils for Fruit Growing, &c.—Address, H. WHITING, F.R.H.S., Kettle Valley Irrigated Fruit Lands, Ltd., Rock Creek, British Columbia.

TENDERS.

Willesden District Council.

THE WILLESDEN DISTRICT COUNCIL are prepared to receive Tenders for the supply and planting of about 325 Trees upon the various highways in the district of Willesden. Copies of conditions and forms of Tender may be obtained on and after Monday, January 15th, 1912, upon application to Mr. O. Claude Robson, M.Inst.C.E., Engineer to the Council, Public Offices, Dyne Road, Kilburn, N.W. The Tenders endorsed "Tender for Trees" to be delivered at the offices of the Council not later than 4 p.m. on Tuesday, January 23rd, 1912. A £10 note to be deposited with each Tender under separate cover, which will be returned to all unsuccessful contractors immediately Tenders are accepted, and to the successful contractor after execution of contract and bond. The Council do not bind themselves to accept the lowest or any Tender.

By order,
STANLEY W. BALL,
Clerk of the Council.

Public Offices, Dyne Road, Kilburn, N.W.
January 9th, 1912.

PUBLISHERS' NOTICES.

KYNOCH'S "Wild Flowers of Barmouth," fourth edition, including Salwey's Scarce List, Habitats and Notes, published 1863, pp. 50, price 6d.—J. KYNOCH, 8, College Road, Brighton.

Pronunciation of Plant Names.

A few copies are still to be had. Post free, **1/1½.**

Present-Day Gardening.

Edited by R. HOOPER PEARSON, Managing Editor of the GARDENERS' CHRONICLE. Now Ready. Post free, **1/9** each.

Numerous Beautifully Coloured Plates are contained in Each Volume.

1.—**Sweet Peas.** By HORACE J. WRIGHT, late Secretary and Chairman of the National Sweet Pea Society. With Chapter on "Sweet Peas for Exhibition," by THOS. STEVENSON.

2.—**Pansies, Violas, and Violets.** By WILLIAM CUTHBERTSON, J.P., and R. HOOPER PEARSON.

3.—**Daffodils.** By the Rev. J. JACOB.

4.—**Orchids.** By JAMES O'BRIEN, V.M.H., Secretary of the Orchid Committee of the Royal Horticultural Society.

5.—**Root and Stem Vegetables.** By ALEXANDER DEAN, V.M.H., Chairman of the National Vegetable Society.

6.—**Carnations and Pinks.** By T. H. COOK, Head Gardener at Sandringham; JAMES DOUGLAS, V.M.H., and J. F. McLEOD, Head Gardener to Mr. Pierpont Morgan. Contains 8 full-page coloured plates.

7.—**Rhododendrons and Azaleas.** By W. WATSON, with preface by Sir F. W. MOORE, M.A. (the first popular volume published on this subject). Contains 8 full page coloured plates.

8.—**Lilies.** By A. GROVE, F.L.S., with preface by H. J. ELWES, F.R.S. Contains 8 coloured plates.

9.—**Apples and Pears.** By GEORGE BUNYARD, V.M.H. Contains 8 coloured plates.

10.—**Roses.** By H. R. DARLINGTON, with 8 full-page coloured plates. A double volume, price **2/10**, post free. Special presentation edition, with beautiful cover design, in cloth gilt, gilt top, price **3/10**, post free

THE PUBLISHER,
"Gardeners' Chronicle" Offices, 41, Wellington St., Covent Garden, London, W.C.

Ready on January 19th.

'THE POULTRY WORLD'

One Penny weekly. Greatly enlarged and improved. **Magnificent Coloured Plate Free**

THE PUBLISHER, "POULTRY WORLD," 154, FLEET STREET, LONDON.

NOTICES.

IMPERIAL COLLEGE OF SCIENCE and TECHNOLOGY,

SOUTH KENSINGTON,

including

The Royal College of Science,
The Royal School of Mines, and
The City and Guilds (Engineering) College.

A Course of about 20 Lectures, with Practical Work, will be given, commencing January 16th, on

SUBJECT:

The Pathology of Plants.

CONDUCTED BY:

Professor Blackman.

For further particulars of this and other Courses to follow, and admission to this Course, application should be made to the Secretary.

PLANTS, &c., WANTED.

WANTED, large PALMS, for cash or in exchange for other plants.—Send particulars to WILLS & SEGAR, Royal Exotic Nursery, South Kensington.

WANTED, ORCHIS FOLIOSA, Cypripedium spectabile, and other varieties, for cash or in exchange for Herbaceous, Alpine Plants, or any other florists' flowers selected from our catalogue; only strong flowering roots required.—WM. ARTINDALE & SON, Nether Green Nursery, Sheffield.

WANTED, LAPAGERIA ALBA and CAMELLIA RETICULATA, small or medium size plants in quantity.—Offers to LAPAGERIA, Box 23, 41, Wellington Street, Covent Garden W.C.

THE
Gardeners' Chronicle

No. 1,308.—SATURDAY, January 20, 1912.

CONTENTS.

Apple trees in grass land 44
Apples, the colouring of 44
Autumn flowers in the south-west 36
Benevolent Institution, Gardeners' Royal 42, 45
Books, notices of—
Journal of the R.H.S. Club 41
Roses 40
Clematis Jouiniana ... 34
Cypripediums at Oakwood Gardens, Crayford 44
French flower garden, notes from a 37
Gardening, the teaching of, in schools 42
Grey dawn of the year, the 33
Hardy flower border—
Hollyhocks and Calceolarias 44
Heliophila scandens ... 42
Hooker, Sir Joseph, the life of 43
International Horticultural Exhibition, 1912 42
Kew gardeners' social evening 41
Lilium longiflorum as a pot plant 43
Morœa sinensis 37
Obituary—
Birch, Geo. 46
Brooker, Henry ... 46
Carlton, Wm. 46
Deacon, John 46
Denning, C. 46
Durand, M. Théophile 46
Uzzell, Mrs. 46
Watson, Wm. 46
Orchid notes and gleanings—
Orchids at Broadlands, Tunbridge Wells ... 35
Plants, new or noteworthy—
Ulmus Plotii 35
Rainfall in 1911 41
Rat-catching 44
Rosary, the—
Rose Wm. Allen Richardson 44
Some seedling varieties of Frau Karl Druschki 34
Scotland, notes from ... 42
Snow storm in the Midlands 44
Societies—
British Gardeners' Association 42
Edinburgh Market Gardeners' 45
National Chrys. ... 45
National Dahlia ... 41
Perpetual - flowering Carnation 42
Royal Caledonian Hort. 45
Royal Horticultural (Scientific Committee) 45
Société Française d'Hort. de Londres 42
Stirling Chrys.... ... 45
Surveyors' Institution 41
Women's Agricultural and Hort. Union ... 39
Strobilanthes, species of, in South India 41
Sweet Pea disease ... 36
Sweet William rust ... 44
Weathers, Mr. John ... 42
Week's work, the—
Apiary, the 39
Flower garden, the ... 38
Fruits under glass ... 39
Hardy fruit garden ... 39
Kitchen garden, the ... 38
Orchid houses, the ... 39
Plants under glass ... 38

ILLUSTRATIONS.

Clematis Jouiniana 34
Cup presented to Mr. Crump, V.M.H., at Worcester 42
Deacon, John, portrait of the late... 46
Durand, M. Théophile, portrait of the late 46
Fruit bowl presented to Mr. Wade, at Worcester ... 42
Lilium longiflorum 43
Morœa sinensis 37
Pear Mrs. Seden 35
Strobilanthes, species of, growing wild in South India (Supplementary Illustration).

THE GREY DAWN OF THE YEAR.

WITH the end of the first week of January, the dead midnight of the year has already gone. But such has been the devastating wetness of the season that it is hard for any flower to raise its head from the cold and soggy earth. Planting a Pine tree just at present is rather like planting a Water Lily in more favourable moments. None the less, the garden is not wholly bare. The Christmas Roses, in fact, stimulated, no doubt, by the hot summer, are, and for months have been and for months will continue, a glory such as I have never seen them here before, nor could I easily have believed it possible without artificial covering of some kind to shield their whiteness from snow and wet. From the old year, Colchicum cilicicum still lingers gaily here and there, cups of soft and varied crimson gallantly appearing, and the more gallantly in that the bulbs only arrived in September from their home. And the new year is quickly sending its heralds ahead, pearls are showing in their pink setting on the cushions of Saxifraga Burseriana, and early Galanthus Fosteri and G. Elwesii poculiformis are already past their prime before the Aconites have shown more than a gleam of gold, or Galanthus Elwesii any colour of flower at all. A very early violet-coloured Crocus is thinking about uncurling, the blossoms of Rhododendron lapponicum are on the point of opening, and a day of sun on a hot slope will unseal the first goblets of Crocus Imperati.

These few glints, relics or promises, make up nearly all the show there is in the garden to-day. Rain continues almost unceasing, until one's Sahara's have become N. American lakes. Saxifraga florulenta (newly planted) and S. Candelabrum have fled home before the deluges; but Eritrichium, unprotected, still survives for the moment, and so do the high Androsaces, helvetica, Haussmannii and cylindrica. The Primulas, though now at their deadest moment, are making ready their new core of green: P. acaulis rubra, even, desperately blossoms right through December, and a few wan, sodden blooms appear on Primroses and Polyanthuses less distinguished. But the glory of the whole garden at present is a Primula, for, on the cliff, P. Allionii chooses this especial moment of the season to be so pertinaciously beautiful that nothing can rival it. Almost all my tiny collected rosettes of 1910, stuck into chinks, are either now in flower, or just over, or soon to open. Close on the tuft lies the single enormous flower, so brilliant and solid, that neither rain, nor snow, nor frost, nor time seem to have the slightest effect upon its apparent fragility. One great rosy bloom that I left well opened when I went to Scotland on December 21 was still in solid and flawless splendour on January 11. No plant has issued more than one flower to an effort so far; but the effect of their effulgence on the dark, dank walls of wet limestone is more radiant than anything else in the garden—even the combined magnificence of all the Christmas Roses.

PRIMULA "AMŒNA."

It is now many years since I first read Mr. Robinson's account of an apparently charming Primula amœna from the Bithynian Olympus. The plant was, it seemed, an early-flowering P. acaulis, with rosy or mauve flowers appearing before the leaves. This Primula I long sought for, and from many catalogues ordered. I got many odd things in my time, but I never got Robinson's P. amœna. Now, in the first place, the specific name is wrong, though P. amœna (Marsch) is a true species, native of Caucasus and rosy-purple flowered. It is close to P. elatior, not to P. acaulis, and accordingly produces its flowers in an umbel on a 4 inch to 6 inch stem. Failing of P. amœna, I was put on the track of P. altaica as representing Robinson's amœna. Still no success. Lehmann's P. altaica comes under P. farinosa P. altaica (Pallas), is that form of Oxlip now called P. elatior Pallasii; P. altaica (Hort), which gave me a moment of hope when I saw its authority, proves only the equally umbelliferous form "genuina" of the true P. amœna. And, all the time, the Robinson plant, so untraceable in the homes of the learned, lay quite ready to my hand in the gardens of the simple. Robinson's Primula amœna is nothing but P. acaulis rubra, that rosy-purple form of the Primrose, which haunts the woods and copses of the Levant—for instance, round Brusa and Constantinople. And, like many other plants which we owe to Byzantium, the rosy Primrose seems to be a very old inhabitant of our gardens, although in the *Paradisus*, Parkinson seems to have no note of it. It is certainly the parent of the double mauve, which is often such a glory in common cottage days, and such a miff in the delicate borders of the wealthy. But, however cherished and famous be the double, the old single is far more rare and, to my thinking, far more charming. I have had plants of it from several private sources, but my best pieces came accompanied by a photograph showing its full luxuriance; at present, in different stations of the garden, my three tufts are bravely and freely blooming, and have continued blooming throughout the midnight of the year which is now beginning to break in a grey damp dawn.

GALANTHUS ELWESII POCULIFORMIS.

Some seasons since, a Snowdrop appeared here in a stray corner of the kitchen garden. It was no accident, as in a line with it came up also a flower of G. Fosteri. But though many memories have tried to make good the lack of data, no one has ever found out definitely whence or as what the plant was bought. It lingered obscurely until one fine day I was struck with the exquisite beauty of its three pure white petals—the inner no less perfectly pure than the outer segments. I sent a description of it to Mr. Bowles, who at once replied "Galanthus poculiformis." There the matter rested, until I happened to visit Myddelton House in Snowdrop time, and among the stalwart beauties noticed a rather short-stemmed, frail and pining plant. I enquired what it might be. When I was told that it was G. poculiformis I knew and declared at once that my Snowdrop was different from it in everything but the cupped and spotless petals, for mine had twice the stature, twice the vigour, twice the splendour of blossom. The end of it all was (for I myself have no lore in the minute frecklings that differentiate the Snowdrops) that Mr. Bowles made a pilgrimage to my plant, and on seeing it at once recognised it as a perfect poculiformis form of true Galanthus Elwesii—a treasure hitherto unknown to him and unguessed. It is indeed a most splendid Snowdrop, by far the most beautiful of all I know—hardly less so in the rich nobility of its broad, glaucous leaves and upstanding stems, than in the solid and snowy magnficence of its great pendent bells of white; the inner segments cupped and pure as the outer, unmarred by any of that green marking which gives such a nipped and chilly tone to all the other Snowdrops. It is a bulb of notable vigour, and very early in bloom, for the divided younglings of last year, dug up in flower (that Mr. Bowles might have his journey's worth at once) are all in stalwart blossom here already, long before any other Snowdrop in the garden, except two magnificent stray flowers (with petals very heavily stained with green) that came to me a year or two ago from the East in a lot of

later-blooming Galanthus, all under the name of G. Fosteri. It now therefore only remains to enquire from what garden originally sprang, and in what garden still unsuspected lurks, a treasure so noble, and so different from frail and freaky G. poculiformis, as this snowy-cupped poculiformis form of pure Galanthus Elwesii. *Reginald Farrer.*

THE ROSARY.

SOME SEEDLING VARIETIES OF FRAU KARL DRUSCHKI.

THE note from *White Rose* (vol. I., p. 535) on the new Hybrid Perpetual Rose named Heinrich Münch is very interesting in view of several other new varieties of Roses now forthcoming from the Continent, and owing their parentage, on the maternal side, to the H.P. Frau Karl Druschki. So far, this fine white Rose has not been conspicuous for anything illustrious amongst its progeny, but, nevertheless, Continental hybridists seem much inclined to use it for breeding purposes. The cause of this is, no doubt, its great popularity, and perhaps it is thought that if a new Rose can be introduced as a seedling from this famous white variety it will be sure to command some attention. As an example, Natalie Bottner issued as a cross between Frau Karl Druschki and the Hybrid Tea Goldelse, the pollen parent: by the way, the latter being a Rose but little known in this country, is described as a yellow Frau Karl Druschki. Under such a designation it is sure to have a large sale, and if it really turns out to be such it will be an acquisition of some value. I have not seen it yet, but hope to test it thoroughly during the coming season. Excellenz M. Schmidt-Metzler (F. K. Druschki × Frederick Harms), sent out and raised by Herr Peter Lambert of Trier, is a promising novelty. It is described as a Niphetos White, the wood seeming to favour that of the pollen parent, but in the present dormant state of the plants there is little indication of Druschki blood. George Arends, described by the raiser as a pink Frau Karl Druschki and sent out as a Hybrid Perpetual, is said to be a cross between Druschki and La France. I have only seen it flower here under glass this season, and as this is no test must reserve any criticism, but it appears to be a vigorous-growing Rose with solitary pink flowers borne on long, stiff stems. Deutschland (F. K. Druschki × Soleil d'Or) is another German novelty, and I like the appearance of the plants. This Rose will really come under the Hybrid Briar section, but the wood is strongly reminiscent of the maternal parent, and bears a greater resemblance to it than that of any other derivative which has, so far, come under my notice. The raisers describe it as golden-yellow tinted with rose and orange, the flowers being said to be large and full. So far as colour is concerned, some credence can be attached to this statement, for the potency of the pollen parent is fully recognised in this respect. The above are the only new Continental varieties, along with Heinrich Münch, that I have been able to trace, and if they are satisfactory they will be in great request. As *White Rose* remarks, the pink and red Druschkis have hitherto been failures, and it seems that, as a seed parent at least, Frau Karl Druschki is a bad breeding variety. Notwithstanding this, the flowers of these new Roses will be looked forward to next summer with considerable interest. Priscilla (Henderson & Co.) is derived from Kaiserin Augusta Victoria × F. K. Druschki, and as the white perpetual, in this instance, is the pollen and not the seed parent, this variety should be worthy of observation. Commander Jules Gravereaux (F. K. Druschki × Liberty) has now been fully tested, and, although it is a useful Rose of good colour, no one could really call it a velvety crimson Druschki. *George M. Taylor, Mid-Lothian.*

CLEMATIS JOUINIANA.

THIS continental hybrid Clematis is the result of a cross between the Old Man's Beard (C. Vitalba) of the hedgerows and the Chinese species, C. Davidiana, of the herbaceous section. The hybrid is a free, quick growing plant, clothing a fence or group of rough stakes 5 feet or 6 feet in height. For a Clematis the leaves are large and dark green in colour. The flowers are white, tinged on the outside with lilac. The inflorescences are terminal and axillary, the vigorous long shoots with their flowers and deep-green leaves are very showy. Clematis Jouiniana is one of the latest to flower, commencing in September and continuing through October.

[*Photograph by E. J. Wallis.*

FIG. 19.—CLEMATIS JOUINIANA (C. VITALBA × C. DAVIDIANA): FLOWERS WHITE, TINGED WITH LILAC.

Like most of the strong-growing Clematises, this hybrid delights in a rich, loamy soil and a mulching of well-rotted manure applied in June. Most cultivators know how freely the Old Man's Beard thrives in chalky soils, and for this reason chalk or lime should be applied to soils which are known to be deficient in this ingredient. Clematis Jouiniana requires no pruning so long as plenty of space is available for the growths to ramble over, but, after this space is covered, pruning must be carried out to prevent the shoots from becoming a tangled mass.

The name Clematis Jouiniana is given in most Continental lists of hardy climbers, but in this country the name C. grata is more frequently used for this hybrid. The true C. grata is a Himalayan species but seldom cultivated. *A. O.*

NEW OR NOTEWORTHY PLANTS.

ULMUS PLOTII, DRUCE.

I WOULD be the last person in the world to begrudge the ancient shade of the worthy Dr. Robert Plot the distinction of having another species named after him, or Mr. Druce the satisfaction of affixing his name to a new species of British Elm; but I cannot see that the latter gentleman has made good his intention of honouring the former in the brief note he publishes in your columns (*Gardeners' Chronicle*, p. 408, vol. l.). Had Mr. Druce been writing a century and a half ago, regardless of the trouble he would give to succeeding botanists, the curt diagnosis he vouchsafes might be excused. It is no worse than some of Linné's, or many of Ehrhart's, though hardly equal to most of Philip Miller's. It consists of habit, slight characters of bark and twigs and size and shape of leaf. This is altogether inadequate to describe a species of Ulmus in the 20th century. I do not remember to have seen any Elms named by Plot among his plants in the *Sloane Herbarium*, vol. cxiii.; nor do I know of any evidence that he had any critical knowledge of the groups, such as Goodyer had in the preceding generation. Mr. Druce speaks of having seen this new species, previously treated by him as a variety of U. sativa Miller, in several counties, including Essex, of its elegant habit and acuminate leaves. Now the typical U. glabra Miller—not the most variable of Elms—abounds in Essex, has a graceful "open" habit of growth and strikingly acuminate leaves. Edward Forster, in sending it to Sowerby for *English Botany*, suggested the name "elegans" for it. I have often found this species, though more sparingly, in the Midland counties. One specimen I think I remember seeing, about two years ago, in the playground of the village school at Temple Balsall, near Kenilworth, Warwickshire, being apparently a county rich in forms of Elm. I see nothing in Mr. Druce's description to differentiate his U. Plotii from U. glabra Miller. *G. S. Boulger.*

PROFESSOR BOULGER'S note on Ulmus Plotii raises several interesting points, but his conclusions I cannot accept. In the first place, U. glabra Miller (*Gard. Dict.*, 1768) is an untenable name, U. glabra Hudson preceding and displacing it. Therefore, my friend Dr. Moss has in a recent publication called Miller's U. glabra U. procera Salisbury, the smooth-leaved Elm. This is a common tree in Eastern England, not only in hedges but in woods. Only on the basis of an archaic systematism could U. procera Salisbury be made synonymous with U. Plotii. I agree with Professor Boulger that a more complete description is desirable, and such is already in type for the *Report of the Botanical Exchange Club and Society of the British Isles*, but a photograph is much more valuable as a means of identification than any description, and I think if Professor Boulger will carefully study the two examples given in the *Gardeners' Chronicle* (vol. l., pp. 408-409, figs. 165, 166) he will scarcely maintain that they are identical with Miller's glabrous Elm. This latter has much larger leaves, the habit of the tree is quite different, and, I believe, it has a different time of flowering. The Rev. A. Ley, in his paper on Elms, either mistook or merged Plot's Elm into U. minor Mill., an evident error, since Miller's minor is the Cornish Elm, while Dr. Moss puts the small-leaved Cambridge Elm, which is closely allied to, if not identical with, U. Plotii, under U. sativa Miller = U. campestris Sm.; but I am afraid in doing this I cannot follow him. However, my point is that both Ley and Moss keep U. glabra Miller well away from Plot's tree. Opinion will always differ as to what constitutes a species. Linnæus had one species of Elm. Bentham would group the British Elms under two species. In my *List of British Plants* I grouped the British Elms under three species, and if I had to limit our British Elms to that number I should so far agree with Professor Boulger as to write U. procera Salisbury (U. glabra Mill., now Huds.) var. Plotii, but to the floristic botanists and to the horticulturist greater segregation has its advantages. Woodmen quite well differentiate the timber of Plot's Elm from that of Miller's glabrous Elm, and I may add that Arnold's Elm, "And maidens from the distant hamlets come to dance round Fyfield Elm in May" is Miller's glabrous species, but how different is that from Plot's Elm? Plot was a good botanist; he first differentiated several new species, and, moreover, he had opportunities of meeting Goodyer of Maple Durham, who drew up the description of the Elm in Johnson's *Gerard*, when he came to Oxford, and, therefore, Plot quite well knew what he was writing about when he showed how his tree differs from those previously described by Goodyer. I know the *Hortus Siccus*, reputed to belong to Plot, referred to by Professor Boulger, but it certainly does not represent the plants described in his *Nat. Hist. of Oxfordshire*. Later on I hope to give an illustration in the *Gardeners' Chronicle* of Miller's Elm, as well as of some others. In the Elms the bark and the habit afford characters (and these are absent from herbarium specimens) of great value, which a photograph alone does justice to.

A point I am much exercised about, and on this Professor Boulger can give very excellent suggestions, is by what name shall the English Elm be called? Later on in the year, if he will come to Oxford, I will gladly show him both Plot's and Miller's Elms. I find that the English Elms near The Parks and near Magdalen College, Oxford, were planted about 1680. The tree was then obtainable from nurseries. *G. Claridge Druce.*

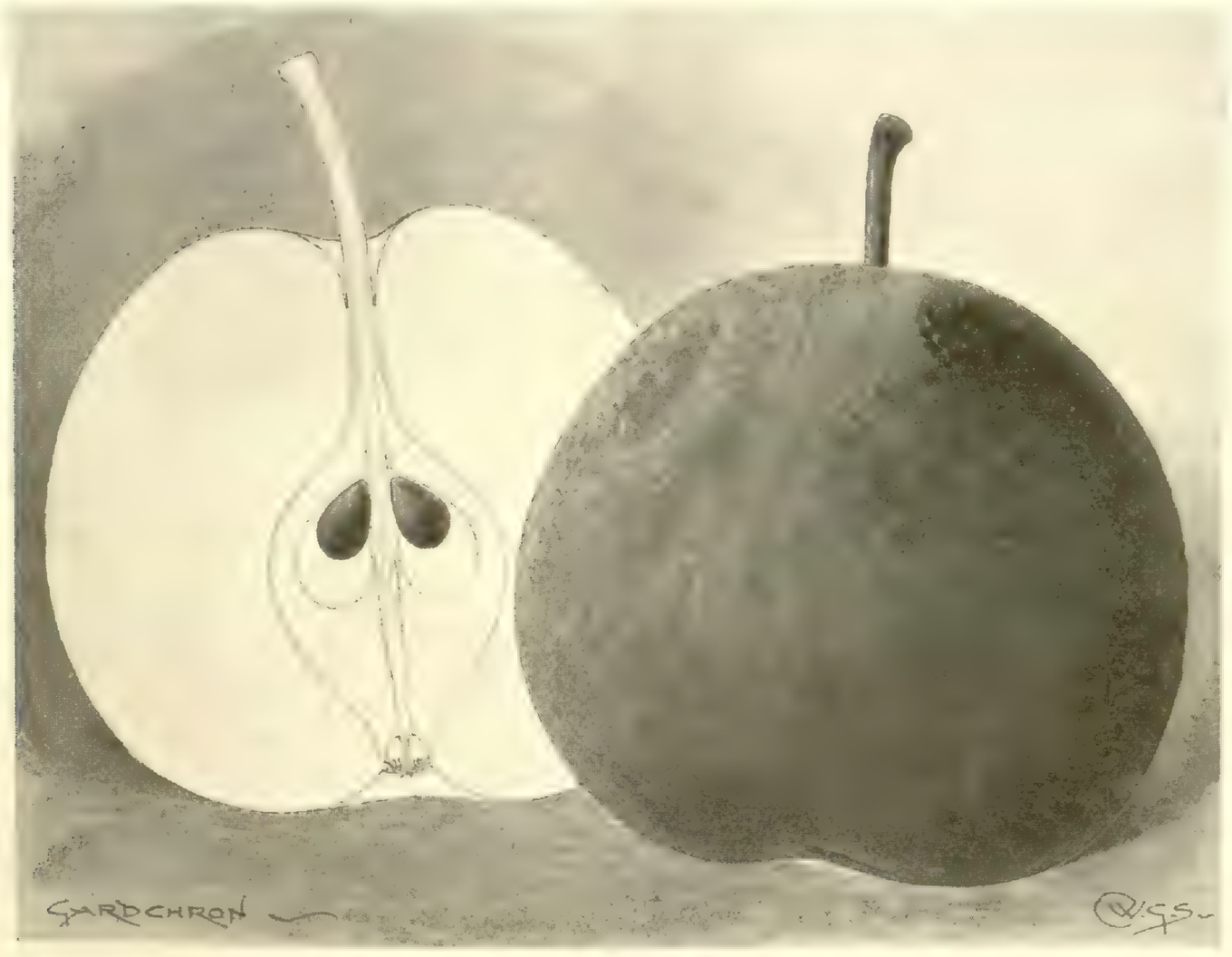


FIG. 20.—PEAR MRS. SEDEN (SECKLE × BERGAMOTTE ESPEREN).

(Received R.H.S. Award of Merit on the 9th inst. Exhibited by Messrs. Jas Veitch & Sons. See p. 30 *ante*.)

ORCHID NOTES AND GLEANINGS.

ORCHIDS AT BROADLANDS.

I RECENTLY inspected the small, but exceedingly choice, collection of Orchids at Broadlands, Tunbridge Wells, the residence of E. R. Ashton, Esq. Broadlands has a delightful situation on high ground, and the gardens contain a small block of plant houses which, although not built for growing Orchids, have been adapted for the purpose by a re-arrangement of the staging, ventilation, and other details. The plants grow and flower exceedingly well in these houses, and the erection of two more glasshouses is contemplated. Hybrid Cattleyas and Lælio-Cattleyas grow especially well, and in the display house at the time of my visit there was a fine show of good forms of Cattleya labiata and its hybrids, including several richly-coloured forms of C. Fabia; C. Clarkiæ, of a peculiar form, the flowers having buff-tinted sepals and petals, and bright violet-crimson lips, and borne seven flowers on the spike; C. Phrygia (Enid × Portia) with a fine inflorescence of six blooms; a similar spike of C. Portia; while C. Mantinii, C. John Baguely, C. Mrs. J. W. Whiteley, and other hybrids of C. Bowringiana were equally well bloomed. Others I observed were C. Luegæ, C. Miss Harris, C. Armstrongiæ, one of the prettiest of autumn-flowering Cattleyas, one specimen bearing a spike of seven showy rose-coloured flowers; C. Dowiana aurea, and several good examples of C. Bowringiana, with Brasso-Cattleya Mrs. F. Leemann, B.-C. Madame Chas. Maron, B.-C. Digbyano-Mendelii, Brasso-Lælia Digbyano-purpurata, and various Lælio-Cattleyas, of which the hybrids of Lælia Perrinii, including L.-C. Lady Rothschild and L.-C. Statteriana, were specially bright. A plant of Cattleya Dusseldorfei Undine bore a fine white flower measuring nearly 6 inches across. In a cool house were Odontoglossums, plants of O. crispum, O. Harryano-crispum, O. Wilckeanum and others being in bloom. A somewhat warmer house contained a selection of species such as require an intermediate temperature. They included some good plants of Lælia anceps, one with six flower-spikes; various Oncidiums, O. Forbesii and O. varicosum being in flower. An adjoining warm house contained Dendrobiums, D. Phalænopsis was furnished with graceful sprays, whilst D. Sanderæ, one of the finest Dendrobes, had two spikes, each with seven large white flowers marked on the lip with purple lines. Among other plants in this house were several Epidendrums and other Orchids brought from the West Indies by Mrs. Ashton; Oncidium

Papilo, Epidendrum fragrans, and another species being in bloom. The next house contained a selection of the choicer forms of Cattleya and Lælio-Cattleya—C. Fabia alba, C. Maggie Raphael alba, C. Dietrichiana, C. Empress Frederick, C. Adula, C. Iris, Lælio-Cattleya Cappei with three spikes, L.-C. Golden Oriole, L.-C. Artemis, L.-C. Ariadne. These and several unnamed crosses were specially good. Plants of Cattleya Trianæ and C. Schrôderæ were well furnished with flowering growths. C. citrina grows strongly and flowers well in these gardens, the specimens having been there for seven or eight years. Another house contained healthy plants of Odontioda, including O. Charlesworthii, O. Cecilia, O. Zephyra, O. Cooksoniæ, and O. Bradshawiæ, together with thriving specimens of other kinds, such as Epidendrum vitellinum, Odontoglossum grande and others of its section. Particularly striking was a fine plant of O. Williamsianum, which, after bearing two strong spikes from one pseudo-bulb, has two new growths. When the proposed new houses are built, it is contemplated connecting all the plant houses by a corridor. Although the summer was so excessively warm the Orchids appeared to have suffered less from the heat than did some of the outdoor plants. For example, Saxifraga umbrosa (London Pride) employed as an edging around one of the beds was killed by the heat and drought, and some of the plants on the rock-garden also perished. A very old Wistaria sinensis, with stem from 1 foot to 2 feet thick, clothes one side of the commodious stone-built residence, making a fine show in its season. *J. B.*

SWEET PEA DISEASE.

BEFORE entering on the subject of Sweet Pea disease, I should like briefly to describe the result of my attempt to grow Sweet Peas during the past season.

The seed was sown in pots in the autumn of 1910, and the pots were kept in a cold frame all the winter. At the end of March the seedlings were planted on well-trenched and manured ground, the first flowers appearing early in June. By the middle of the same month the first signs of disease were evident, and by the end of July the whole crop had been spoiled, pulled up, and burnt, and the ground occupied by Lettuce.

A disheartening experience indeed! At one time I made it my boast that I could cut Sweet Peas well into October, but in recent years the flowering period has steadily decreased, the present year, entirely barren of result, being the crowning disappointment.

It may be admitted that the extreme heat between mid-June and early August was partly accountable for the very general failure of Sweet Peas all over the country; but it is a fact that the Sweet Pea farms in Essex were a blaze of colour at the latter end of July, in spite of the prolonged drought, so that some cause other than the weather must be responsible for the widespread failure of the plant.

In every district, in the south especially, amateur and professional gardeners alike, found their plants wither and die, the immediate cause being well known in most cases—a disease commonly called the "streak." In case there are some who are unacquainted with this disease, it may be well to describe its effects. In former years it has seemed to start from the base of the plant, and work up the haulm in the form of brown streaks. The tops became twisted and distorted, the flowers became mottled, and opened badly. The plants would often linger in this condition right through the season; and on some occasions it has been possible, by cutting away the diseased growth, to induce the production of fresh laterals.

This year, however, the disease struck the plants in all directions. The foliage, in many instances, showed yellow marblings, the tops became limp, and brown lines appeared to run downwards. The disease was not confined to any particular variety; Arthur Unwin, Mrs. Breadmore, Elsie Herbert, Gladys Burt, Mrs. Hallam, Elfrida Pearson, and other pale shades succumbed early. They were followed by the paler selfs, such as Masterpiece, Countess Spencer, Clara Curtis and Etta Dyke, and the last to be attacked were the deeper selfs, John Ingman, Nubian, and Sunproof Crimson. The size of the plants seemed to be immaterial, those 4 feet or 5 feet in height collapsing as quickly as small ones, and a haulm an inch in width was ruined as quickly as one of half that size. Even the removal of the affected plants did not check the spread of the disease, and weak applications of potassium permanganate at the roots, and spraying with permanganate were alike unavailing. I believe, however, that these remedies would have been effective if they had been applied sufficiently early, and in heavier quantities.

For the last eight years at least I have carried on unavailing warfare against the disease. I have planted Sweet Peas on heavy clay soil, on a chalky hillside, on loam, both binding and sandy, in districts as widely apart as Kent and Shropshire; but I have never found the plants entirely free of the pest. Even planting in virgin soil is no safeguard. I have known plants grown therein to be as diseased as those on ground that has been occupied by Sweet Peas for years. The serious part of the matter is that the disease is steadily increasing year by year, and many even of the most enthusiastic growers are almost inclined to discontinue the cultivation of the Sweet Pea altogether; indeed, one well-known grower has for several years ceased to grow them.

The average gardener, professional as well as amateur, has very little opportunity for acquiring scientific knowledge on the subject of fungous diseases. He is forced to go for assistance to the specialist, from whom he has obtained much valuable aid. Science, however, has done very little towards the elucidation of the nature and cure of the disease under review, the most important discoveries in this direction having been by a nurseryman, a gentleman who combines scientific research with practical horticulture. I first became acquainted with the disease myself about eight years ago. It appeared, I remember, in an American novelty named "Florence Morse," a carmine-tinted variety. "Florence Morse" is now extinct, having never enjoyed great popularity; with me it sported several rogues, one or two of which I saved. However, as these were later wiped out by disease, I concluded that the spores or mycelium must have been carried over in the seed—a theory which, though ridiculed at the time, has, later, received a considerable amount of credence.

When the "streak" first appeared among my plants, I set to work to investigate the matter. I sent several plants away for examination, and received a similar report to that given by the special sub-committee of the N.S.P.S. in their *Annual* for this year. I accepted the report, with a certain reserve.

It has occurred to me, and I have no reason to doubt, that one main cause of the trouble probably lies in conditions of culture. In the early days of Sweet Peas, before they became as popular as at present, the flowering season was very short. In order to increase the period of bloom, the supply of manure was increased, the plants fed with increasing amounts of nitrogenous manures, till finally, owing probably, in great measure, to this forcing treatment, the disease made its appearance.

In America, where the Sweet Pea attained to popularity some years before we took it up, the experience of growers was the same. It became the custom there to form trenches, on the manure sandwich system, the result of which was that the Sweet Pea constantly fell a victim to the attacks of "blight," and many growers, in disgust, gave up its cultivation altogether.

It was just at this period—when the Rev. W. T. Hutchins was trying to enlighten his contemporaries on the subject of the fallacy of the trench system—that we British began to take up in earnest the cultivation of the Sweet Pea. Those who, recalling the exhibits of the show in 1900, compare them with those of this year, will realise how the pace has been forced. I do not wish to deny that we ought to try and attain perfection in every plant we cultivate; but outraged Nature will, sooner or later, take her revenge. Many growers will tell you that the Sweet Pea of the present day has not so strong a constitution as that of a few years ago; this, however, is not the case. It is true that some varieties are much stronger than others, but this has always been so. *W.*

(To be continued.)

AUTUMN FLOWERS IN THE SOUTH-WEST.

IN my last article on summer flowers (Vol. l., p. 389) I stated that Nerine flexuosa alba had not bloomed. N. Fothergillii major blossomed well in September, N. Bowdenii perfected a dozen bloom-spikes in October, and N. flexuosa alba eventually bloomed, but did not reach its best until the middle of November. In this species, unlike the others which flower when leafless, the leaves are quite green at the time of the production of flowers. On a visit to Messrs. Veitch's nursery at Exeter, towards the end of November, I found an enormous specimen of Buddleia Colvilei, about 20 feet high and as much in diameter, bearing many clusters of perfect flowers. I have never met with this shrub as an autumn flowerer before. I was told that it had withstood 24° of frost without being harmed, so it is evidently hardier than is supposed. In September the Lion's Tail (Leonotis Leonurus) was a splendid sight, a large bush 6 feet high against a wall being a blaze of orange-scarlet, some of the whorls being as much as 17 inches in circumference. As I mentioned in my previous article, Tacsonia mixta quitensis commenced to flower in June, and from that date until the present time it has bloomed continuously, there being a few flowers and buds still on the plant and numbers of large seed-pods. If we have severe weather it may go badly with the plant; for it has grown to such a height, having entirely covered wire netting 2 feet 6 inches high on the top of a 12-foot wall, that it will be impossible to protect it, and in the severe winter five years ago Mr. Howard Fox's large plant, that almost covered his house at Falmouth, was killed to the ground. However, up to the present our severest frost has been 2°. Witsenia corymbosa flowered fairly well, perfecting 12 flower-clusters, but did not approach its display of four years ago, when it bore 55 flower-racemes, each carrying from 50 to 60 blossoms, and was an exceedingly pretty sight when in full bloom. It is now held to be an Aristea, but is far superior to Aristea Ecklonii, also grown in this garden, its flowers being considerably larger, nearly an inch across, and remaining open the whole day, whereas those of the Aristea generally close about two o'clock and are borne far less profusely. Aristea Ecklonii flowered in June, but Witsenia corymbosa did not bloom this year until October. The first flowers of Iris stylosa were picked on October 31, and since then numbers have been cut, though as yet they have not been produced in great profusion. Iris cretensis has also borne a few flowers. The pretty little Shamrock Pea (Parochetus communis) commenced to expand its pale-blue, pea-like blossoms in September, but was not at its best until the close of October and early in November, when its

clover-like foliage, studded with innumerable flowers of a delightful clear blue made a pretty picture. As the winter advances, the colour of its blooms deepens, and it will often flower until the end of January if severe frost does not intervene. At the present time it has numbers of expanded flowers. Helleborus altifolius has produced a few flowers, but the plants had a terrible experience in the past summer and were almost killed by the drought. Some plants lost every leaf and may not recover. The Lapagerias, rose-coloured and white, flowered well until November, but it is impossible as yet to say if they will succeed permanently, as they were only planted last April. The pretty little Ceratostigma Polhillii, referred to in my last article, continued to produce its small, deep-blue flowers until well on in November, and Cassia corymbosa is set with golden blossom, while Manettia bicolor is holding a few blooms and Correa cardinalis has already commenced its display, a dozen or more scarlet flowers being already expanded. Olearia ramulosa is a very pretty autumn-flowering shrub, and in the middle of December was covered with its delicate little white flowers, that stud the branches so thickly and have a very pretty effect. Hermannia candicans is still bearing its yellow flowers, which it first commenced to produce early in June. I cannot find any mention of this plant in the horticultural dictionaries, but as I see all the other species are natives of South Africa, I presume this one comes from the same locality. Arctotis aureola was in flower for months together. The great plant of Pueraria Thunbergiana, which has made growths 25 feet in length against a 12-foot wall, did not produce a single flower and has never had a bloom during the three years it has occupied its present position. It will be given one more year to see if the exceptionally hot and dry summer of 1911 induces it to flower next season, and, if it does not, it will be discarded. The exceptional drought of last summer has led to many losses, chiefly in flowering shrubs. Amongst those that died were Embothrium coccineum, since replaced; Leptospermum bullatum, now replaced by L. scoparium; Gevuina avellana; Romneya Coulteri, since replaced; Hamamelis arborea and Daphne indica alba, both of which have now been renewed. Berberidopsis corallina, which had abundant supplies of water all through the summer, bloomed well, but Canna iridiflora Ehemannii, though it generally flowers freely every year, threw up not a single bloom-spike. *Wyndham Fitzherbert.*

FIG. 21.—MORÆA SINENSIS: FLOWERS YELLOW, SPOTTED WITH SCARLET AND ORANGE.

NOTES FROM A FRENCH FLOWER GARDEN.

THE following notes on the flower-garden here during the past season may be interesting to readers. The climate in this district is very similar to that in the southern counties of England, with perhaps the temperature averaging two or three degrees higher. The summer here, as in Great Britain, was excessively hot and dry. The flower-beds are situated on ground that slopes to the south, and we had very little rain all through the summer, with the exception of a heavy thunderstorm, which did more harm than good, as the hail spoiled the tuberous Begonias planted in six large beds. Dahlias were not a success until the middle of September. The few flowers that did appear earlier were burnt before they had opened properly: those that developed later were splendid. Antirrhinums were amongst the most successful of bedding plants. The first mass of flowers was superb, the following varieties being especially good:—Orange King, Apricot, and Bright Crimson, in the intermediate section, while for supplying cut blooms Tall Crimson and Tall Pink were both useful. After the first flowers were over, the seed pods were removed, but later for several weeks in August the blooms were scorched up almost as soon as they opened, notwithstanding that the plants were watered frequently. Towards the end of September the plants commenced to recover, and on October 23 the borders were a mass of flowers, Orange King and Bright Crimson having larger and more intensely-coloured flowers than I had ever seen.

Gladioli were only of fair quality, the flowers being smaller than usual and passing all too quickly. Lilium auratum was only partially successful, the foliage being eaten by a small black insect that both quassia extract and nicotine failed to destroy. Begonias of the fibrous-rooted section were very good, Sutton's Crimson Gem being the best coloured; Vilmorin's Vernon was also very fine. This variety is a stronger grower than Crimson Gem, but the foliage is not so good. Gracilis rouge also made a good show.

Messrs. Sutton & Son's large-flowered varieties of crimson-purple and golden-yellow Salpiglossis were much admired, especially a batch planted on a raised bed.

My experience with Asters was not satisfactory, although two rows of Aster Sinensis, each 100 yards long, were very useful for furnishing a supply of cut blooms. The season seemed an almost ideal one for Marigolds, for they flowered brilliantly all the summer and autumn. Sweet Peas planted in full sunshine were very quickly over, notwithstanding frequent picking of the seed-pods and copious supplies of water. The variety Helen Lewis, however, planted in a place that was shaded from the sun's rays after 10 a.m., was very successful, and so also was a large clump of Dodwell F. Browne. *W. L. L., Sarthe, France.*

MORÆA SINENSIS.

THIS brilliant Irid flowered with fine effect last summer at Hythe, Kent, aided, doubtless, by the favourable conditions of the season. Two small plants received from France wintered safely under a wall in a south-west border, in rich soil. Two flowering stems, about 15 inches high, were thrown up, and in August came to maturity. As is usual with the Moræas, each flower lasted for 24 hours. The exceeding richness of the colouring compensated in some measure for the comparative smallness of the flower, which did not exceed an inch and a quarter in breadth. The prevailing hue was golden yellow, spotted and streaked with vivid scarlet and orange. Seed was abundant and ripened readily. *T. Arnold Hyde, Ringinlowe Vicarage, Kent.*

The Week's Work.

PLANTS UNDER GLASS.

By THOMAS STEVENSON, Gardener to E. MOCATTA, Esq., Woburn Place, Addlestone, Surrey.

CARNATIONS.—If the work of propagating winter-flowering Carnations has not been commenced already, a start should be made at once, for cuttings root much better now than later in the season. The shoots are now short jointed, fairly hard, and in a better condition generally for the purpose than they will be later. A bottom heat of from 60° to 65°, with, if possible, an atmospheric temperature a few degrees lower, will provide sufficient warmth for the cuttings to strike. Many prefer sand as a rooting medium, but a mixture of sand, leaf soil, with a little loam and pounded crocks or brick rubble is even better, the roots holding on to this mixture rather more firmly at the time of potting than they do to pure sand. Where the cuttings have the slightest tendency to damping, a little ventilation at the back of the frame at night will very often prevent it. The watering of the stock plants should be done carefully at this season, and stimulants should be withheld until growth is more active, when the roots may be fed. The quality of the later blooms will depend largely on the treatment afforded the plants during the next month or two. Where the plants are near to the hot-water pipes a sharp look-out must be kept for red spider, which was very prevalent on Carnations last summer; with a little extra fire heat during February, this pest would probably increase rapidly, therefore immediately, or even before, its appearance is detected, give the plants a good spraying with an insecticide.

SOUVENIR DE LA MALMAISON CARNATIONS.—Last year's layers of "Malmaison" Carnations should be placed in their flowering pots at once. Receptacles 6 inches in diameter are usually large enough, and good quality loam with a little charcoal, broken crocks and lime rubble will form a suitable compost. If the loam has been sterilized, so much the better, as there will be less danger of attacks from eelworm, and sterilizing destroys wire worm. Early potting will insure the plants becoming well rooted before growth commences, and will make all the difference in the quality of the blooms. Afford the plants all the light and air possible. A temperature slightly above freezing point is suitable, provided that the atmosphere is dry. Older plants, that were probably potted late last summer, may be given a slightly increased temperature, and with careful treatment they may be had in bloom a month or six weeks earlier than young plants, thus lengthening the season of blooming.

SWEET PEAS IN POTS.—Where quantities of cut flowers are required for indoor decorations during May and early June, a batch of Sweet Peas should be grown in pots. They are a most remunerative crop, three months at the outside being the length of time they will take up much house room. Seeds sown three or four in each 4½ inch pot in September produce the best results, and these should now be ready for potting into 10-inch or 12-inch pots in which they will flower. A fairly good compost should be prepared for them, using bone flour as manure, and the plants should be potted fairly firmly. A light house or airy pit slightly heated will be suitable during the first two months after sowing; afterwards they should be transferred to the house in which they will flower. The plant house should be as lofty as possible, as the plants grow very fast after the middle of March. Watering must be done carefully and very little manure given the plants till the blooms commence to show colour. Too much manure, or too high a temperature often result in bud-dropping, which may mean a fortnight's delay in blooming.

EUPHORBIA (POINSETTIA).—Old plants of Euphorbia pulcherrima, from which the bracts have been removed and which have been kept somewhat dry at the roots may be transferred to a cool house, where they can be stood under the stage, or they may even be stored in a warm shed, as they will not be required to furnish cuttings until the end of March or early in April.

BOUVARDIA.—Bouvardias that have finished flowering may also be removed to a cool house or pit and water gradually withheld from the roots. Young plants may continue blooming for some time to come, and will provide useful flowers for decorative purposes.

GLOXINIAS AND BEGONIAS.—Where batches of these plants are required in bloom early in the season, no time should be lost in starting the plants into growth. Gloxinias should have all the old soil removed from the roots, though in the course of the operation the corms should not be rubbed too hard, as fresh roots quickly develop from the old strong roots that are alive. Afterwards the corms should be placed on a hotbed or in boxes, not quite covering them with a mixture of sand and leaf-soil. Grow them in a house having a stove temperature; they will soon start into growth, and may be potted off in the usual way, preferably in their flowering pots. Begonias may be treated in a similar manner, but it is not advisable to start these plants in a high temperature, for if this is done, growth may be weak.

THE KITCHEN GARDEN.

By EDWIN BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

SEEDLINGS.—Plants of various kinds of vegetables raised from seeds sown in pots or boxes in the autumn have made good progress, the weather having been everything that could be desired for building up a sturdy growth; the conditions have been such that ventilation has been afforded on almost every day. The plants will, in many cases, need to be staked and tied and afforded a surface dressing. Stand the plants as near to the roof-glass as possible, whether in houses, pits or frames, and avoid using fire-heat whenever possible, especially in the case of Peas.

PEAS.—Another sowing of Peas should be made now, either in pots or boxes. The plants may be planted out in cool houses or pits or grown and cropped in pots. Although I do not favour very dwarf-growing varieties, there are one or two that lend themselves admirably for growing in portable frames, and among the best of these is Little Marvel. This is a most prolific variety, producing pods of excellent quality and perfecting its crop splendidly under glass. In warm districts seeds of early varieties of Peas may be sown in shallow boxes for planting out in sheltered parts of the garden. Sow the seeds thinly, afford a copious watering, and germinate them in a cool structure. Never allow the plants to become drawn; it is far better to place the plants in the open than allow this to take place.

BROAD BEANS.—This vegetable is not grown nearly so extensively for producing early pods under glass as its merits deserve. A supply of pods may be obtained easily early in May, if the seeds are sown the previous autumn. The cultural directions recommended for Peas should be followed. Fire-heat should never be used, and the young plants should be afforded the lightest place possible, standing them for preference on shelves in a cool greenhouse or orchard house, and admitting an abundance of fresh air whenever possible. If seeds were sown directly in large pots, the plants should now receive a top-dressing, but if they were sown in small pots or boxes, the plants should now be transferred to the larger receptacles. Five plants to each 10-inch pot will be an ample number. Three-parts fill the pots with the compost, the staple of which should be good, turfy loam, thus leaving room for surface dressings later. The large-podded varieties are much to be preferred for this purpose than the smaller ones, and Leviathan may be recommended.

CAULIFLOWERS.—Few vegetables are more appreciated or easily obtained during the spring months than Cauliflowers, and efforts should be made to have them as early as possible. Autumn-sown plants of suitable varieties, such as Early Forcing, Snowball, and Magnum Bonum, should be lifted with plenty of soil attached to the roots from the cold frames in which they have been growing since autumn. They should be placed in 8 inch pots filled with a compost consisting of three-parts good, fibrous loam, one-part leaf-mould, one-part manure from an old Mushroom bed with a 4½-inch pot full of bone-meal to every two bushels of the compost. Pot moderately firmly and place the plants in a cool house or pit near to the roof-glass, where a cool temperature is maintained. Some of the batch may be planted out in portable frames on a very mild hotbed. They should receive an abundance of fresh air whenever possible. Make a small sowing of the varieties Magnum Bonum, Early Giant and Autumn Giant in a cool house.

MUSHROOMS.—Maintain a temperature of about 50° to 55° in houses where the beds are in bearing. Endeavour to promote a moist atmosphere by avoiding fire-heat as much as possible. Manure intended for successional beds should be turned frequently, so that it may become fairly dry before the bed is formed.

THE FLOWER GARDEN.

By J. G. WESTON, Gardener to Lady NORTHCOTE, Eastwell Park, Kent.

SOWING SEEDS.—Biennials are much more extensively employed for bedding purposes than formerly, and these give more satisfactory results when treated as annuals. As they require a long season for their full development, an early start should be made. If the seed order has not been despatched to the seedsman, no time should be lost in sending it, as the pressure of business may cause delay in delivery.

EAST LOTHIAN STOCKS.—East Lothian Stocks are favourites in every garden, the plants commencing to bloom early and continuing in flower until the autumn. They may be had in distinct colours, and are most effective when massed or grouped in separate shades. Many sow the seed in the autumn, and accommodate the plants in frames through the winter. If this practice has not been followed, seed should be sown now in pans or boxes. All seeds should be sown thinly, and this applies particularly to choice flower-seeds, because, not only is there a waste of seed, but the seedlings become drawn and weakly if this precaution is not taken. Cover the seeds lightly, with finely-sifted loam, mixed with plenty of leaf-mould and sand. The seed pans should be stood in a warm house until the seeds have germinated, but the seedlings should be grown in a cooler place, and kept well up to the roof-glass.

ANTIRRHINUMS.—Antirrhinums have been greatly improved of late years, and are very desirable subjects for the flower garden, including those of the tall, intermediate and dwarf sections. I have found that those of the intermediate type are the best for massing, and the colours embrace delicate shades of pink, coral-red, yellow and crimson, besides white. The taller varieties attain to a height of 3 feet, and are effective when disposed in clumps in the mixed border or in groups for brightening the shrubbery. The best of the Tom Thumb varieties are White Queen, Yellow Prince, and Crimson King, and these form fine subjects for edging to flower beds; they are, perhaps, seen at their best when used in conjunction with the taller varieties.

THE PROPAGATING PIT.—Owing to the dry summer and autumn, there was a scarcity of cuttings of bedding Pelargoniums in many gardens, and old plants were potted for stock purposes. Where these latter have been encouraged to grow in a warm house they will now furnish a supply of cuttings, which should be dibbled singly into small pots filled with suitable soil. They should be struck in heat and afforded relatively dry conditions, until roots have formed, after which a dry, well-ventilated house will be the best place in which to grow them.

STOCK PLANTS.—Bedding plants, such as Coleus, Iresine, Ageratum, and Heliotrope, should be kept growing actively in a suitable temperature. As the days lengthen a start should be made with their propagation. An early start is a great advantage, for a well grown plant, properly hardened, is worth several inferior ones at planting time, and will give almost immediate effect.

CANNAS.—Seeds of Cannas and other kinds of plants with hard seeds should be sown at once, as their germination is very slow. They may be assisted in this respect by making a notch in the hard testa with a knife or file. Grevillea robusta and Melianthus major, required for sub-tropical bedding, or as dot plants, should also be sown.

THE HARDY FRUIT GARDEN.

By F. JORDAN, Gardener to Lady NUNBURNHOLME, Warter Priory, Yorkshire.

PEACHES.—If the trees were pruned and root-pruned where necessary directly after the fruits were gathered, very little more pruning will be necessary now, with the exception of removing faulty growths which escaped the notice of the operator owing to the leaves being present on the trees. One of the secrets of success with outdoor Peaches is thin training of the shoots, therefore all growths that are not required should be removed, allowing a distance not less than 6 inches between the shoots. Detach the trees from the walls if necessary, and tie the branches to a stout stake or stakes at a distance of 6 inches or a foot from the wall, with the object of retarding the blossoming as much as possible. Make the trees secure from injury by winds or snow. Old shreds should be burnt, and the nails roasted. The trees and walls should be given a winter dressing before the buds swell; if the presence of red spider is suspected dust the branches with flowers of sulphur when the weather is mild and dry.

PLUMS ON WALLS.—Plum trees are often planted against south walls where they flower too early, exposing the blossoms to injury by spring frosts. South walls may be much more profitably used for growing Peaches or dessert Pears. Plum trees on walls should be trained thinly apart, and pruned closely to keep the spurs near to the wall. Old trees may be made fruitful by root-pruning or lifting them and by pruning the spurs closely. It is better to replace worn-out specimens by young trees from a reserve wall, where a few trees of each variety should always be grown for the purpose.

PEARS ON WALLS.—Summer pinching of the shoots reduces the work of winter pruning very considerably. Where Pear trees on walls are allowed to form too many spurs, the flowers come weak and never give fruits of good quality. The spurs may be thinned now, but the best time for this operation is undoubtedly the autumn, when they may be cut back and thinned with great advantage, taking care to leave one or more buds at the base of each. After pruning is finished dress the trees with an insecticide; Pear scale and many other insects may be completely eradicated at this season without injuring the wood or flower-buds.

GENERAL WORK.—Push on, at every favourable opportunity, with the work of planting that has been interrupted by the unusual rainfall. In frosty weather manure and soil should be wheeled to the different places where they are required. Newly-planted trees, bush as well as standard, must be secured firmly to stakes to prevent damage from strong winds. The stakes should be set in position and well driven into the subsoil before the trees are planted. If grafting is contemplated the scions should be collected and the stocks headed back before the sap commences to rise, allowing about 6 inches of the stem for a second cutting when grafting time arrives. Select scions of a medium size, and heel them in a shaded place until they are required.

THE ORCHID HOUSES.

By J. COLLIER, Gardener to Sir JEREMIAH COLMAN, Bart., Gatton Park, Reigate.

INTERMEDIATE HOUSE. — The temperatures of the intermediate house given in the Calendar for January 6 should have read 60° to 63° by day, rising with sun-heat to 66°; at night 57° to 60°.

DENDROBIUM.—Many Dendrobiums, including both species and hybrids, are now showing their flower-buds. If it is desired to have a long succession of bloom, some of the more forward plants may be moved from their resting quarters into a slightly higher temperature, but care must be taken that the plants are not subjected to too much heat and moisture, or they will start rapidly into growth and produce inferior flowers. They should be afforded water at the roots sufficient only to keep the pseudo-bulbs plump, for if moisture is too liberally applied it will cause many of the buds to turn yellow and drop. The Cattleya house is the most suitable place to grow the plants until the flowers are developed. Keep a sharp look out for slugs, which damage the flower-buds as soon as the latter develop. Traps of damp bran or Lettuce leaves may be placed about the houses near to the plants, and the pest searched for at night-time and very early in the morning. Recently-imported plants of Dendrobium should be laid for a few days on a stage in a house having an intermediate temperature. They should be carefully examined with a view to the removal of decayed portions, and afterwards washed with an insecticide. When they are dry again they should be placed in pots just large enough to accommodate the roots, and each plant tied firmly to a stick. Half fill the pot with crocks, and the remaining space up to the base of the plants with a compost consisting of equal parts Sphagnum-moss and A1 fibre or Osmunda fibre cut into pieces about ½ inch long. Grow the plants in an intermediate temperature until about the middle of March, when they may receive additional warmth. Give them very little water until they are well rooted in the compost.

VANDA. — Vandas of the tricolor and suavis section should be afforded sufficient water to keep the Sphagnum-moss on the surface of the pots in a growing condition. The plants are now producing many roots from their stems. Such roots should be directed, so that they may grow downwards into the potting materials, care being taken that they are not damaged. They will do well in the Cattleya house if the stage on which they are stood is kept moist.

SOPHRONITES GRANDIFLORA.—This brilliant-flowered Orchid has been blooming for some time, the flowers being produced on the partly developed pseudo-bulbs. The plant requires to be kept sufficiently moist at the roots to maintain the Sphagnum-moss green and healthy, but care must be taken that water does not lodge in the centre of the young growths, as this may cause the new pseudo-bulbs to decay. Plants requiring fresh rooting materials should be attended to when roots develop from the new shoots. They are best grown in shallow pans suspended from the roof in the cool house.

POTTING MATERIALS.—A stock of Sphagnum-moss should be secured at once, as the ground may be frost-bound when it is required for use.

FRUITS UNDER GLASS.

By E. HARRISS, Fruit Foreman, The Royal Gardens, Windsor.

EARLY POT VINES.—Vines which were placed in the forcing-house at the beginning of November are growing freely, and the shoots will be large enough for the operator to decide which to leave to furnish the crop and cover the trellis with healthy growth and which to remove. Pinch out the points of the laterals at the second leaf beyond the bunches. Prevent the shoots from touching the glass of the roof by pulling them gently towards the trellis, securing them with a neat piece of raffia. The leading shoot may be given more freedom of growth to encourage root action. Stimulants may be afforded the roots, diluted liquid manure and weak soot-water being suitable: these may be given until the flowering stage is passed and the berries have commenced to swell, when they may be supplemented by some concentrated fertiliser. The soil should be examined carefully before water is afforded, and where it is needed it is a good plan to fill the pots to the rims twice to make sure that the roots are thoroughly soaked. Water used at the roots or for syringing should be warmed to the temperature of the house. The atmosphere should be kept moist by sprinkling the walls and paths, and the vines may be gently sprayed before noon during sunny weather. The minimum temperature may now be kept at 65°. During the daytime the temperature may be allowed to rise to 80° before fresh air is admitted. The ventilators should be closed by 2 p.m. Have ready fresh heating materials to make a new hotbed, should the temperature decline too low.

EARLY PERMANENT VINES.—The season, so far, has been very favourable to the vines. Very little artificial heat has been necessary, and there has been no snow or very little frost to lower the temperature of the outside borders. Consequently the vines have made good progress. Weak, useless growths may be rubbed off at once, but the final thinning of the shoots should be deferred until it can be ascertained which have the best bunches. Examine the borders before the vines flower, and should water be necessary, see that it is warmed. If mealy bug is present on the vines, the pest must be diligently sought for, and, if possible, prevented from infesting the young growths. My experience in cyaniding for the destruction of mealy bug on vines is, so far, not convincing, but I may say more about this at a later date.

MELONS.—Melons which were raised at the beginning of January must be kept growing near to the glass in a minimum temperature of 70°. For the earliest supplies it is necessary to have a hotbed on which to grow the plants. At Frogmore we place a bed of soil, composed chiefly of rich loam and old mortar rubble, about 2 feet wide and 1 foot deep, on the hotbed. The soil is made quite firm, and when finished is within a few inches of the trellis. The bed should be made several days before planting the Melons, so that it may become warmed through. Sow another batch of Melon seeds at the end of this month to furnish plants for successional fruiting.

THE APIARY.

By F. W. CAVE.

THE BEEKEEPER AND HIS WORK.—Much of the success in beekeeping depends upon good weather, but this is not the only condition necessary. There are many small details connected with the apiary which are constantly requiring attention, and if neglected lead to failure. It is advisable to have a note-book wherein important facts and hints may be noted for future reference. Unfortunately the casual worker amongst bees is very thoughtless and is apt to imagine that he knows all there is to be known about bees.

REQUISITES.—The catalogues should be consulted and materials required for the coming season ordered. It is usual for the merchants to allow a discount on all orders placed early in the season, and by purchasing now the apiarist is enabled to fit up his frames during the long leisure hours of winter. Sections may be properly fitted with foundation, resulting in more uniform comb, which will realize the best prices.

SEASONABLE WORK.—The recent weather has been unusually wet and stormy, therefore the hives should be examined without delay to ascertain if the rain has penetrated any cracks which may have escaped observation. If wet has entered, the quilts should be removed on a fine day as damp quilts often result in dysentery amongst the bees. Crevices should be filled with white lead, a piece of calico stretched over the roof, made secure by tacks, and then painted thickly with gold size, which is quick in drying. Later, when the wood is quite dry, a coating of ordinary paint should be applied.

BEGINNERS.—Those who contemplate making a start in beekeeping, either for pleasure or profit, and have an opportunity of choosing a favourable locality will do well to select a valley because the bees in such cases will not have far to go for water, and, when loaded with honey or pollen, will not have to rise over hills before reaching home. If possible, place the hives on a good gravel path behind a thick hedge or wall to protect them from north and east winds. It is advisable to have closely-cut grass in front of the hives, as then the early morning sun will reach the entrances of the hives. No sheep, cows, goats, or dogs should be allowed near the apiary, as they might knock over the hives, thus causing serious trouble. Gardens in which are grown Cherries, Apples, Pears, Plums, Gooseberries, Currants, Raspberries, and Strawberries provide an early foraging ground, and most of these fruits bloom at a time when colonies of bees are in need of food.

THE WOMEN'S AGRICULTURAL AND HORTICULTURAL INTERNATIONAL UNION.—A meeting in aid of the funds of this union will be held at Harborne House, Birmingham, on Wednesday, the 31st inst., at 3 o'clock, by invitation of Mrs. ARCHIBALD KENRICK, who will preside. The speakers will include Mrs. GEO. CADBURY, Miss COURTAULD (on "Women as Farmers"); Miss JESSIE SMITH (on "Women as Gardeners"), and Mrs. T. CHAMBERLAIN, hon. sec. (on "The Work of the Union").

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, *as well as specimens of plants for naming, should be addressed to the* **EDITORS, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Special Notice to Correspondents.—*The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.*

Local News.—*Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Illustrations.—*The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c., but they cannot be responsible for loss or injury.*

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, JANUARY 23—
Roy. Hort. Soc. Coms. meet. (Lecture by Mr. H. Morgan Veitch on "Horticulture and the Proposed Taxation of Land Values.") Horticultural Club. (Lecture by Mr. Chas. E. Pearson on "Evolution of Colour in Birds' Eggs.")

WEDNESDAY, JANUARY 24—Roy. Botanic Soc. meet.

THURSDAY, JANUARY 25—
Manchester and North of England Orchid Soc. meet.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—37·9°.

ACTUAL TEMPERATURES:—
LONDON.—*Wednesday, January 17* (6 P.M.): Max. 38°; Min. 33°.
Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—*Thursday, January 18* (10 A.M.): Bar. 29·6°; Temp. 37°; *Weather*—Rain, with fog.
PROVINCES.—*Wednesday, January 17*: Max 45° Sligo; Min. 28° Yorkshire.

SALES FOR THE ENSUING WEEK.

MONDAY AND WEDNESDAY—
Rose Trees, Fruit Trees, Perennials, &c., at 12.30, at Stevens's Auction Rooms, 38, King Street, Covent Garden.

MONDAY AND FRIDAY—
Liliums and Hardy Bulbs, Herbaceous Plants, at 12; Roses, Fruit Trees, &c., at 1.30; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

WEDNESDAY—
Perennials and Herbaceous Plants, Hardy Bulbs and Roots, at 12; Roses and Fruit Trees, at 1.30; Palms and Plants, at 5; Trade Sale of Miscellaneous Bulbs and Roots, at 12; Consignment of Japanese Liliums, at 2.30, at Protheroe & Morris's rooms.

FRIDAY—
Orchids, at Protheroe & Morris's rooms, at 12.45.

Roses.* The censorious chide us for our many faults, telling us—among the many other things—that the times are frivolous, and almost in the same breath deploring the multiplication of books. For our part, we dare scarcely hope that the former charge will be levelled against us, and with respect to the latter, we frankly confess that we rejoice in the fact that of the making of books on horticulture there is no end. No student of Nature believes that economy and parsimony are synonymous. Nature herself is prolific, and sows not with the drill, but with the lavish hand; yet her apparent extravagance but just suffices: so the multitude of books on gardening is none too large for the multitude of gardeners. The poor specimens soon succumb in the battle of books. The harm they do perishes with them, and is, in any case, small, in comparison with the good which the good books do. The public is the best censor, and the test of fitness which it applies is the only sound one. It asks that each new book on gardening shall have some plain, direct information to impart or that it shall bring into the Study something of the sweetness and light of the garden.

Few experienced gardeners will, upon reflection, deplore the publication of large numbers of gardening books, for we all know that horticulture is not, and never will be, an exact science. Every good gardener is a discoverer, has learned what he knows from the garden, and has only used books to prune his tree of knowledge. Hence every good gardener carries in his head at least one good book on gardening, and has garnered experience which the wise among his fellows would be glad to share.

Gardening books, moreover, are not merely vehicles for the dissemination of knowledge. They have other and no less worthy rôles to fulfill. It is their function not only to impart information, but also both to serve as mediums of exchange of enjoyment and to discharge a missionary service—to convert the "heathen" who do not garden to a fervent belief in gardening.

A book, therefore, which succeeds in any one of these rôles is a good book, and deserves a welcome. Further, one which is successful in all three of the parts which garden books may play merits a three-fold welcome. Such a book is Mr. H. R. Darlington's volume on Roses.

It is a model of lucid exposition and a mine of valuable information. It has, moreover, that subtle charm which the Rose knows how to bestow on those who devote themselves to its cult. With a royal arrogance, the flower refused to accept the limitations of space within which other flowers are confined in "Present-day Gardening." As the blossoming of the Rose has ceased to be restricted by time, the flower now repudiating Omar's plaint "Alas that spring should vanish with the Rose," so has the queen of flowers extended an editor's conception of space and claimed a double volume of some 200 pages. That this extension of territory was essential for the proper treatment of the Rose is proved by the facts that there is not a superfluous word in Mr. Darlington's pages, and that, in spite of the space at his command, the author has been compelled to resort to hard pruning in his treatment of the Rose. As Mr. Darlington states in the preface, affairs of theoretical interest, such as the history of the Rose, have had, perforce, to be omitted, nor could space be found for such subjects as hybridisation and the raising of new varieties. Only a rosarian who believed in hard pruning could have had the courage—and discretion—to cut out such promising branches of his subject; but in coming to this decision Mr. Darlington was wise. For after all, the matters just referred to are subjects for special treatment, and require a separate treatise. They most certainly could not be dealt with adequately, even within the already liberal space at his command.

Thanks to a refreshingly temperate use of adjectives, Mr. Darlington is able, in the first five chapters of his book, to deal with the essentials of situation, soils, beds, borders, planting, and transplanting of Roses, and to devote a considerable amount of space to the consideration of the art of pruning. To this subject we do not know a better guide than Mr. Darlington, who brings a severely judicial mind to bear on the difficult problem of how to treat members of the different classes of Roses. Though, as we have indicated, the author has received his training in the school of hard pruning, he states with impartiality the case of the early school, which believes in beginning to prune Hybrid Perpetuals in February and finishing early in March. Then, having given the arguments of the late school, he sums up the case in the, at first sight, cryptic aphorism, "the longer the later," adding the explanation that the later in the year the pruning is carried out the less severe it should be.

Mr. Darlington holds equally sound views on the subject of manures for Roses. Like Omar Khayyam, he might exclaim: "I sometimes think that never blows so red the Rose as where some buried Cæsar bled"; in other words, the ancient and the modern writer agree that natural manures are to be preferred, though Mr. Darlington is alive to the uses of artificials as accessories to natural manures.

The most difficult of all subjects, and one full of pitfalls to the amateur—that of the selection of Roses—is dealt with in a series of chapters, which commence with the Sweet Briars, and deal consecutively with China Roses, Polyantha Pompons, Ramblers, and Rugosas. The reader who has mastered the views of the author on the many and several parts which Roses should play in the garden, in beds and borders, pillars and pergolas, in hedges and houses, will find his task of selection rendered surprisingly easy.

A charming and all-too-brief chapter by Mr. Darlington on "Fragrance in Roses" reminds us that even though, as in the retreat of the fair Lady Corisande, no flower without perfume was admitted to the garden, the latter might yet be a garden of Roses; for a wealth of choice of sweet-smelling Roses is presented among the H.P.s, and fragrance may be had combined with beauty in such Hybrid Teas as La France, its variety Augustine Guinoisseau, and not a few others. Indeed, from any class fragrant Roses are not lacking, and though all may not be enumerated here, mention must be made of the Sweet Briar, with "leaves very greene and sweete in smell above the leaves of any other kind of Rose." Of these and of the scent from sheltering hedges of Lord Penzance's Sweet Briars, Mr. Darlington speaks with a judgment and enthusiasm which would appear to be family characteristics.

Later chapters are devoted to Rose species and British Roses. The variation among some of the indigenous species will surprise many readers, and may be taken as a symbol of the vast potentialities of the genus which it has been left in large measure to the present generations of rosarians to discover.

Last chapter of all—except for that devoted to the calendar—the common task, the daily round—is concerned with the fly

* "Present-day Gardening Series": *Roses*, by H. R. Darlington; double volume, price 2s. 6d. and 3s. 6d.

STROBILANTHES KUNTHIANUS AND OTHER SPECIES GROWING WILD ON THE NILGIRI MOUNTAINS, SOUTHERN INDIA.

Printed by Temple Press Ltd., London, E.C.

in rosarian amber, the diseases of the Rose. Here, if anywhere, the measured word and judicial phrase might be expected to give place to some expression of wrath; but in dealing with his worst foes, "the worm i' the bud," Mr. Darlington's sweet reasonableness rarely deserts him. He has, however, an evident grudge—as who has not?—against the Rose Shoot-boring Sawfly, that "most exasperating insect" which will not be caught till after it has done its worst: evidently it bores even Mr. Darlington.

As the reader of this notice will have inferred, we have read Mr. Darlington's volume with no ordinary pleasure, and we regard it as a work of high merit. We commend it most heartily to all rosarians, and, in doing so, draw their attention not only to the excellence of the text, but to the beauty and fidelity of the coloured plates of such Roses as Hugh Dickson, Hiawatha, Mrs. John Laing, Mme. Ravary, Dorothy Perkins, The Lyon Rose, Frau Karl Druschki, and Juliet.

The publishers, Messrs. Jack, the editor, and the photographer, Mr. Waltham, have laid the horticultural world under a real debt of gratitude by applying, with such a large measure of success, colour photography to the illustration of the subjects treated of in this excellent series of "Present-day Gardening." *F. K.*

OUR SUPPLEMENTARY ILLUSTRATION represents species of Strobilanthes growing wild upon the Nilgiri Mountains of South India. In September of last year, writes Mr. C. A. Barber, almost the whole of the range between 6,000 feet and 7,000 feet was clothed with a brilliant mantle of purplish-blue, and the pictures give some idea of the effect of this clothing, alternating with masses of rock, and bits of forest with enveloping mist. Several species of Strobilanthes were present in abundance, but the chief among them was S. Kunthianus, a tall, bushy shrub, sometimes 8 feet to 10 feet in height, and covered with a profusion of bright-blue, bell-like flowers. It is the habit with these plants to cover great stretches of country, and all of them to flower together at regular intervals, separated by a number of barren years. As in the case of the Bamboo, they grow for a number of years with only an occasional blossom, until, at the appointed time of maturity, they all burst into flower, mature their seed, die down and disappear. The next year the ground is covered by a vast number of tiny seedlings. The last year when this occurred was 1898, so the period would appear to be one of 12 years. So striking is the phenomenon, that the European visitors to the hills have suggested that it has given the name to the hills, "Nilgiri" or the "Blue Mountains." But the name is very old, at least 800 years, and the knowledge of the hills dates from the time when the first venturesome civil servant climbed the mountain sides, camped near a lake and founded Ootacamund. The dwellers of the plains never ventured to explore the great wall of mountains, whose prevailing colour was a dark or bright blue, according to the weather. Viewed from the plains, the range is a very striking object, and it is much more probable that the name was given because of the prevailing colour.

NATIONAL DAHLIA SOCIETY.—This Society will hold a conference on Dahlias at Carr's Restaurant, Strand, on Friday, March 8, at 6.30 p.m.

"JOURNAL" OF THE R.H.S. CLUB.—This little publication records the doings of the members of the Royal Horticultural Society's Gardens Club, an association of past and present officers, students, and employés of the Royal Horticultural Society. The volume for 1911 is the fourth number, and the contents are no less interesting than in the earlier issues. Mr. JOHN FRASER is the new editor. The opening article is by the President, Mr. E. AUGUSTUS BOWLES, who writes in a delightful strain on "Garden Messmates," giving his experience of plant associations, or shall we say, the intercropping of flowering plants. The association of Tulips with Carnations or of Daffodils with Michaelmas Daisies may seem unorthodox, but Mr. BOWLES makes a good case for such groupings. He has also something to say about the mutual assistance of neighbouring plants, and suggests that "When you examine the crowding of plants in Alpine pastures it is much pleasanter to try to believe that mutual assistance is a reason for close association, rather than that a fierce struggle for existence is constantly stimulating weaker members of the community." Notes from various parts of the world by former students of the gardens provide interesting reading, and there are descriptions of places nearer home, including a note on the Cambridge Botanic Garden, by Mr. W. G. KENT. Amongst other contributors Mr. ERNEST M. BEAR gives his experiences of commercial fruit-growing, Mr. HARRY L. FOSTER enumerates a list of birds observed at Sutton Park, Surrey, whilst Mr. W. J. LUCAS has an interesting article on Cockroaches. The doings of the Wisley men show that a keen interest is maintained in the debating society, which secures an average attendence of 30 at the meetings.

KEW GARDENERS' SOCIAL EVENING.—The fifteenth annual social gathering of the past and present employés of Kew Gardens, was held on the 12th inst. at the Boat House, Kew, the company numbering 110. The musical programme included songs by Messrs. Briscoe, Gardner, and James.

THE SURVEYORS' INSTITUTION.—The next ordinary general meeting of the members will be held at the Institution on Monday, the 22nd inst., when a paper will be read by Mr. JULIAN C. ROGERS, entitled "An Evening in The Institution Library."

THE WEATHER IN 1911.—It behoves the gardener to become a close student of the weather, and it is not surprising that many gardeners are expert meteorologists, keeping daily records of the rainfall, sunshine, temperatures, and other meteorological conditions. In accordance with their practice several correspondents have forwarded their records for the past year. At Dyrham Park Gardens, Barnet, the maximum temperature was recorded by Mr. H. JUNIPER on August 9, when the thermometer registered 100°. The coldest day was February 1, with 19° of frost. The rainfall for the year amounted to 25.041 inches as compared with 30.081 inches in 1910. The wettest month was December, when 5.004 inches of rain were recorded, August being the driest month with only .063 inch. Mr. WILMOT H. YATES, of Rotherfield Park Gardens, Hampshire, states that the rainfall for December registered 11.98 inches, and that the number of days on which rain was recorded was 26. The heaviest rainfall in 24 hours was recorded on December 12, when 1.35 inch fell. Notwithstanding the prolonged drought the rainfall for 1911 amounted to 41.02 inches. At Norbury Park, Dorking, Surrey, according to statistics compiled by Mr. G. KENT, the rainfall for 1911 was 30.07 inches; December was the wettest month with 7.95 inches, followed closely by November with 5.12 inches. The driest month was August, when .61 inch of rain fell. Mr. T. EDWARDS sends us the following records from The Royal Gardens, Windsor. The total amount registered for 1911 was 23.04. The wettest month was December, when 5.49 inches were registered. November was also a very wet month. The greatest rainfall in 24 hours occurred on October 24, when .86 inch fell. Rain fell in measurable quantity on 171 days, but there were only 23 wet days during the whole of July, August and September. A very wet year at Windsor was 1903, when 36.41 inches of rain fell, but in 1898 only 17.26 inches were registered. The average yearly rainfall at Windsor is 24.96 inches. Rain fell in Davenham Gardens, Malvern, writes Mr. C. A. BAYFORD, on 156 days. During December there were 24 wet days, the total rainfall for the month measuring 5.42 inches. July was the driest month, with only .24 inch. The total rainfall for the year was 21.23 inches, compared with 32.89 inches for 1910. Mr. A. J. MORRIS, of Compton Bassett Gardens, Wiltshire, states that the total rainfall for the year just closed has amounted to 27.70 inches, compared with 37.40 inches in 1910. December (6.77 inches), November (3.73 inches), and October (2.50 inches) were the three wettest months. In July no rain was registered, August being the next driest month, with only 1.23 inch. On May 11 1.95 inch of rain fell in one hour. No rain fell from June 29 to August 20. In December Mr. MORRIS states that rain fell each day with the exception of the 5th, 29th, and 31st. Mr. P. HILLS, of the Gardens, Kinloch Castle, Rhum, states that he suspects more rain fell at Rhum than in any other part of the United Kingdom. The total rainfall for the year was 114.28 inches. The amount registered in December was 17.82 inches, rain falling on every day of the month. In November 12.65 inches fell, and in February 12.27 inches, there being 19 wet days in that month. The driest month was March, with 11 days of rain, when 4.54 inches fell. Mr. W. A. COOK, of Leonardslee Gardens, Sussex, gives 34.87 inches as the total amount of rain for the year at Leonardslee. December was the wettest month with 8.05 inches of rain. November was also a wet month with 6.36 inches; the driest months were January, when only 1.43 inch fell, and July 1.09 inch. The greatest fall in 24 hours occurred on August 22, when 1.44 inch fell. There were 24 wet days in December, and 142 during the whole year. The amount of rainfall registered in the gardens of Lowther Castle, Westmorland, was 38.11 inches. Mr. F. CLARKE, the gardener, states that December was the wettest month with 9 inches of rain, but in November there were 4.82 inches. The greatest rainfall in 24 hours, 1.57 inch, was registered on June 24; the number of wet days in 1911 totalled 180. Mr. W. R. ROBERTS states that at Bailrigg Gardens, Lancaster, the rainfall was only .38 inch less than in 1910, the amounts respectively being 41.95 inches and 42.33 inches. December was the wettest month, with 7.50 inches, and July the driest, only .94 inch being registered. The greatest rainfall in 24 hours occurred on June 24, when 1.38 inch fell. There were 29 wet days in December, and 190 rainy days during the whole year. Mr. WM. CRUMP, of Madresfield Court Gardens, Worcester, states that the average rainfall in that district for the past 29 years is 25.01 inches, but in 1911 only 21.32 inches were registered. November and December were the wettest months, with 2.73 inches and 5.81 inches respectively. The greatest fall in 24 hours occurred on December 20, when .64 inch was registered. There were 26 wet days in December, and 153 rainy days in the whole year. At Hill House Gardens,

Harrow Weald, Middlesex, the rainfall amounted to 24.30 inches, which is 1.34 inch below the average for the past 20 years. Rain was recorded on 177 days. Mr. THOMAS HUNTER, the gardener, states that July was drier than this month has been since records have been kept at Hill House, there being only .46 inch of rain registered that month, or 2.06 inches below the average. December had 29 rainy days, and a total fall of 4.97 inches, or 2.62 inches above the average. Writing from Osberton Gardens, Worksop, Mr. JAMES B. ALLAN states that 1911 was the driest and hottest year on record. The hottest day was August 9, when the thermometer registered 97° in the shade. The coldest day was January 31, when 18° of frost was registered. The heaviest rainfall occurred on June 24, when 1.24 inch fell in 24 hours. The rainfall in these gardens for the year amounted to 19.37 inches. July was the driest month with .14 inch, and December the wettest month with 4.81 inches of rain.

INTERNATIONAL HORTICULTURAL EXHIBITION, 1912.—A meeting of the Worcestershire Committee of the Royal International Horticultural Exhibition was held at the Crown Hotel, Worcester, on the 10th inst. Mr. F. DAVIS, of Pershore, occupied the chair, and those present included Messrs. HARRY J. VEITCH, G. J. INGRAM, W. CRUMP (hon. local secretary), A. YOUNG, W. S. HURLSTONE, E. BLACKWELL, C. A. BAYFORD, J. WHITE, J. GOUGH, E. J. PARSONS, J. JONES, G. F. HOOPER, J. W. CLARKE, W. COYLE, A. A. PETTIGREW, J. WILLIAMS, and J. HAWKES. The minutes—which stated that a donation of £100 had been promised to the Worcestershire Fund, with a guarantee of £500, also a donation of £10 10s.—were adopted. The suggestion was made that a Worcestershire China cup should be one of the prizes at the exhibition, and the hope was expressed that some enthusiastic supporter would make an offer of one. Another suggestion was that a trip to London should be arranged for one day of the show.

MR. JOHN WEATHERS.—Mr. JOHN WEATHERS, general secretary of the British Gardeners' Association and editor of the *B.G.A. Journal*, has resigned these offices as from the 9th inst. In another paragraph it will be seen that a general meeting of the Association will be held at Carr's Restaurant on the 25th inst. to consider the secretary's resignation and other business.

BRITISH GARDENERS' ASSOCIATION. — A general meeting of the members of the British Gardeners' Association will be held at Carr's Restaurant, 264, Strand, on Thursday, January 25, at 7 p.m., by order of the Executive Council, "to consider alterations of rules, receive the resignation of the general secretary, and to confirm the sub-committee's report, as adopted by the Executive Council."

PERPETUAL-FLOWERING CARNATION SOCIETY. — A Carnation conference will be held in connection with the spring show of this Society, in the Royal Horticultural Hall, on March 21.

THE TEACHING OF GARDENING IN SCHOOLS.—At the recent conference of London County Council teachers, Mrs. G. E. CLICK, Headmistress of the Manor Lane School for Infants, described an experiment in garden work which is being carried on by the children attending that school. Each scholar had a few square feet of soil to cultivate. Flowers and fruits of several kinds were produced in addition to small crops of Wheat, Barley, and Maize, and Mrs. CLICK reported that the teachers found that the garden was of assistance to them in almost every part of the work of the school.

GARDENERS' ROYAL BENEVOLENT INSTITUTION (WORCESTER AUXILIARY).—The annual festival of the Worcester Auxiliary of the Gardeners' Royal Benevolent Institution was held at Worcester on the 10th inst. The Mayor, Alderman E. THOMAS, presided. The financial statement showed total receipts amounting to £116 6s. 9d., and a balance in hand of £6 7s. 10d., after paying expenses and contributing £100 to the funds of the institution. Earl BEAUCHAMP was re-elected president and

FIG. 22.—GARDENERS' ROYAL BENEVOLENT INSTITUTION.

Cup presented to Mr. Crump by the Worcester Auxiliary.

thanked for his kindness in throwing open his gardens to the public in the interests of the charity. Mr. C. W. DYSON PERRINS was also thanked for similar help. Mr. HURLSTONE, the oldest subscribing member and for many years a member of the committee, was elected a life member. The loving cup and fruit bowl offered by Councillors A. USHER and A. A. PREECE (see figs. 22 and 23) to members who (1) had introduced the greatest number of new subscribers, and (2) collected the largest amount on collecting cards during the year were won respectively by

FIG. 23.—GARDENERS' ROYAL BENEVOLENT INSTITUTION.

Fruit bowl presented to Mr. Wade by the Worcester Auxiliary.

Mr. CRUMP and Mr. WADE. The presentation of these gifts had resulted in extra receipts amounting to £56 12s. Amongst the speakers at this meeting were Mr. HARRY J. VEITCH, treasurer of the Institution and chairman of committee, and Mr. G. J. INGRAM, secretary. Mr. VEITCH gave some interesting particulars relating to the excellent work done by the charity on behalf of necessitous gardeners and gardeners' widows.

HORTICULTURAL CLUB.—The next meeting of the members of the Horticultural Club will take place at 6 p.m. on Tuesday, the 23rd inst., at the Hotel Windsor, Westminster. A lecture will be given by Mr. CHAS. E. PEARSON on "The Evolution of Colour in Birds' Eggs." The lecture will be illustrated by lantern slides.

SOCIÉTÉ FRANÇAISE D'HORTICULTURE DE LONDRES.—We are informed that N. N. SHERWOOD, Esq., will preside at the annual dinner of this Society, which will be held at the Café Royal, Regent Street, on Saturday, March 30. Further particulars may be obtained on application to Mr. G. SCHNEIDER, 3, Meredyth Road, Barnes, S.W.

SCOTLAND.

FATAL ACCIDENT TO A GARDENER.

MR. JOHN M'KINNON, gardener to R. Kerr, Esq., Westfield, Greenock, lost his life by drowning in the River Clyde at Gourock on the 10th inst. Mr. and Mrs. M'Kinnon landed by the Caledonian steamer from Dunoon in the evening, and, after coming ashore, walked past the railway station and along the pier to the westernmost part and over the quay into the river. They raised cries of distress, and Mrs. M'Kinnon was rescued, little the worse for her mishap. A further search resulted in finding Mr. M'Kinnon in an unconscious condition. Efforts were made to restore him, but these were of no avail. Mr. M'Kinnon was about 50 years of age.

EDINBURGH DISTRESS COMMITTEE AND MARKET GARDENING.

WHILE opinions may differ regarding the competition of such bodies as the Edinburgh Distress Committee with private enterprise in the cultivation of produce for market, there can be no question of the excellence of the work being performed by this committee at their farm of Murieston. The committee was fortunate in securing the services of Mr. Cairns as superintendent, and the quality of the vegetables and fruit he has exhibited attests to the excellence of his methods of cultivation. Strawberries grown at Murieston were of such high quality that they were supplied daily for the royal table on the occasion of the visit of His Majesty King George to Edinburgh last summer. *Correspondent.*

PLANT NOTE.

HELIOPHILA SCANDENS.

THE genus Heliophila belongs to South Africa. H. scandens is a perennial climber with white flowers, the only climbing species of the genus, and, with the exception of the Peruvian Cremolobus, the only climbing member of the natural order Cruciferæ. This makes it extremely interesting from a botanical point of view, but it is also of interest horticulturally as a white-flowered climber flowering freely in the depth of winter. From this point of view there is nothing to compete with it, and for lighting up a conservatory at this time of the year it is certainly of value. It is slender in habit, sparingly branched; the leaves are 1½ inch or 2 inches long, elliptic or oblong-lanceolate, acuminate, and pale green; the flowers are in racemes, pure white, and borne in considerable numbers. They do not appear to be fragrant, as has been stated. The plant was introduced to Kew some years ago from the Botanical Gardens of Durban, in which locality, as well as at Manda in Natal, it inhabits shady places among shrubs. In a corridor at the Botanic Garden, Cambridge, it flourishes and flowers every year. The culture does not appear to be difficult, and the plant strikes readily from cuttings. *R. Irwin Lynch, Botanic Garden, Cambridge.*

THE LIFE OF SIR JOSEPH HOOKER.

(Concluded from page 27.)

CURTIS'S "BOTANICAL MAGAZINE."

THE Hookers, father and son, edited this periodical, founded in 1787, from 1826 to 1904, vols. liv. to cxxx., and Sir Joseph, volumes xci. to cxxx., containing plates 5,486 to 7,991.

No other botanical or horticultural periodical in the world can show an unbroken existence of 125 years, for it is still appearing regularly on the first of each month. The *Botanical Magazine* must be left with the remark that it contains the elements of a history, not only of ornamental gardening, but also largely of the introduction of useful plants. A succinct "History of the *Botanical Magazine* and Contemporary Horticultural Literature," by the present writer appeared in the *Gardeners' Chronicle* in 1887.

HOOKER'S "ICONES PLANTARUM."

Hooker's *Icones Plantarum*, vol. i.-xxx., 1837-1911, 3,000 plates, issued in several series, of which Sir Joseph edited the third. This intermittent serial was started by Sir William to illustrate novelties selected from his herbarium, and it has been continued by the Trustees of the Bentham Fund as a Kew publication. Sir Joseph was not a copious contributor, but he is the author of the letterpress to the plates in the eleventh volume, illustrating plants peculiar to the Island of St. Helena. They are: Frankenia portulacifolia, Phylica ramosissima, Nesiota elliptica, Mesembryanthemum cryptanthum, Pharnaceum acidum, Lichtensteinia Burchellii, Sium helenianum, Hedyotis arborea, Commidendron spurium, C. rugosum, Melanodendron integrifolium, Petrobium arboreum, Senecio prenanthiflorus, S. Leucadendron and Mellisia begonifolia (see also the paragraph below on the Balsaminaceæ). The first ten volumes of the *Icones* are extremely rare, and, deducting the amount for which the rest of the volumes may be had, a set recently offered by Quaritch would cost at least £50.

THE "GENERA PLANTARUM" OF BENTHAM AND HOOKER FILIUS.

Although as a whole this great work was a joint affair, the final writing out of each family or Order was done by one or the other of the authors, and, in consequence of official duties, Hooker did less of this than Bentham. Botanists are indebted to Mr. Bentham for a condensed summary of their individual labours; and in opening the explanation he says: "We wish, however, that the whole may be considered as the joint production of both of us." From this summary we learn that Hooker worked out the Cruciferæ, the Capparideæ, and the Resedaceæ; the whole of the Discifloræ, with the exception of the Lineæ, Humiriaceæ, Geraniaceæ, and Olacineæ. Of the Calycifloræ, he took the Connaraceæ, Rosaceæ, Saxifragaceæ, Crassulaceæ, Droseraceæ, Hamamelideæ, Bruniaceæ, Haloragеæ, Rhizophoraceæ, Combretaceæ, Melastomaceæ, Lythrarieæ, Onagrarieæ, Samydaceæ, Loaseæ, Turneraceæ, Passifloraceæ, Cucurbitaceæ, Begoniaceæ, Datisceæ, Cacteæ, Ficoideæ and Cornaceæ; as against Legumineæ, Myrtaceæ, Umbelliferæ and Araliaceæ by Bentham. Of the gamopetalous families, Hooker did relatively less, his share being restricted to the Rubiaceæ, Caprifoliaceæ, Vacciniaceæ, Ericaceæ, Epacrideæ, Myrsineæ, Primulaceæ and Sapotaceæ. In the Monochlamydeæ, Hooker was more active, and elaborated the Curvembryeæ from the Nyctagineæ to the Batideæ. He also did the Nepenthaceæ, Cytinaceæ and Balanophoreæ, in which families he was a specialist. Again, in the Monocotyledons, Hooker wrote out comparatively little. The Palms falling to his share, as well as the Nudifloræ (Araceæ, &c.), and the Apocarpæ-Alismaceæ, Naiadaceæ, &c.

"INDEX KEWENSIS."

The first part of the great *Index Kewensis* appeared in 1893, and the main work, with addenda, was issued in 1895. It was compiled at the expense of Charles R. Darwin and his successors by B. Daydon Jackson, under the supervision of Sir Joseph Hooker, who read the whole in proof. A first supplement, by T. Durand and B. D. Jackson, covering the period 1886 to 1895, was completed in 1906. Subsequent quinquennial supplements have been compiled by the staff of the Kew Herbarium, and the fourth, covering the period 1906 to 1910, is now undergoing final preparation for the press. The second supplement was published in 1904, and the third in 1908.

"A Sketch of the Life and Labours of Sir William Jackson Hooker," *Annals of Botany*, vol. xvi. (1902), pp. ix. to ccxxi., with a portrait. This work of filial devotion has been freely drawn upon in the foregoing, and it must be left with the remark that it is a treasury of facts in the History of Kew.

THE BALSAMINACEÆ.

The delight and comfort of Sir Joseph's later years was the study of the genus Impatiens, one of the most difficult to deal with in the dried state, on account of the extreme tenuity of the flowers. By the exercise of great skill and patience he succeeded in dissecting thousands of

FIG. 24.—LILIUM LONGIFLORUM.

flowers, the parts of which were carefully drawn and subsequently mounted in finished style. Of such an accomplishment a young man might be proud. In the course of his labours on this genus the author has described upwards of 150 new species. Many have been figured in Hooker's *Icones Plantarum*; the drawings of the plants by Miss M. Smith, often built up from fragmentary specimens; the analyses by Sir Joseph himself. The bibliography of the subject begins with Hooker and Thomson's joint work.

"Præcursores ad Floram Indicam," J. D. H. and T. Thomson. Balsaminaceæ. *Journal of the Proceedings of the Linnean Society*, vol. iv., pp. 106-157.

"An Epitome of the British Indian Species of Impatiens." *Records of the Botanical Survey of India*, vol. iv., part 1, 1904; part 2, 1905; part 3, 1906, pp. 1-53. About 60 species are dealt with.

"New Species of Impatiens from China and Cochin-China, Collected by Frenchmen and Preserved in the Herbaria of Paris and Le Mans." Hooker's *Icones Plantarum*, vol. xxix. (1908), tt. 2851-2875.

"Les Espèces du genre Impatiens dans l'Herbier du Museum de Paris," *Nouvelles Archives du Muséum d'Histoire Naturelle de Paris*, 4me série, tome x. (1908), pp. 232-273, planches 2-6. "Introductory Note." Latin key to 65 species, whereof 48 new.

"On Some Species of Impatiens from Indo-China and the Malayan Peninsula." *Kew Bulletin*, 1909, pp. 1-12. A classification of the species of Eastern Asia and descriptions of new species.

"A Review of the known Philippine Islands Species of Impatiens." *Kew Bulletin*, August, 1909, pp. 281-289. Twenty-five species are enumerated, of which 23 are new. There is a Latin key to the species, but no full descriptions.

Impatiens d'Indo-Chine in Lecomte Notulæ Systematicæ, vol. i. (1909), pp. 10-14. Descriptions of nine new species.

"New Asiatic Species of Impatiens from various sources," Hooker's *Icones Plantarum*, vol. xxx. (1910), tt. 2901-2925.

"New Impatiens from China." *Kew Bulletin*, October, 1910, pp. 269-275. Descriptions of eight new species, collected by E. H. Wilson, and raising the number of Chinese species known to the author to upwards of 170.

"Generis Impatiens Species Indicæ Novæ et minus rite cognitæ, a cl. Meebold detectæ." *Kew Bulletin*, October, 1910, pp. 291-300. Eleven new species and revision of several others.

"On the Balsaminaceæ of the State of Chitral." *Kew Bulletin*, June, 1911, pp. 209-211. Enumeration of eight species.

"On Some Species of Impatiens from the Malay Peninsula." II., *Kew Bulletin*, July, 1911, pp. 249-250. Descriptions of two new species, and a figure of I. peltata, Hook. f.

The third part of the 30th volume of Hooker's *Icones Plantarum*, December, 1911, contains Hooker's last work—a further contribution of 25 plates, illustrative of his favourite genus, Impatiens.

CONCLUSION.

The foregoing superficial sketch of Sir Joseph Hooker's life-work is necessarily incomplete as a bibliography, and it is especially so in relation to translations into foreign languages; but it will serve as a guide to the more important of his contributions to botanical science during three-quarters of a century. It is the tribute of a grateful pupil of over 50 years' standing to a great master, whose early help and encouragement led to the realisation of the writer's ambition in the botanical world and to a life made happy by pleasurable pursuits. A philosophical appreciation of the career just terminated is left to a more gifted pen. When Joseph Hooker first saw light the study of botany was comparatively in its infancy; but he lived to see it raised to the dignity of a science of methodical precision in all its branches. Circumstances determined the direction of his studies, and the greater part of his life was devoted to taxonomy, phytogeography and applied botany. No other botanist has travelled so widely and had opportunities of studying the vegetation itself of so many different countries; and no botanist has described, for the first time, so many of the extraordinary organisms of the vegetable kingdom. Sir Joseph was twice married; first, in 1851, to Frances Harriet Henslow, daughter of the celebrated Professor, and a sympathetic wife, who, among other things, translated Le Maout and Decaisne's well-known *Traité Général de Botanique*. His second wife, whom he married in 1877, was Hyacinthe Lady Jardine, the accomplished widow of Sir William Jardine, and she survives him. *W. Botting Hemsley.*

LILIUM LONGIFLORUM.

THE plant of Lilium longiflorum shown in fig. 24 was cultivated in a pot 8 inches in diameter in the gardens of Mrs. Waddilove, Brunton Wall, North Tyne, who kindly sends us the photograph. The gardener, Mr. John Wilson, states that "the pot contained two bulbs, which were potted in the autumn of 1910 in a mixture of three parts loam and one part leaf-mould, with a little sand. The pot was stood in a cold frame through the winter, but after danger from frost was past the plant was placed outside till the blooms appeared, when it was removed to a greenhouse. There were 13 very large blooms and six other flowers of ordinary size."

HARDY FLOWER BORDER.

HOLLYHOCKS AND CALCEOLARIAS.

I SOWED a quantity of Hollyhock seeds as soon as they were ripe, and the seedlings have recently been potted. They will require larger pots in the beginning of February, and, meanwhile, they need to be kept growing actively to obtain strong plants for flowering. Where large plants of the stronger-growing Calceolarias are required for the flower-garden, either as pillar or standard plants, it is imperative that they shall also be kept growing actively. Calceolarias seem to grow just as well in a somewhat low temperature as in a higher one, but they need abundant root-room to enable the shoots to grow tall and strong. Calceolarias still in cutting boxes in frames or elsewhere should be potted without delay in pots 4 inches in diameter, and later into others 6 or 7 inches in diameter. For ordinary, low-growing specimens, the tips of the shoots should be pinched off and the plants allowed to remain in the boxes for another six or eight weeks. *B.*

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

SNOW IN THE MIDLANDS.—A heavy fall of snow occurred at Birmingham to-day. It commenced about 8 a.m., and continued throughout the day. At 5 p.m. the snow was 9 inches deep on the lawn in these gardens. Many trees and shrubs, including Rhododendrons, Buddleias, Laburnums, Coluteas and Conifers, are badly damaged. *T. Humphreys, Botanical Gardens, Edgbaston, January 17.*

CYPRIPEDIUMS AT OAKWOOD GARDENS, CRAYFORD.—I am sending you two photographs taken in our Cypripedium house during Christmas week, showing how well adapted are the varieties of C. insigne for producing a display of bloom during the winter months. We have about three dozen specimen plants carrying in all nearly 800 blooms. The plants have made a grand show for the past six weeks or two months. I am sending you at the same time a few blooms for the Editors' table. *A. Tomalin, Oakwood Gardens, Crayford.* [Some excellent flowers of Cypripedium insigne accompanied the note. The photographs were unsuitable for reproduction.—EDS.]

THE COLOURING OF APPLES.—I read with interest your correspondent's remarks respecting the colouring of Apples (see vol. l., p. 447). I have been particularly impressed this season at the continued colouring of Apples in my fruit-room since they were gathered, especially in the following sorts: Adams's Pearmain, Margil, Annie Elizabeth, Beauty of Kent, Newton Wonder, and Normanton Wonder. These are naturally highly-coloured varieties, but with me they frequently lack this quality for various reasons. I have been in the habit of top-dressing my fruit trees with wood ashes, and this fact leads me to fully concur with Rev. Bernard Hall that the colouring is largely due to potash in the soil. The increased bright colouring which has taken place in the Apples above mentioned while in the fruit-room, I think, goes to show that internal influences have much to do with the colouring. Probably the long, hot summer did its part also. *Thos. Oldham, Stoughton Grange, Leicester.*

———Although climatic conditions have considerable influence on the maturing of fruits in general in the open, it seems to me it is only "one rung in the ladder" in assisting to bring fruits to perfection. My experience is that much depends on the soil constituents in which the trees are growing, with regard to size, colour and flavour of the fruits. I was for several years in charge of a garden which was composed of a cold, clayey loam, and I lifted the fruit trees, which were mostly in bush shape, root-pruned them, and mixed with the soil old mortar rubble, ashes from the garden fire and basic slag, the work extending over two or three winters. There were two or three trees of Worcester Pearmain, and these were not all done in one season. The fruits from the trees that had not been lifted were practically green, with scarcely a tinge of red, whereas those from the trees attended to were brilliantly red. This may partly explain the reason why pot trees, well grown and artificially fed, can be relied upon to produce fruits superior to those grown in the open. *A. E. T. R., Leicester.*

———The numerous points of view from which *Southern Grower* with praiseworthy detail inquires (p. 447, vol. l.) into the problem of the colouring of Apples appears to leave the main issue somewhat obscured. That issue was, in the first instance, my noticing the said discussion in the horticultural Press as to causes of contrasts in colouration in successive seasons. On reflecting on these causes of irregularity in the succession of annual fruit shows reported upon some occasions as rather green and on others as well coloured, I felt prompted to look up the records of the weather preceding the shows. In the result this examination seemed to prove that the incidence of a fair amount of rain falling opportunely in the course of a month or two before the show produced a well-coloured show, whereas dry weather left the show rather green. Previously a greater faith in the action of sunshine alone was prevalent. That rain would act thus favourably on colouration did of course not preclude the need of sunshine. That rain and sunshine alternating would therefore constitute the ideal influences for colouration of fruit was of course taken for granted and was not a postulate requiring to be laboured in my present reference to an incident happening at a distant period. It throws a little additional light upon my conclusions when I state that on the occasion of a show peculiarly "green" during those years there was one highly-coloured exhibit of many sorts of Apples from the King's Acre Nurseries, Hereford. On inquiry respecting the cause of the difference the owner told me that he had the best-fruiting trees in his nursery regularly sprinkled with water from the hose and that he felt convinced that the treatment accounted for the difference between his exhibit and others. The cause of my writing to the *Agricultural Gazette* recently on this subject, in the first instance, is distinctly pointed out and therefore justified by *Southern Grower*, who, moreover, adds that he agrees with my criticism so challenged in that well-known weekly. As to my suggested explanation, *Southern Grower* thinks it a curious one, and proceeds to analyse my deductions and to doubt their applicability. Yet we are taught to believe that nitrates supplied to vegetation make chiefly for the development of leaf and branch and that they promote sappiness, which is inimical to the setting of fruit buds. On vegetables such effect is, of course, even more striking. Thus, if it is at the expense of the fruit crop in one sense, the diverted energy of the tree, on the arrest of the action of nitrates, may well be assumed to allow maturation to supervene of both fruit and bud, and this would find expression in the colouration of the fruit. The safest attitude is doubtless to assume that opportuneness of alternation of sunshine and rain is the cause of all the preferential issues involved. A parallel to these influences here discussed may be adduced by considering the consequences of root-pruning. The curtailment of roots throws energy from branch formation into the development of fruit buds on hitherto poorly-fruiting trees prone to making over-sappy growth. Reduction of roots acts on lines parallel to the reduction of the excessive supply of nitrogen to roots, and both these parallel influences stimulate fruit production. In reference to this significant influence of root-pruning I am reminded of another incident in my own experience. As records of the incidence of horticultural methods are, moreover, interesting to numerous readers, I may state that before I ever heard of the principle of root pruning as an expedient for the promotion of crops, I had in the course of my amateur practices from disappointment at results, from paucity of crops, applied for advice to a nurseryman who had supplied many trees to my garden. He sent his fruit-foreman, with the result that advice was tendered me to attach brickbats, in proportion to strength of leads and laterals, to all main growths tending upwards, so as to depress them, with a view of arresting their flow of sap, halfway to the tips, and thereby induce fruit bud formation. My garden looked as if furnished with Christmas-tree hangings, but beyond being appropriate for the winter season the entire expedient proved barren. It was based on the inspiration of Shirley Hibberd, on whose advice I thus acted some 40 years ago. However, among my several hundred trees was one standard Pear of the Calebasse variety, which had grown into the form of a weeping Ash. The cure by brickbats was therefore obviously impracticable. I solved the dilemma by telling my gardener to dig a trench round the tree and cut its roots so as to arrest its prodigious growth. The result was that 18 months after the operation an ample crop was picked the first fruit produced after six years from planting and furnished the first opportunity for determining the variety. Of course my discovery was promptly applied throughout the garden, and methods based on the results have been practised ever since. *H. H. Raschen, Birkdale, Southport, Lancashire.*

SWEET WILLIAM RUST.—A remarkable example of drastic treatment of plants of Sweet William affected with rust came under my notice last year. A large breadth of strong plants had begun to show traces of the disease, and they were heavily dusted with soot, then with sulphur, and again with soot. Plants that had received the soot and sulphur dressing once only had green leaves, and apparently were quite healthy, but the leafage of all the plants that received the second dressing of soot was burned so that not a single green leaf could be seen. Ultimately, those most burnt, possibly benefiting by the dressing of soot, grew quite out of their unhappy scorching, and flowered finely and profusely, quite equalling those plants which had so well retained their foliage. *D.*

RAT CATCHING.—Mr. Kenwood (see p. 28) does not mention the most efficacious method of catching rats: a good ferret and a couple of terrier dogs. With these aids a clearance can soon be effected, or at least the rodents can be kept within manageable numbers. There is no cruelty in the use of ferrets to drive them from their holes, nor certainly when they come into contact with a properly-trained terrier, who can discriminate between rats and ferrets. It is indeed a strange haunt where a ferret cannot be employed. If all are not killed at the first hunt, then try again within a few days. Rats do not relish a disturbance by a ferret; they very often shift to other quarters when so disturbed. *E. M.*

ROSE W. ALLEN RICHARDSON.—The remarks of Mr. Molyneux on the great change of colour observed in the blooms of this Rose (see p. 26) interested me, as I have observed the same thing. Ten years ago a fine Rose growing here carried hundreds of beautifully coloured flowers, but every year since the flowers have become gradually paler, until this past summer they had no colour at all. Probably Rose growers on an extensive scale may have something to say on the matter. *A. P., Cork.*

APPLE TREES IN GRASS LAND.—The majority of fruit-growers will follow the method of growing the trees in cultivated land adopted by the bulk of fruit-growers who earn their living by this means. There is no trouble, however, in pointing to instances of excellent results from trees that are growing in grass land. I have in my mind the orchards at Aldenham and Swanmore. It would be difficult to find one more satisfactory than that at Aldenham. The trees are large, shapely, and they yield huge quantities of fruit of nearly all varieties that are there included: especially Blenheim Pippin, King of the Pippins, Cox's Orange Pippin and many sorts of kitchen Apples. I forget how many years the orchard has been down in grass, but a good many. I noticed, however, that last year Mr. Beckett had removed the grass from about the stems of many of the trees, so that he could give the roots liquid stimulants, which he applied with beneficial results. With such a dry summer and early autumn as experienced last year, this application of sewage was indeed a boon to the trees. Now this removal of the grass proves that at Aldenham the trees were better with a partial removal of the grass than an absolute covering of the orchard. Here, at Swanmore, the orchard has

been down in grass at least a dozen years; the bulk of the trees were planted 30 years ago. Nowhere can finer coloured examples be seen of such sorts as Cox's Orange Pippin, Blenheim Pippin, Mère de Ménage, and other varieties. Seldom, indeed, do the trees obtain any manurial aid, neither is the fruit thinned; consequently, the specimens are not large, but they are of capital quality. These brief descriptions of two orchards will illustrate my point of observation, which I have not seen mentioned in the discussion that has taken place on the subject. I allude to the manner in which the sites of orchards were prepared before the trees were planted. I do not know what was done at Ridgmont in preparing the soil before planting, whether the whole of the ground was trenched or whether stations for the trees only were prepared. At Aldenham and at Swanmore both the orchards were deeply trenched. Where trees are planted in land wholly trenched, there need be no fear about success if the grass is not allowed to grow over the surface for, say, 20 years after planting. In the case of Aldenham, stations at first were prepared, in which the trees flourished for a time, but when the roots had fully taken possession of the prepared, circumscribed area they began to show signs of failure. Then Mr. Beckett decided it was necessary to trench the whole of the orchard not previously done, and we all know what Mr. Beckett's ideas of trenching are—so we may assume the work was well done. I have seen the results in the marked improvement in the growth of the trees and the increase in crops. Let me say, then, that I think Apple trees on grass can be made a success by a proper preparation of the land beforehand, but to plant the trees in stations only and allow the grass to grow close up to the trees within two or three years of planting is bound to result in failure. Examples of this unsatisfactory treatment are numerous. *E. Molyneux, Swanmore, Hants.*

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

JANUARY 9.—*Present:* Mr. E. A. Bowles, M.A., F.L.S., F.E.S. (in the Chair); Dr. O. Stapf, Messrs. A. Worsley, A. D. Michael, W. Hales, J. T. Bennett-Poë, W. C. Worsdell, E. M. Holmes, J. O'Brien, W. E. Ledger, and F. J. Chittenden (hon. sec.).

Dracæna Goldieana.—Mr. J. T. BENNETT-POË showed an inflorescence of this tropical African species, the flowers of which open at night, are whitish, jessamine-scented, and produced in a dense head. It is figured in *Bot. Mag.*, t. 6,630.

Malformed Cypripedium.—Mr. GURNEY WILSON showed flowers of a Cypripedium seedling without a labellum, from Messrs. James Veitch & Sons, which each year produced similar ones. The labellum was represented by a minute spike only.

Navel Orange.—Mr. H. SOMERS RIVERS sent a large "St. Michael" Orange, produced on a plant which three years before had been cut down. It had the "navel" form seen usually in some varieties of Orange, but very unusual in this type. Apparently the extra vigour of the growth had induced its formation.

Odontonia × Firminii.—Mr. JAMES O'BRIEN, V.M.H., drew attention to a bigeneric hybrid shown by Messrs. FIRMIN LAMBEAU under this name. Its parentage was alleged to be Odontoglossum crispum × Miltonia vexillaria, but some doubt was felt as to whether one parent may not have been Miltonia Phalænopsis, on account of the colouring and form of the flower. The Committee expressed a desire to see further seedlings of the cross and for further information regarding it.

Scelochilus variegatus.—Sir JEREMIAH COLMAN, Bart., showed this uncommon species, and on the motion of Mr. J. T. Bennett-Poë, seconded by Mr. Holmes, a Botanical Certificate was unanimously awarded.

Acorns with two or three radicles.—Mr. E. M. HOLMES showed some Acorns produced with two or three radicles. The embryos of which they formed part were not, however, fully developed.

Daphne odora.—Dr. OTTO STAPF drew attention to the fact that most of the figures in botanical works under this name represented Daphne sinensis, the true D. odora being very rarely figured, and apparently only of comparatively recent introduction into this country. In times past, at any rate, it would appear that D. sinensis was the more common plant. It differed from D. odora, a Japanese species, in having the calyx tube externally hairy. Messrs. J. VEITCH & SONS exhibited the true D. odora at the show on this day. Dr. STAPF showed a figure from the *Garden*, which was named D. odora, but which differed markedly from that species in the arrangement of its flowers.

Yucca with curious outgrowths.—Mr. BOWLES showed leaves of Yucca filamentosa flaccida from his garden, with curious, short, hollow, horn-like lateral growths near the top of the leaves. He had seen the same thing in the same variety in the gardens of Trinity College, Dublin, and all the plants of this variety, but of this variety only, showed the peculiarity in his garden every season.

ROYAL CALEDONIAN HORTICULTURAL.

JANUARY 10.—The annual general meeting of this society was held on this date. Mr. McHattie, the senior vice-president, occupied the chair, and there was a small attendance of members.

The report by the council stated that the members were to be congratulated on the quality of the spring and autumn shows, but the attendance was disappointing, especially at the autumn exhibition, and the financial result was, therefore, not satisfactory. The hope was expressed that the heating of the Waverley Market might have a beneficial effect on the attendance at future spring shows. The accounts showed an increase in the funds of £23.

Mr. J. Stewart Clark, of Dundas, was re-elected president, and Mr. D. W. Thomson, Edinburgh, was elected a vice-president. The vacancies in the council were filled by the election of Messrs. W. Galloway, Gosford; J. Phillips, Granton Road Nursery, Edinburgh; and Robert Craig Cowan, Eskhill, Musselburgh.

A member drew attention to the fact that certain ground belonging to the Heriot Trust, which was now under nursery crop, was likely to be utilised otherwise, and he thought that the society should endeavour to encourage the establishment of allotments on the site by bringing the matter to the notice of the Town Council and otherwise. The chairman stated that the council would keep the matter in view.

STIRLING CHRYSANTHEMUM.

JANUARY 13.—The annual general meeting of the above society was held in Stirling on this date. Mr. Kinross, the president, occupied the chair, and there was a good attendance. The report and balance-sheet were submitted respectively by the secretary and treasurer, and adopted. The society commenced the year with a deficit of more than £7, but this had been made good, and for the first time for several years the accounts showed a profit. The officers, including the members of the committee, were elected. Mr. Geo. Petrie, The Gardens, 27, Park Terrace, Stirling, was appointed secretary.

NATIONAL CHRYSANTHEMUM.

JANUARY 15.—A meeting of the Executive Committee of the above Society was held on Monday last at Carr's Restaurant, Strand. Mr. Thomas Bevan occupied the chair.

A prize of two guineas will be offered for the best seedling plant of Anemone, Anemone Pompon, or Pompon Chrysanthemums submitted to the Floral Committee during 1913. The competition for the Affiliated Societies Shield will be arranged so that societies at a distance from the Metropolis will compete on equal terms with those nearer to the place of exhibition. In 1912 the class will consist of three vases of Japanese, three of Incurved, and three of Single varieties. In 1913 the class will be the same, with the addition of three vases of Pompons.

A supplementary show will be held at the Essex Hall, Strand, on November 20, 1912, when the competition for the Holmes Memorial Challenge Cup for 36 cut blooms of Incurved varieties will take place. At this show prizes amounting to £10 10s., subscribed by members of Covent Garden Market, will be offered for market Chrysanthemums. Special prizes at this show are also offered by Mr. Bevan and Messrs. W. Wells & Co. During 1911 no fewer than 38 First-class Certificates, 33 Commendations, and 1 Award for colour were granted by the Floral Committee. The annual meeting will take place at Carr's Restaurant on February 5, at 7 p.m.

EDINBURGH MARKET GARDENERS'.

JANUARY 12.—The annual dinner of the members of the above association was held in the Imperial Hotel, Market Street, Edinburgh, on this date, under the chairmanship of the president, Mr. David King.

In proposing the toast of the "Fruit Growers," Mr. Thomas Russell, Glasgow, stated that the fruit which came to Glasgow from the East Lothian market gardeners was of very fine quality. Some of the land in the east of Scotland, however, was rented at £10 an acre, while fruit farmers in Ayrshire paid £2 10s. to £3 an acre for land for similar purposes, and the results were quite as satisfactory as regards the quantity grown as in the case of the higher-priced land. Mr. Russell said that the labour question also was a serious one, and unless they had ordinary agricultural rents they could not compete with growers who rented cheaper land. Mr. George Sinclair, East Linton, who replied, thought the opportunity should be taken under the Scottish Small Holdings Act to increase the area for growing fruit, and he would prefer to see some of the best land in Mid and East Lothian used for that purpose, instead of sending growers to the Highlands.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.

JANUARY 18.—The seventy-second annual general meeting of the subscribers of this Institution is being held at Simpson's Restaurant, 101, Strand, under the chairmanship of the treasurer and chairman of committee, Mr. Harry J. Veitch, as these pages are being prepared for the press. The annual report read by the secretary is a record of good work done during the past year, and reviews the great benefits conferred by the Institution in the past 72 years. Although the voting list contained the names of 71 candidates, all of whose claims have been carefully considered by the committee, the committee was only in a position to recommend the election of 20.

RESULT OF THE BALLOT.

	No. of Votes.
Field, Jane	3,670
Auton, James	3,501
Payne, Henry	3,386
Bolton, John	3,233
Hill, John	3,205
McMaster, Samuel	3,176
Dunstall, David	3,128
Baillie, Marie	3,087
Baker, Julia	3,054
Elworthy, Maria	3,039
Lamkin, Emma	3,009
Todd, Richard W.	2,899
Goldsmith, Elizabeth	2,823
Watson, Richard J.	2,677
Osborne, Thomas	2,674
Frost, Thomas	2,611
Charlton, James	2,599
Keen, Amos J.	2,563
Mackay, Maria	2,561
Hobbs, William	2,527

Pensioners elected after the Poll.

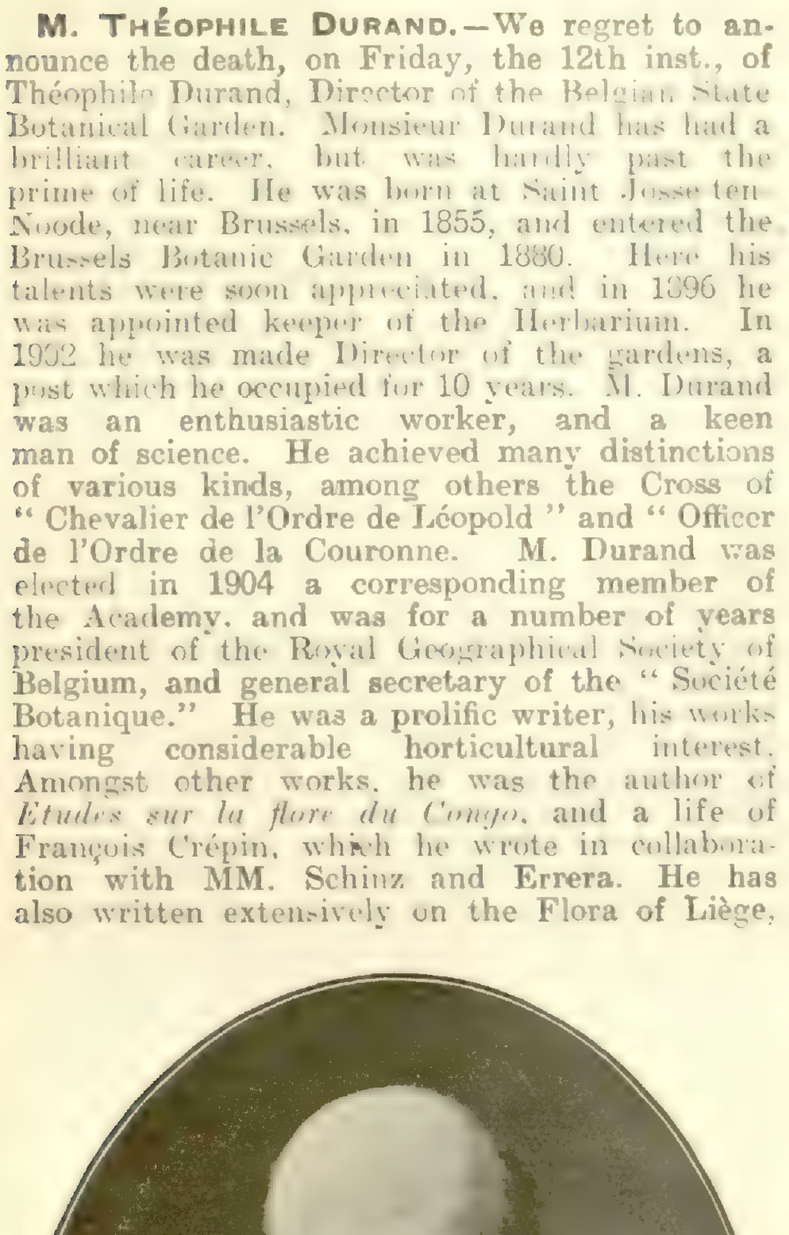
*Barnes, Henry, age 72.
*Garratt, Mary A., age 66.
†Chisholm, George D., age 58.

* These candidates were elected by the annual general meeting by virtue of the privilege given the Committee in Rule III., Clause 10.

† This candidate was selected to receive a year's pension (£20) kindly given by Mr. Arthur W. Sutton.

Obituary.

M. THÉOPHILE DURAND.—We regret to announce the death, on Friday, the 12th inst., of Théophile Durand, Director of the Belgian State Botanical Garden. Monsieur Durand has had a brilliant career, but was hardly past the prime of life. He was born at Saint Josse ten-Noode, near Brussels, in 1855, and entered the Brussels Botanic Garden in 1880. Here his talents were soon appreciated, and in 1896 he was appointed keeper of the Herbarium. In 1902 he was made Director of the gardens, a post which he occupied for 10 years. M. Durand was an enthusiastic worker, and a keen man of science. He achieved many distinctions of various kinds, among others the Cross of "Chevalier de l'Ordre de Léopold" and "Officer de l'Ordre de la Couronne. M. Durand was elected in 1904 a corresponding member of the Academy, and was for a number of years president of the Royal Geographical Society of Belgium, and general secretary of the "Société Botanique." He was a prolific writer, his works having considerable horticultural interest. Amongst other works, he was the author of *Etudes sur la flore du Congo*, and a life of François Crépin, which he wrote in collaboration with MM. Schinz and Errera. He has also written extensively on the Flora of Liège,



THE LATE M. THÉOPHILE DURAND.

which he studied in an exhaustive manner. He leaves a son and two daughters, his wife having predeceased him by some three years. The funeral, which took place on Monday, the 15th inst., was attended by many scientists and the whole of the gardening staff at Brussels Botanic Gardens.

WILLIAM WATSON.—The death of Mr. William Watson, founder of the business of Messrs. Wm. Watson & Sons, occurred on the 8th inst. at Simla Lodge, Clontarf. We learn from *The Farmers' Gazette* that Mr. Watson, who was 78 years of age, was born at Douglas, Lanarkshire, and settled in Ireland in 1856. As an amateur he was very successful in breeding tricolour and bronze-leaved Pelargoniums. He was the first to cultivate Primula japonica and Todea superba in large quantities. At a later period Carnations became one of the leading specialities of the firm. Mr. Watson was hon. secretary of the Dublin Horticultural Club till 1877, and the year before his retirement from that office was chiefly responsible for a large and most successful Rose show held in Dublin under the club's auspices. On his retirement, Mr. Watson was presented with a handsome gold watch and an illuminated address. Moving to Clontarf in 1881 he started the Clontarf Nurseries, and was joined later in the business by his sons James and John. Deceased is survived by five sons and five daughters.

JOHN DEACON.—The death of Mr. John Deacon, gardener to the Right Hon. Joseph Chamberlain, M.P., at Highbury, near Birmingham, occurred under painful circumstances on Thursday, the 11th inst. About 9 a.m. Mr. Deacon was seen by one of the under gardeners near the ornamental lake at the lower portion of the grounds attached to Highbury. Half an hour or so later, a member of the garden staff, in passing the lake, observed the body of Mr. Deacon, whose head and shoulders were under the landing stage of the boat-house. The body was taken out of the water and artificial respiration attempted, but without success. At the inquest, held on the 12th inst., a verdict of death by misadventure was returned. In expressing sympathy with the widow, the foreman and other members of the jury referred to Mr. Deacon's kindly, unostentatious manner, the loss sustained to local horticultural societies and institutions, and the estimation in which he was held in and around Birmingham. Mr. Deacon, who was born at Milton Abbott, Tavistock, Devonshire, 54 years ago, commenced his gardening career in 1874 in the gardens of the Duke of Bedford, at Endsleigh, Tavistock, under the late Mr. Cornelius. In 1878 he went to Mr. Pole Carew's estate at Anthony, near Devonport, where he remained until 1880, when he entered the Royal Gardens, Kew, which he left the following year to become foreman at Leigham Court, Streatham. His next position was as foreman at Dover House Gardens, Roehampton, 1883-85. From 1885 until 1888 Mr. Deacon gained additional experience in the establishments of Messrs. Wills and Segar, South Kensington, and Messrs. B. S. Williams & Son, Upper Holloway. Three years after he was appointed head gardener at Bowden Hill, Calne, Wiltshire, leaving there in 1893 to take charge of the Highbury garden, a position he held with the entire confidence of his garden-loving employer for upwards of 18 years. Of the many alterations and improvements initiated by Mr. Chamberlain and carried to a successful issue by Mr. Deacon, special reference should be made to the Dutch garden, Italian garden, Old English garden, the remodelling of the shrubbery borders and extensive planting operations. A descriptive account of the Highbury gardens appeared in the issues of the *Gardeners' Chronicle* November 26, 1904, and December 2, 1904. The funeral took place at Brandwood End Cemetery, King's Heath, on the 15th inst., and was attended by the widow and relatives, and by Mr. Neville Chamberlain and a large number of friends.

MRS. UZZELL.—Mrs. Uzzell, widow of the late Mr. George Uzzell, nurseryman, Hampton, died on the 10th inst. at the age of 91 years 9 months. Mr. Uzzell was gardener to the late Dowager Duchess of Northumberland, and was a pioneer in the flower-growing industry at Hampton, commencing in business about 46 years ago. Mrs. Uzzell carried on the business after his death, and she was probably the oldest lady gardener in England. She took an active interest in the business up to the last, and was busy preparing and inserting cuttings within 10 days of her death. Her grandson, Mr. George Uzzell, jun., is gardener to Lord Rendel, Château de Thorenc, Cannes, France.

WILLIAM CARLTON.—We regret to announce the death of Mr. William Carlton, of 30, Hawthorn Road, Hillsborough, at the age of 71. For 25 years he held the office of collector to the Sheffield Chrysanthemum Society, and for a number of years served the now defunct Sheffield Floral Society in a similar capacity. At one time he was a successful grower of Roses and Pansies, and was closely identified with many horticultural shows in the district. Many years ago he carried on the business of a draper. The funeral took place at Eastrington, near Selby, on Friday, the 5th inst., the mourners including the treasurer and secretary of the Sheffield Chrysanthemum Society.

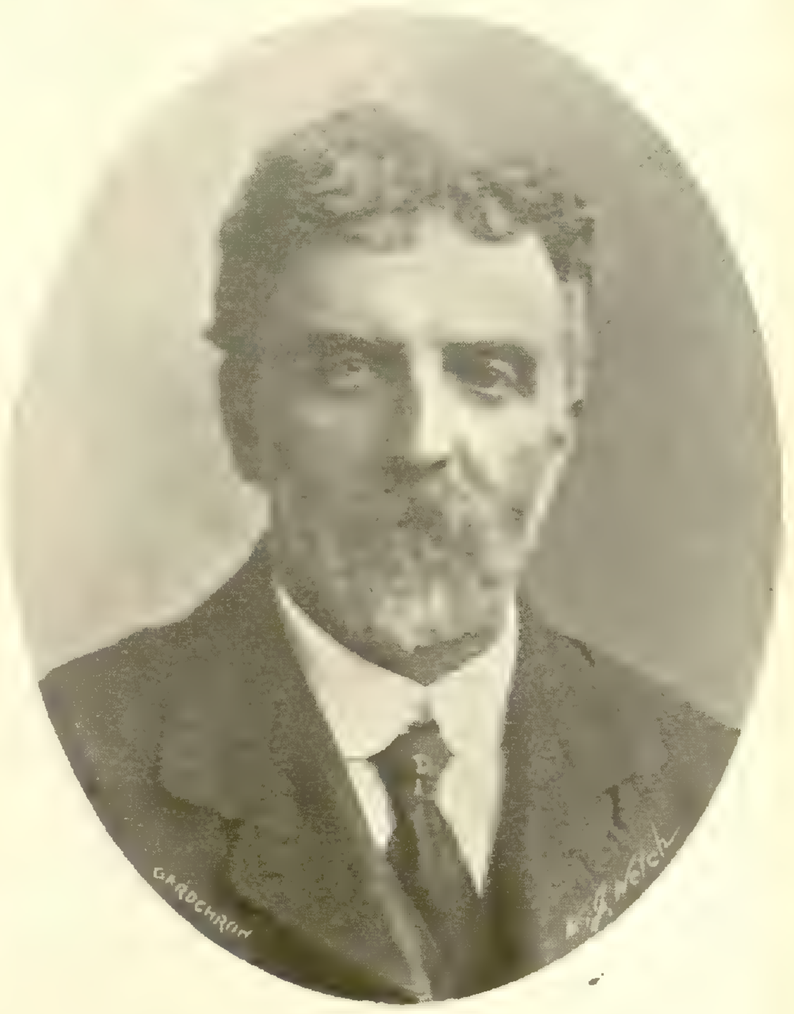
C. DENNING.—Mr. C. Denning, of the Laurel Nursery, New Eltham, and younger brother of the late Mr. W. Denning, of Hampton, died suddenly on the 13th inst. Mr. Denning was previously for some years gardener at Ash Grove, Sevenoaks, which place he left some five years ago.

GEORGE BIRCH.—Mr. George Birch died on the 27th ult., at Northampton, where he had lived retired for the past 20 years. Mr. Birch was a capable gardener, and excelled as a fruit-grower. He was for a period of 30 years gardener at Hatherop Castle, Gloucestershire, being 10 years in the service of the late Sir Thomas Bazley, Bart., and 20 years with the present Sir Thomas S. Bazley. Deceased's only son, Henry Birch, died a few years since, whilst head gardener at Castle Ashby, Northamptonshire.

HENRY BROOKER.—Mr. Henry Brooker, gardener at Gate House, East Hoathly, died on 2nd inst., following an accident.

DEBATING SOCIETIES.

READING GARDENERS'.—The annual meeting of the members of this association was held on the 8th inst.; the president, Mr. F. B. Parfitt, occupied the chair. The hon. secretary submitted the report. The financial statement showed that there was a balance in hand of £50 11s. The receipts amounted to £92 16s. 11d., and the expenditure was £42 5s 11d. The president stated that the report would compare very favourably with that of any previous year. The report and balance sheet were adopted. Mr. Parfitt was re-elected president and Mr. Leonard Sutton vice-president, whilst Messrs. A. C. Bartholomew and M. J. Sutton were re-appointed trustees. The new chairman is Mr.



THE LATE JOHN DEACON.

F. G. Drew and the vice-chairman Mr. E. Blackwell. The secretary and treasurer were re-elected. The following grants were made:—Royal Gardeners' Orphan Fund, £3 3s.; Gardeners' Royal Benevolent Institution, £2 2s.; Royal Berkshire Hospital, £1 1s.; and University College, Reading, £3.

BRITISH GARDENERS' ASSOCIATION (LONDON BRANCH.)—At the meeting of the London Branch of the British Gardeners' Association, held on the 11th inst., Mr. E. P. Cooper read a paper on "The Cultivation of Chrysanthemums." The paper gave rise to an interesting discussion.

GARDENING APPOINTMENTS.

Mr. W. STEVENS, for the past 7½ years Gardener to E. STACEY, Esq., Audley House, New Barnet, and formerly at Cowdray Park and Wykehurst Park Gardens, as Gardener to Col. BARHAM, Hole Park, Rolvenden, Kent.

Mr. G. HUMPHREY, as Gardener to H. PHILLIPS, Esq., Royston, Hertfordshire.

Mr. J. WATSON, Junr., for the past 4½ years Gardener to H. COMPTON, Esq., Eastcott, Kingston Hill, Surrey, as Gardener to H. MARX, Esq., at same place. (Thanks for donation to the R.G.O.F. box.—EDS.)

Mr. CHAS. J. POPLE, for the past 3 years General Foreman at Breckenbrough Hall, and previously Foreman at Thorp Perrow and at Eshton Hall, as Gardener to G. B. JACKSON, Esq., The White House, Saltburn-by-the-Sea.

Mr. F. J. REED, for the past 2 years Gardener to J. COLMAN, Esq., J.P., Wick Hall, Hove, Sussex, as Gardener to W. S. PAGE, Esq., Oaklands, Hutton, Brentwood, Essex.

MARKETS.

COVENT GARDEN, January 17.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—EDS.]

Cut Flowers, &c.: Average Wholesale Prices.

	s.d.	s.d.
Arums (Richardias)	2 6	3 0
Azalea, per dozen bunches	4 0	5 0
Camellias, per box of 18's and 24's	1 6	2 0
Carnations, p. doz. blooms, best American var.	1 6	2 0
— smaller, per doz. bunches	18 0	21 0
— Carola, crimson, extra large	6 0	—
Eucharis, per doz,	2 0	—
Freesia refracta alba, p.dz. bun.	1 6	2 0
Gardenia, per doz.	6 0	9 0
Helleborus (Christmas Roses), p dozen	1 6	2 0
Hyacinth (Roman), pr. doz. bnchs.	6 0	8 0
Lilium auratum per bunch	4 0	5 0
— longiflorum, long, per doz.	3 0	3 6
— short, per doz.	3 0	4 0
— lancifolium alba, long	2 0	2 6
— — short	1 6	2 0
— speciosum rubrum, dz. blooms:		
— long	2 0	—
— short	0 9	1 0
Lily of the Valley, p. dz.bunches:		
— extra special	15 0	18 0
— special	10 0	12 0
— ordinary	8 0	—
Marguerite, per doz. bunches:		
— Yellow	2 0	2 6
Narcissus, per doz. bunches:		
— Golden Spur	5 0	6 0
— Henry Irving	3 0	4 0
— Paper white	1 6	2 0
— Soleil d'Or	2 0	2 6
Orchids, Cattleya, per doz.	12 0	—
— Odontoglossum crispum	3 0	4 0
Pelargoniums, p. dz. bunches:		
— Double Scarlet	8 0	12 0
Roses, 12 blooms,		
— Bridesmaid,	4 0	5 0
— C. Mermet	4 0	5 0
— Liberty	5 0	6 0
— Mme. Abel Chatenay	5 0	8 0
— Niphetos	2 6	3 6
— Richmond	5 0	6 0
Tuberose, gross	8 0	—
— long, p. bunch	2 0	—
Tulips, per bunch:		
— double pink	1 3	1 6
— — yellow	1 3	1 6
— — scarlet	1 3	1 6
— pr. doz. bnchs:		
— white	6 0	8 0
— yellow	7 0	9 0
— scarlet	8 0	10 0
— bronze	9 0	10 0
— pink	10 0	15 0
Violets, per dozen bunches	1 3	2 0
— Princess of Wales, per doz. bunches	3 0	4 0
— Parma	1 6	2 0

Cut Foliage, &c.: Average Wholesale Prices.

	s.d.	s.d.
Adiantum Fern (Maidenhair), best, per doz. bunches	6 0	8 0
Agrostis (Fairy Grass), per dz bunches	2 0	4 0
Asparagus plumosus, long trails, pr. ½doz.	1 6	2 0
— medium, doz. bunches	12 0	18 0
— Sprengeri	10 0	12 0
Carnation foliage, doz. bunches	4 0	—
Croton foliage, various, per dozen bunches	12 0	15 0
Cycas leaves, artificial, per doz.	3 0	12 0
Eulalia japonica, per bunch	1 0	1 6
Moss, per gross	6 0	—
Myrtle, dz. bchs. (English,, small-leaved	6 0	—
— French	1 0	—
Smilax, per bunch of 6 trails	1 0	1 3

Plants in Pots, &c.: Average Wholesale Prices.

	s.d.	s.d.
Aralia Sieboldii, p. dozen	6 0	7 0
Araucaria excelsa, per dozen	18 0	21 0
Asparagus plumosus nanus, per dozen	10 0	12 0
— Sprengeri	8 0	9 0
Aspidistra, p. dz., green	21 0	30 0
— variegated	30 0	60 0
Azaleas, per dozen	36 0	42 0
Cocos Weddeliana, per dozen:		
— 60's	6 0	12 0
— larger, each	2 6	10 6
Croton, per dozen	18 0	30 0
Cyclamen, in 4½ inch pots (48's), per dozen	10 0	12 0
Cyperus alternifolius, per doz.	5 0	6 0
— laxus, per doz.	4 0	5 0
Dracæna, green, per dozen	10 0	12 0
Ericas, per dozen:		
— hyemalis	10 0	12 0
— alba	10 0	12 0
— melanthera	18 0	24 0
Ferns, in thumbs, per 100	8 0	12 0
— in small and large 60's	12 0	20 0
Ferns, in 48's, per dozen	6 0	—
— choicer sorts, per dozen	8 0	12 0
— in 32's, per dozen	10 0	18 0
Ficus elastica, per dozen	9 0	12 0
Geonoma gracilis, 60's, per dozen	6 0	8 0
— larger, each	2 6	7 6
Kentia Belmoreana, per dozen	5 0	42 0
— Fosteriana, 60's, per dozen	4 0	6 0
— larger, per dozen	18 0	60 0
Latania borbonica, per dozen	12 0	30 0
Lilium longiflorum, per dozen	20 0	24 0
— lancifolium rubrum in pots, per dozen	15 0	18 0
— lancifolium alba	15 0	18 0
Marguerites, white, per dozen	8 0	10 0
Pandanus Veitchii, per dozen	36 0	48 0
Phœnix rupicola, each	2 6	21 0

Fruit: Average Wholesale Prices.

	s.d.	s.d.
Apples (English cookers) per bushel	5 0	7 0
— Cox's Orange Pippin, per dz.	3 0	4 0
— Nova Scotian, per barrel	18 6	20 0
— Californian Newtowns, pr. case	9 0	13 0
— Oregon (Hood River), p. case	16 0	20 0
Apples (Canadian), per barrel	20 0	—
— American, per barrel	20 0	30 0
Apricots (Cape), p. case	2 6	8 0
Bananas, bunch:		
— Doubles	10 0	12 0
— No. 1 ,,	8 0	10 0
— Extra ,,	10 0	12 0
— Giant ,,	14 0	18 0
— Loose, per dz.	0 6	1 0

Fruit: Average Wholesale Prices *(continued)*.

	s.d.	s.d.
Bananas, per doz.:		
— Red coloured	5 6	6 6
— Jamaica Giants, per ton	£10	£12
— Jamaica Ordinary, per box (9 doz.)	4 0	5 0
Cranberries, per case (30 qts.)	10 0	11 0
— Cape Cod, per case (30 quarts)	9 6	—
Dates (Tunis) doz. boxes	4 6	5 6
Grape Fruit, case:		
— 96's	22 0	24 0
— 80's		
— 64's		
— 54's		
Grapes (English), per lb.:		
— Muscat of Alexandria	3 0	8 0
— Cannon Hall Muscat	4 0	8 0
— Black Alicante	0 10	2 6
— Gros Colman	1 0	2 6
— (Belgian), Gros Colman, p. lb.	0 9	1 3
— Almeria, per barrel	11 6	15 6
Per dozen lbs.	3 0	4 6
Lemons:		
— (Naples), case	26 0	30 0
— Messina, per case	6 0	15 0
Limes, per case	4 0	—
Mangoes, per doz.	4 0	6 0
Nuts, Almonds, per bag	52 6	—
— Brazils, new, per cwt.	85 0	100 0
— Spanish, per sack	40 0	42 0
— Barcelona, per bag	35 6	36 6
Nuts, Chestnuts, per bag	3 6	19 0
— Cocoanuts (100)	18 0	23 0
— English Cobs per lb.	0 5	0 6
— Walnuts (Naples) kiln dried, cwt. cases	54 0	—
— French Grenobles, per bag	6 6	7 0
— Boeris, per bag	6 0	7 0
Oranges, Jamaica per case	9 0	11 0
— Californian	15 0	16 0
— Denia, case	12 0	33 6
— Valencia	10 0	12 0
— Jaffa, per case	9 6	—
— Mandarins, per box	0 6	3 6
— Bitter, per ½ chest	16 0	18 6
Peaches (Cape), pr. case	3 0	6 0
Pears (Californian), per case	10 6	16 6
— Glou Morceau	10 0	12 6
— Easter Beurré	8 0	—
— Winter Nelis	13 0	—
— Doyenné du Comice, per case	18 0	20 0
— White Comice	11 0	—
— (French), per crate	7 6	8 6
— (American) per barrel, 180 lbs.	25 0	26 0
— cases	7 0	—
Pineapples, St. Michael	2 6	4 0
Plums (Cape), per case	6 0	8 0

Vegetables: Average Wholesale Prices.

	s.d.	s.d.
Artichokes (Globe), per dozen	3 0	4 0
— Ground, per ½ bushel	1 0	1 3
Asparagus, Sprue	0 9	—
— Cavaillon	3 0	—
— Paris Green	4 0	4 6
Aubergines, p. dz.	1 6	2 0
Beans, Madeira, per basket	2 0	5 0
— Guernsey, Dwarf, per lb.	3 6	4 0
Beetroot, p. bshl.:		
— Long	2 6	3 0
Brussel Sprouts, per ½ bushel	1 0	1 6
— half bags	2 0	2 6
Celeriac, per doz.	2 6	3 0
Cabbages (English), per tally	4 0	6 0
Cauliflowers, p. dz.	1 0	1 3
— (Italian), p. pad	1 6	2 0
— (Cornish), per crate	5 0	6 0
Celery, per. dozen bundles	8 0	15 0
— (washed), per dozen bundles	12 0	18 0
Carrots (English), pr. doz. bun.	2 0	3 0
— per cwt.	3 0	4 0
— (washed) p. bag	4 0	5 0
Chicory, per lb.	0 4	—
Cucumbers, p. doz.	12 0	18 0
Endive, per dozen	2 0	—
Greens, per bag	1 0	1 6
Herbs (sweet), pkts., p. gross	7 0	—
Horseradish, 12 bundles	11 0	12 0
Leeks, per doz.	2 0	2 6
Lettuce (French), per doz.	1 0	1 3
Mint, per dozen bunches	4 0	5 0
Mushrooms, cultivated, p. lb.	0 8	1 0
Mustard and Cress, pr. dz. punnets	1 0	—
Onions (Dutch) per bag	8 0	8 6
— English	9 0	9 6
— (Spanish), per case	7 6	8 0
Parsley, ½ sieve	1 0	1 6
— per doz. bun.	2 0	—
Parsnips, per bag	5 0	5 6
Radishes (English), per dozen	0 9	1 0
Rhubarb, forced, per 12 bundles	0 10	1 0
Savoys, per tally	5 0	8 0
Spinach, per bushel	4 0	7 0
Seakale, p. punnet	0 10	1 3
Tomatos (Canary Islands), per bundle	12 0	14 0
Turnips (English), per dz. bunches	2 0	2 6
— bags (washed)	4 0	4 6
— (unwashed)	3 0	3 6
Turnip Tops, per bag	2 0	—
Watercress, p. dz. bunches	0 6	0 6½

REMARKS.—Black Alicante and Gros Colman Grapes are a good supply for the time of year, whilst Muscat of Alexandria and Canon Hall Muscat are obtainable in fairly large quantities, the prices of the Muscat varieties ranging from 4s. to 10s. per lb. There are large supplies of Gros Colman Grapes from Belgium, and these are selling cheaply. Overseas arrivals of Apples, Oranges, &c., per ss. "Sardinian" and "New York" amounted to 10,000 packages, the bulk consisting of Apples. A further consignment of Washington Navel Oranges is expected to arrive next week. Shipments of fruit received from Cape Colony this week amounted to 10,000 boxes, principally Peaches. The majority of the fruits arrived in a very unsatisfactory condition. Tomatos are arriving from Teneriffe in an excellent condition, and are selling freely. French Beans and Cucumbers are obtainable in only limited quantities, and both are consequently very dear. Seville Sour and Palermo Bitter Oranges are arriving in cases each containing from 200 to 400 fruits. Outdoor vegetables are an almost unlimited supply and prices are low. *E. H. R., Covent Garden, January 17, 1912.*

Potatos.

	per cwt. s.d.	s.d.
Kents—		
Queen's	4 0	4 6
Up-to-Date	4 0	4 6
Lincolns—		
Up-to-Date	4 0	4 6
British Queen	3 9	4 6
King Edward	3 6	4 3
Epicure	3 0	3 6
Northern Star	2 9	3 6
Evergoods	2 9	3 6
Lincolns—		
Maincrops	4 0	4 3
Blacklands	2 6	3 3
Bedfords—		
Up-to-Date	3 9	4 0
Puritan	4 0	4 3
Dunbars—		
Up-to-Date	4 6	5 0
Maincrop	5 3	5 6

REMARKS.—Trade is still very quiet, and stocks in London are larger than at any other time this season, but the greater number of the tubers are of inferior quality. Only best Potatos are in demand. *Edward J. Newborn, Covent Garden and St. Pancras, January 17, 1912.*

THE WEATHER.

THE FOLLOWING SUMMARY RECORD of the weather throughout the British Islands, for the week ending January 13, is furnished from the Meteorological Office:—

GENERAL OBSERVATIONS.

The *weather*.—A generally unsettled condition prevailed, with much snow and sleet early in the period in the more northern districts, and occasional rain subsequently. In the east and south of England rain was less frequent than elsewhere.

The *temperature* was lower than during preceding weeks, but was again above the average except in England N.E. The highest of the maxima were recorded at most stations either on the 9th or 13th, and were as high as 53° or 54° in most districts. In England N.E., however, there was no higher reading than 48°. The lowest of the minima occurred on the 8th at almost every station, and ranged from 13° in Scotland E., and 17° in England N.E. to 28° in Ireland S., and to 35° in the English Channel. The lowest grass readings reported were 10° at Balmoral, 12° at Buxton, 15° at Glasgow and Newton Rigg, and 16° at Harrogate.

The *mean temperature of the sea*.—On nearly all parts of the coast the water was warmer than during the corresponding week of last year, and at most stations it exceeded the average. The means for the week ranged from 49° at Scilly and Salcombe to about 41° at Cromarty and Burnmouth, and to 40° at Scarborough.

The *rainfall* was above the average generally, but below it in Scotland N. and the English Channel, and about equal to it in England S.E. In the northern parts of the kingdom much of the precipitation on Sunday and Monday was in the form of snow. At Crathes as much as 1·78 inch of snow fell on the latter day, followed by 1·06 inch of rain on Wednesday. In the neighbourhood of Crieff the depth of snow on Monday was 10 inches.

The *bright sunshine* was below the normal in the eastern districts, but above it over Ireland, England N.W., and Scotland W. and N. The percentage of the possible duration ranged from 25 per cent in Ireland S. and 21 in Ireland N. and Scotland W. to 11 or 10 over all the eastern and south-eastern counties of England.

THE WEATHER IN WEST HERTS.

Week ending January 17.

The seventh warm and wet week in succession.—The weather has recently been very warm for mid-winter, indeed, during the last seven weeks there have been only four unseasonably cold days, and but five cold nights. In the past week the day temperatures were as a rule only slightly above the average, but several of the nights proved exceptionally warm for the time of year. The ground is now 4° warmer than is seasonable, both at 1 and 2 feet deep. Rain has fallen on five days of the week, but the total measurement only amounted to half-an-inch. Two gallons of rain water have passed through the bare soil percolation gauge during the week, but only one gallon through the gauge on which short grass is growing. On six days of the week no sunshine at all was recorded, and on the remaining day the duration only amounted to five minutes. The winds proved as a rule light, and the direction exclusively some point of the compass between south and east. The mean amount of moisture in the air at 3 p.m. exceeded a seasonable quantity for that hour by 8 per cent. *E. M., Berkhamsted, January 17, 1912.*

SCHEDULES RECEIVED.

Borough of Reigate & District Horticultural Society's twenty-sixth annual show, to be held in the grounds of "The Frenches," Redhill, on Wednesday, July 10. Secretary, Mr. F. Phillips, The Gardens, Craigendowie, Reigate.

Leicester Abbey Park Flower Show, to be held on Tuesday and Wednesday, August 6, 7. Secretary, Mr. J. Staynes, Town Hall, Leicester.

CATALOGUES RECEIVED.

MISCELLANEOUS.

BLACKMORE & LANGDON, Twerton Hill Nursery, Bath—Begonias.

W. H. & L. COLLINGRIDGE—Books on Gardening, Live Stock, &c.

HALLAM'S, 172, Alcester Road, Moseley—Sweet Peas.

THOMAS S. WARE, LTD., Feltham, Middlesex—Begonias.

THE TULLY NURSERIES, Kildare, Ireland—Bulbs.

GILBERT & SON, Dyke, Bourne, Lincolnshire—Sweet Peas and Anemones.

ANSWERS TO CORRESPONDENTS.

APPLES DISEASED: *G. H. B., Sidcup.* An excellent winter wash for fruit trees is 1 lb. sulphate of copper (bluestone) in 25 gallons of water. This wash must not be used after the buds have commenced to swell.

BEGONIA GLOIRE DE LORRAINE: *H. M. Butler.* After the plants have finished flowering, the shoots should be cut back to within 15 inches of the base, and the roots kept comparatively dry. Fresh growths will develop if the plants are syringed frequently, and when the shoots are some 2½ inches long they may be taken off and inserted in sand or leaf-soil, either in pans, pots, or dibbled in a propagating box. Observe the usual conditions for rooting cuttings,

keeping the atmosphere moist and close until roots have formed. This Begonia needs a temperature of about 55° at night time, allowing warm air to circulate freely amongst the plants at all times; if crowded or afforded too much atmospheric moisture, the leaves will be injured by damping, a common trouble which many growers experience. With regard to leaf-cuttings, Mr. John Fleming, a successful cultivator of this Begonia, recommends them for very early propagation, inserting the leaves, with about an inch of the stem attached, in Cocoanut fibre and providing shade from sunshine. Each leaf will produce two or three growths, and these growths should be inserted singly when large enough. (See *Gardeners' Chronicle*. January 10, 1903, p. 29.)

BOOKS: *Regular Reader*: *Carnations and Pinks*, by T. H. Cook, James Douglas, V.M.H., and J. F. McLeod, price 1s. 9d.; *Roses*, by H. R. Darlington, with eight full-page coloured plates, price 2s. 10d., special presentation edition price 3s. 10d. These works are obtainable from our publishing department; the prices include postage. The best book on stove plants is *Greenhouse and Stove Plants*, by Thomas Baines. This work is out of print, but you may be able to obtain a copy from the second-hand booksellers. Perhaps Messrs. Weldon, booksellers, Great Queen Street, London, may be able to supply a copy. —*R. V. G. J. The Handy Book on Grafting and Budding*, by James Udale, price 7d., and *Grafting and Budding*, by Charles Baltet, price 2s. 9d., including postage.—*D. S. L. B. Botanic Gazette*, published by the University of Chicago Press, Illinois, U.S.A. Write to the Liverpool Orchid & Nursery Company, Ltd., Gateacre Nurseries, Gateacre, near Liverpool.

CAPE GOOSEBERRY: *Monstera*. The Cape Gooseberry Physalis peruviana having finished fruiting should now be cut back somewhat severely if the plants are to be grown another season. Propagation is readily effected either from seed or cuttings. As your plants are planted in a border, do not feed them until the flowers appear, otherwise they will grow too strongly. Keep a sharp look-out for green fly and red spider, as this plant is particularly susceptible to attacks from these pests.

CATTLEYA DISEASED: *Bola*. The trouble is an ordinary case of Orchid disease, and usually follows as the result of some wrong treatment of the plants. Improper ventilation or heating of the house may be responsible. Every root on the pseudo-bulb has been dead for a considerable time. It is not a leading bulb, and probably the new growth may have roots present, but it is clear that the root-action is defective. Plants which are not freed from the old pseudo-bulbs occasionally are liable to become unhealthy.

CYCLAMEN LEAVES: *Foliage*. The rusty appearance of the leaves has been caused by some insect, probably mites. Dip the foliage in tobacco water at intervals.

GLASGOW AND EDINBURGH PUBLIC PARKS: *R. V. G. J.* The addresses of the respective superintendents are Mr. James Whitton, Superintendent of Parks and Curator of Botanic Gardens, City Chambers, Glasgow; Mr. John McHattie, Superintendent of Edinburgh City Parks and Gardens, Edinburgh; and Mr. W. W. Robertson, Holyrood Park, Edinburgh.

GRAPE BLACK FRANKENTHAL: *J. G.* This Grape is synonymous with Black Hamburgh, and requires to be pruned hard: that is, close spur pruned, when the limit of extension has been reached. In this way more compact bunches are obtained: it has often been proved that elongated and somewhat straggling bunches are developed on long spurs of this variety. The Chasselas varieties of the Grape vine on the contrary often produce better bunches in every respect under the long spur system of pruning. In no case should the number of growing shoots be excessive, as sufficient room must be allowed for a proper leaf development to ensure perfect finish of the bunches. The leaves of the Black Frankenthal vine are of only moderate size when compared with some of the Chasselas varieties, and this fact must be taken into consideration when allowing space for the growths.

HEDYCHIUM: *Monstera*. Hedychiums are free-growing plants; some of them require stove treatment, others succeed in the greenhouse. Any re-potting they require should be done just as the growth recommences early in the year. As you are not sure what species it is, but that the "flowers are white and sweet-scented," we believe the plant to be Hedychium coronarium, a species that requires a sunny position in the stove. This plant is a gross feeder, and it is only by high feeding that you will be able to grow it to its best. After growth is finished, or about the end of October, reduce the water supply at the roots and keep them on the dry side until the middle or end of January, when they should be shaken out or potted on as required. For compost use a rich, turfy loam with a sprinkling of bone-meal and enough sharp sand to keep the whole porous.

HORTICULTURAL TRADE PAPERS: *T. L. S.* The *Horticultural Advertiser*, published by A. & C. Pearson, Lowdham, Notts.; *Horticultural Trade Journal*, published by the Horticultural Printing Co., Junction Street, Burnley; and *Nurseryman and Seedsman*, Cable Printing and Publishing Company, Hatton House, Great Queen Street, London.

HUMEA: *Humea, Yorkshire*. There is no disease present in your plants; the young leaves have been injured by some external cause, such as excessive fumigation.

INARCHING VINES: *T. W. C.* The best time to inarch the vine is after both the stock and the scion have started into active growth. Make a downward cut, about one inch in length, in the stock, and a corresponding incision in an upward direction in the vine to be inarched. Slip the tongue made in the pot vine into the slit made in the stock and bind them, not too tightly, with matting. Tie a small quantity of Moss around the junction and syringe this with tepid water two or three times daily for about a week, after which time the Moss may be removed. The matting may be severed a few days later. Start the pot vine (Lady Downes) at the same time as the established vine (Black Hamburgh). The flavour of the Lady Downes Grapes will probably be improved by inarching.

INSPECTION OF GOOSEBERRY PLANTATIONS: *L. R. M.* Write to the Secretary, Board of Agriculture and Fisheries, 4, Whitehall Place, London.

MONSTERA DELICIOSA: *Monstera*. The fruits usually remain on the plant for a year before they become fully ripe. You will be able to tell when the fruit is ripe by the strong scent given off and the cracking and falling away of the outer wall or covering of the spadix. The fruits should be cut and laid carefully in a warm, dry place as soon as they commence to crack; they are not edible, however, for at least a week from this stage, as, like the Medlar, they contain a tannin-like substance and also numerous minute prickly bodies, which, however, disappear when the fruit is dead ripe. The plant thrives in an ordinary stove, and should be exposed to full sun throughout the whole year. It is not fastidious as to soil, but prefers one rich in humus. If your plant is at all root-bound, feed the roots liberally with cow-manure. An excellent position for this plant is on a damp wall or on a stout, wooden post, to either of which the roots firmly attach themselves.

NAMES OF FRUITS: *J. Harris*. Castle Major.—*E. D.* Histon Favourite.—*H. L. M.* Annie Elizabeth.—*T. R. H.* A species of Tacsonia, probably T. Van Volxemii.

NAMES OF PLANTS: *Ignoramus*. Agathæa cœlestis.—*Scot*. No. 2 (from last week) is Rhamnus hybrida = R. sempervirens of gardens.—*F. C.* The plant to which you refer is probably Pelargonium citriodorum. Send us a specimen for identification.—*C. I. Berks*. Buddleia asiatica.—*H. S., Herts*. 1 and 2, garden forms of Rhododendron arboreum; 3, Pellionea pulchra; 4, Cypripedium insigne Chantinii; 5, C. insigne.—*E. J. W., Petersfield*. Saccolabium giganteum.—*W. W., Dublin*. Chimonanthus fragrans.—*R. T.* 1, Oncidium sphacelatum; 2, Odontoglossum Lindleyanum; 3, Cypripedium insigne; 4, Dendrobium moniliforme; 5, Brassia caudata.

ODOUR OF FALLEN LEAVES: *C. T.* Several fungi have a pleasant odour, some resembling Rue, Tarragon, or Melilot, and it is possible that their mycelium might occur in certain decaying leaves. Send us specimens of leaves in which you have noticed a pleasant odour for investigation.

REPOTTING VINES: *E. S.* The vines may be afforded pots two sizes larger than they are now occupying, and the work should be done at once, as the plants will develop fresh roots before the time for forcing arrives. It would be better to allow the vine to break into growth naturally in March. In repotting, reduce the balls of old soil considerably by means of a pointed stick. Shorten the roots with a sharp knife. Place potsherds to the depth of a couple of inches in the bottom of each 10-inch or 11-inch pot, arranging the large pieces at the base and the small ones at the top. Cover these with pieces of thin turf or half-rotted manure in order to prevent the finer particles of soil from choking the drainage. Use a compost consisting of five parts of the best loamy soil obtainable and one part each of old lime-rubble or wood ashes and horse-droppings, with the addition of a 10-inch potful each of soot and bone-meal. In potting, work the compost well into the space between the roots and the sides of the individual pots with a flat, blunt rammer, so as to make the new soil moderately firm about the roots. The compost should be used in a fairly dry condition. Afterwards give sufficient water to moisten the whole ball of earth and roots. When the bunches of Grapes have been thinned give copious supplies of weak liquid manure, with occasional surface dressings of a suitable plant food before applying clear water.

SCHOMBURGKIA UNDULATA: *Enquirer*. The failure of your plant of Schomburgkia undulata to develop its flower-spike is probably due to too much moisture at the roots after the completion of the season's growth. At that period very careful watering is needed, only sufficient moisture to keep the pseudo-bulbs plump being required. The treatment of Schomburgkia should be similar to that afforded Cattleyas; therefore, they should enjoy plenty of light and air and an intermediate temperature, avoiding at all times a hot, stagnant atmosphere. Schomburgkias are shy-flowering Orchids, and especially when the growths are not strong or matured thoroughly. Foggy weather may have the effect of destroying a tender flower-spike. Grow the plant under cooler conditions, in a light, airy situation, afford water with care, and the plant should then flower satisfactorily.

STOCK BEAUTY OF NICE: *T. W. C.* The plants are attacked by Peronspora parasitica. Your best plan would be to remove and burn all the plants which show traces of disease, and to spray the remainder with liver of sulphur solution at a strength of 1 ounce in 3 gallons of water.

SULPHATE OF IRON: *J. S.* It is improbable that applications of sulphate or iron will cause your Apples to assume a deeper colour. But if you wish to test its effects for colouring, its application will do no harm; 2 ounces mixed with about half-a-barrow load of dry, fine soil will be sufficient for each 6 square yards of ground, making the first application when the leaf-buds are bursting.

VINE UNHEALTHY: *Interested*. There is no disease present in the portion of vine received. The unhealthy appearance suggests eelworm at the roots, which causes the latter to present a warted or rusted appearance.

VIOLET LEAVES: *E. R., Salisbury*. The Violets are attacked by Cercospora violæ. It will be best to spray the plants on alternate days with a solution of liver of sulphur. Admit fresh air to the plants as freely as possible.

Communications Received.—X. Y. Z.—J. H., Abingdon—G. G.—E. G. W.—G. S.—G. M. & Co.—T. L. S.—E. A. P. D.—G. F. & Son—J. H.—G. G., Southgate—G. B.—R. D. D.—L. G. C.—T. S.—A. B. D.—S. A.—A. O.—E. H. J.—E. M.—E. M. H.—F. M.—W. C., Exeter—W. R. D.—W. G. M.—C. C.—T. M., Denmark C. G.—A. B., Ventimiglia—D. C.—J. E. C.—S. G. D., Pennsylvania—G. P. M.—F. J. R.—R. W. N.—W. B.—E. P.—R. A. R.—H. T. G., Ottawa—W. R.—F. R.—K. A. T.—G. A., Versailles—A Journeyman—H. H. R.—A. B. W.—O. & Co., Ltd.—W. F.—Iris—A. W. P.—Practice—Z. Y.

THE GARDENERS' CHRONICLE

ESTABLISHED 1841 — No. 3709

No. 1,309.—Vol. LI. {THIRD SERIES.} SATURDAY, JANUARY 27, 1912. {Registered as a Newspaper. WITH SUPPLEMENT.} {PRICE 3d. Post-free, 3½d.

SUBSCRIPTION—Inland, 15/-; Foreign, 17/6 [22fr. 10c.] [$4 26c.] per annum. Entered at the New York Post Office as second-class matter.

Postal Address—41, Wellington Street, Covent Garden, W.C. Telegraphic Address—"Gardchron, London." Telephone—Gerrard, 1543.

☞ **For CONTENTS see page 49.**

Sow Now Under Glass.

WEBBS' SELD. AILSA CRAIG ONION. 1s. and 2s. 6d. per packet, post free. Awarded First Prize, Great Shrewsbury Floral Fete, 1911, open to the Kingdom.

WEBBS' HARBINGER DWARF BEAN 2s. 6d. per quart, post free. Mr. H. E. MILLWARD, Gardener to Mrs. Macdonald, writes:—"Webbs' Harbinger is a grand forcing Bean, and invaluable for early supplies."—WEBB & SONS, The King's Seedsmen, Wordsley, Stourbridge.

BARR'S SEED GUIDE FOR 1912 contains a select List of the best VEGETABLES, and the most beautiful ANNUALS and PERENNIALS for Garden and Greenhouse, including many fine Novelties of Sterling Merit. Sent free on application.
BARR & SONS, 11, 12 & 13, King St., Covent Garden, London.

BARR'S REMOVAL SALE OF HARDY PLANTS.—Clearance List of surplus plants at greatly reduced prices (prior to removal of nurseries from Surbiton to Taplow), sent post free on application.
BARR & SONS, 11, 12 & 13, King St., Covent Garden, London.

DICKSONS Horticultural Manure & other high-class Fertilizers; also Dicksons Improved Mushroom Spawn. Priced Circulars free on application to DICKSONS, Royal Seed Warehouses & Nurseries, Chester

GISHURST COMPOUND is harmless in use; its soluble Sulphur, &c., has for 40 years cured Blights and Fungus on Plants, and is good for washing unhealthy dogs. Gishurstine keeps boots dry in all weathers; they will polish. Good for Harness.
Wholesale from—
PRICE'S PATENT CANDLE CO. LTD., London.

THE Popularity of "XL ALL" Specialities increases every year. All gardeners proclaim that nothing equals these celebrated preparations. "XL ALL" NICOTINE VAPORISING COMPOUND, the gardeners' favourite Fumigant, both Liquid and Cake. "XL ALL" NICOTINE INSECTICIDE WASH for Syringing, Dipping and Dressing Fruit Trees and Plants; Mealy Bug, Scale, etc., cannot exist where this is used. "XL ALL" INSECTICIDE WASH B (*sine* Nicotine), best non-poisonous Wash on the Market. No licence required to sell this. Other preparations of great renown, both poisonous and non-poisonous, are:—"XL ALL" WEED KILLER, "XL ALL" FERTILISER, "XL ALL" WINTER WASH for Fruit Trees, RICHARDS' BANDING GREASE, etc. Don't forget to ask your Nurseryman, Seedsman or Florist for Richards' small pink list.—G. H. RICHARDS, Manufacturer, 234, Borough High Street, London, S.E.

ORDER TRELLIS-WORK NOW.—Get our book on Trellis-work, showing Screens, Wall Panels, Window Surrounds, Arches, Arbours, &c., post free.
BOULTON & PAUL, Ltd., Norwich.

WM. DUNCAN TUCKER & SONS, Ltd., 27, Cannon Street, London, E.C.; Works, Tottenham. Conservatories, Winter Gardens, Vineries, Peach-houses, Portable Buildings, etc. Catalogue gratis.

FRUITING VINES IN POTS.—Muscat of Alexandria, and leading Market varieties. We make Vines a speciality.
G. COLEMAN, The Vineries, Burgess Hill, Sussex.

AUTO SHREDS FUMIGANT kills Leaf-mining maggot, insects in greenhouses, frames. For 1,000 cubic feet, 6d.; 10,000, 3s. 6d. No apparatus.
WM. DARLINGTON & SONS, Patentees, Hackney, N.E.

Sow Now Under Glass.

SUTTON'S FORCING FRENCH BREAKFAST RADISH.
Mr. H. ARLETT, Upper Shirley, writes:—"Your Forcing French Breakfast Radish is the earliest I have ever grown. I sowed on a gentle hot-bed February 11th, and pulled the first Radishes on March 11th."
Per ounce, 8d.; Pint, 3s. 6d., post free.

SUTTON & SONS, The King's Seedsmen, READING.

HUTS FOR THE GARDEN.—Fruit Rooms, Potting Sheds, Workshops, Cycle Houses, Boot Rooms, Servants' Mess Rooms, Children's Playrooms, &c. Send for Illustrated Catalogue, free.
BOULTON & PAUL, Ltd., Norwich.

ALPINES AND PERENNIALS. Rare Rhododendrons and other Shrubs, Daffodils and Bulbous Plants; Construction of Rockeries. Catalogues ready
G. REUTHE, Keston, Kent.

BUNYARD'S CATALOGUES, free on application.

FRUIT TREES AND VINES.

SHRUBS AND CONIFERS.

ROSES AND OTHER CLIMBERS, in Pots.

HERBACEOUS & AQUATIC PLANTS for Autumn planting.

GEORGE BUNYARD & CO., LTD., Royal Nurseries, Maidstone. Established 1796.

WELLS' CATALOGUE OF CHRYSANTHEMUMS, Perpetual Carnations, Herbaceous Plants, Alpine and Rock Plants, now ready, post free on application. Wells' Book, "The Culture of the Chrysanthemum," post free, 1s. 6d.
W. WELLS & CO., Merstham, Surrey.

Roses and Herbaceous Plants.

GUNN & SONS were awarded the 25 Guinea Challenge Cup in each collection at the Leamington Show. Up-to-date List for each now ready. Address: Olton, Warwickshire.

WALTERS & CO., Morland Rd., Croydon, Makers of Lath Roller Greenhouse Blinds; Trellis Screens and Fences, Arches, Arbours, Rose Pillars. Established over 20 years. Catalogues free.

FIDLER'S NEW ILLUSTRATED CATALOGUE of CHOICE GARDEN SEEDS will be sent post free to any address on receipt of postcard. Write at once for a copy; it may help you to save 50 per cent. on your seed bill this season.
FIDLER & SONS, Royal Berkshire Seed Stores, Reading.

BATH'S SELECT SEEDS.—New Illustrated Catalogue of Choice Vegetable and Flower Seeds, with full cultural notes, is now ready, and will be sent post free on application.
(Dept. A), R. H. BATH, Ltd., The Floral Farms, Wisbech.

GARDEN PESTS.—Cross's "Clubicide" is the Gardeners' Insurance against damage by Eelworm, Wireworm, Slugs, Maggot, and all Disease Germs and Insect Pests. Kills all harmful Bacteria, reinvigorates the soil, stimulates plant life. In 1s. flasks and ½-gall. and 1 gall. drums. From all Seedsmen.
Sole Manufrs.: A. CROSS & SONS, Ltd., Glasgow.

For Advertisement Charges see page vi.

KELWAY'S "Manual of Horticulture" is the best of all Garden Books, 2s., post free. From ——, Esq., Northwood, Middlesex, September 28th, 1911: "I find that I have never forwarded 2s. for your lovely Catalogue you sent me some weeks since. It would be cheap at five times the price, and I sincerely regret the oversight."—KELWAY & SON, Langport, Somerset.

THE MODERN HERBACEOUS BORDER.—Full particulars and prices of Kelway Borders packed, arranged for planting, to flower in tasteful schemes of colour, from—KELWAY & SON, The Royal Horticulturists, Langport, Somerset. "—— Palace, W., December 28th, 1911 (the year of great drought). The new herbaceous border has done *extremely well*—much better than Her Royal Highness anticipated."

THE BEST OF ALPINES, and new and old-fashioned Perennials, Rock Gardens, Borders, Water Gardens, and Wild Gardens designed and planted. Illustrated Catalogues (free), of Hardy Plants, Trees, Shrubs, Roses, and Climbers.—THE GUILDFORD HARDY PLANT NURSERY, Guildford.

TO NURSERYMEN.—THE NEW PATENT MULTI-DIBBER. Indispensable to all who raise seedlings in boxes, frames, or in the open ground. Send for special list with prices.
BOULTON & PAUL, Ltd., Norwich.

CHRYSANTHEMUMS.—Descriptive Catalogue of choice up-to-date varieties and novelty list for 1912, sent free. Apply
H. W. THORP, Durrington, Worthing.

JOHN McKERCHAR has posted his Seed Catalogue for 1912 to all his customers. Another copy will be sent on application to any who may not yet have received one.
35, Giesbach Road, Upper Holloway, London, N.

New Phloxes.

GUNN & SONS were Awarded a Silver Cup at the Great Show at Olympia. New Lists now ready. Address: Olton, Warwickshire.

PERPETUAL FLOWERING CARNATIONS—My stock is the largest in Europe; Inspection invited. Export to the Colonies a speciality. Catalogue free on application.
C. ENGELMANN, Saffron Walden.

RITCHIE'S SWEET PEAS.—Universally acknowledged to be the best procurable; Exhibition collection, containing the best 12 Spencers, viz., Asta Ohn, Clara Curtis, Edna Unwin, Elsie Herbert, Gladys Burt, Jno. Ingman, Marj. Linzee, Maud Holmes, Mrs. Sykes, Mrs. Breadmore, Prince Asturias, Tennant Spencer, 30 seeds each, 2s. 6d., post free; Sweet Pea list free on request.—
A. S. RITCHIE & CO., Seedsmen, Belfast.

GREENHOUSE PAINTING & GLAZING "Vitrolite" superior to White Lead Paint, 9/- per gall. "Plastine" supersedes Putty, 16/- per cwt. Full particulars from W. CARSON & SONS, Grove Works, Battersea. Agents throughout the country.

CROLL'S ROSES.—Catalogues now ready, and post free on application.
D. & W. CROLL, 63, Commercial Street, Dundee.

OSMUNDA for Orchids.—Consignments arrive fortnightly. 2s. 6d. per bushel; per bag, 8s. 6d.
SANDER & SONS, St. Albans.

SALES BY AUCTION.

Monday, Wednesday and Friday Next.

MONDAY and FRIDAY NEXT, JANUARY 29th and FEBRUARY 2nd, at 12 o'Clock.—A choice assortment of Hardy Perennials and Herbaceous Plants, Lily of Valley, Spiræas, Iris, Pæonies, &c., Japanese Liliums, Gladiolus, Begonias, and other Hardy Bulbs.

At 1.30 o'Clock.—2,000 ROSES, Standard, Dwarf, Climbing, &c., also Fruit Trees in variety, Azaleas and Rhododendrons.

WEDNESDAY NEXT, JANUARY 31st, at 12 o'Clock.—Japanese Liliums in large variety, Begonias, Gloxinias, Gladiolus, Lily of Valley, Iris, Carnations, Pinks, &c., Herbaceous and Rock Plants, Perennials, &c.

At 1.30 o'Clock.—8,000 ROSES, English, French, and Dutch grown, Standards, Dwarfs, Climbers, &c., Standard, Pyramidal, and other Fruit Trees.

At 5 o'Clock.—100 lots of Ornamental and Decorative Palms and Plants, Azaleas indica and mollis, Rhododendrons, Aspidistras, Standard Bays, &c., from Belgium, also Stove and Greenhouse Plants.

MESSRS. PROTHEROE & MORRIS will SELL the above by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, E.C. On view morning of Sale and Catalogues had.

The Nurseries, South Woodford.

Important Four Days' Sale of well-grown general NURSERY STOCK, lotted to suit all buyers, by order of Mr. John Fraser.

MESSRS. PROTHEROE & MORRIS will SELL by AUCTION on the above premises on TUESDAY NEXT, JANUARY 30th and three following days, at 11.30 o'Clock each day. On view. Catalogues had on premises, and of the Auctioneers, 67 and 68, Cheapside, E.C.

Rose Trees, Shrubs, Fruit Trees, Lilies, Perennials.

MR. J. C. STEVENS begs to announce that his Sales by Auction are held every

MONDAY and WEDNESDAY, at 12.30.

Catalogues post free.

Lots purchased, packed and forwarded to all parts.

STEVENS' AUCTION ROOMS

(Established 150 Years),

38, King St., Covent Garden, London, W.C.

BUSINESSES FOR SALE, &c.

PENRITH (Main line, London and North-Western Railway).—For Sale, owing to ill health of proprietor, a genuine NURSERY, MARKET GARDEN and FLORIST'S BUSINESS, with or without shop in town; established 60 years; grounds of about seven acres; one mile from town; five glasshouses, practically new, modern heating arrangements; quantity of frames; varied and general stock of growing plants, florists' requisites, &c.; shop in central position; total valuation £1,500; offers invited for quick sale; splendid opportunity for energetic man with moderate capital.—Full particulars from THORNBORROW & CO., St. Andrew's Churchyard, Penrith.

NURSERY FOR SALE; 1,450 feet run of glass, practically new; well heated; good house, packing shed, stable, &c.—Particulars, apply, J .W. C., 12, Five Wents Cottage, Swanley, Kent.

BRITISH COLUMBIA.—FOR SALE, BEARING ORCHARD, with HOUSE, BUILDINGS, and all requisites, delightfully situated in the fruitful Kettle Valley; also various Farms, Tracts, and Estates.—For particulars apply to AUGS. RANKING, 21, Mincing Lane, E.C., London Agent to Farmer and Co., Rock Creek.

RUGBY.—FOR SALE, as a going concern, a small genuine NURSERY BUSINESS; price for house, frames, and freehold land, £650; stock at valuation.—Full particulars, JAMES STYLES & WHITLOCK, Auctioneers, Rugby.

£400 will purchase a well-fitted and stocked NURSERY BUSINESS growing Tomatos, Cucumbers, Chrysanthemums, Bedding-out Plants, &c., with a capable manager, in a good-class riverside town near London, suitable for a gentleman desiring light occupation, or a practical gardener, net rent only £8 per annum.—Particulars from Messrs. ARNOLD & CO., 76, Cannon Street, E.C.

TENDERS.

Metropolitan Borough of Deptford.

TO HORTICULTURAL BUILDERS AND OTHERS.

THE Council of the above Borough invites Tenders from Horticultural Builders and others for the erection of a Greenhouse and Forcing Houses at their Cemetery at Brockley Road, Brockley, S.E.

Particulars and conditions of contract and Forms of Tender can be obtained from the Borough Surveyor at the Town Hall, New Cross Road, S.E., between the hours of 10 and 4 o'Clock (Saturdays 10 and 12).

Tenders must be made on the form supplied and must be sent to the undersigned in accordance with the Council's regulations printed thereon so as to be received not later than 4 p.m. on Tuesday, the 13th day of February, 1912.

The usual wages clause adopted by the Council will be included in the contract, and the Council does not bind itself to accept the lowest or any Tender.

The Council will not enter into a contract with any person or firm if it is shown to the satisfaction of the Council that such person or firm does not pay such rate of wages and observe such hours of labour as are recognised by associations of employers and trade unions and in practice obtain in the districts in which such person or firm carries on work.

VIVIAN ORCHARD,
Town Clerk.

The Town Hall,
New Cross Road, S.E.,
18th January, 1912.

PUBLISHERS' NOTICES.

KYNOCH'S "Wild Flowers of Barmouth," fourth edition, including Salwey's Scarce List, Habitats and Notes, published 1863, pp. 50, price 6d.—J. KYNOCH, 8, College Road, Brighton.

Pronunciation of Plant Names.

A few copies are still to be had. Post free, 1/1½.

Present-Day Gardening.

Edited by R. HOOPER PEARSON, Managing Editor of the GARDENERS' CHRONICLE. Now Ready. Post free, **1/9** each.

Numerous Beautifully Coloured Plates are contained in Each Volume.

1—**Sweet Peas.** By HORACE J. WRIGHT, late Secretary and Chairman of the National Sweet Pea Society. With Chapter on "Sweet Peas for Exhibition," by THOS. STEVENSON.

2.—**Pansies, Violas, and Violets.** By WILLIAM CUTHBERTSON, J.P., and R. HOOPER PEARSON.

3.—**Daffodils.** By the Rev. J. JACOB.

4.—**Orchids.** By JAMES O'BRIEN, V.M.H., Secretary of the Orchid Committee of the Royal Horticultural Society.

5.—**Root and Stem Vegetables.** By ALEXANDER DEAN, V.M.H., Chairman of the National Vegetable Society.

6.—**Carnations and Pinks.** By T. H. COOK, Head Gardener at Sandringham; JAMES DOUGLAS, V.M.H., and J. F. MCLEOD, Head Gardener to Mr. Pierpont Morgan. Contains 8 full-page coloured plates.

7.—**Rhododendrons and Azaleas.** By W. WATSON, with preface by Sir F. W. MOORE, M.A. (the first popular volume published on this subject). Contains 8 full page coloured plates.

8.—**Lilies.** By A. GROVE, F.L.S., with preface by H. J. ELWES, F.R.S. Contains 8 coloured plates.

9.—**Apples and Pears.** By GEORGE BUNYARD, V.M.H. Contains 8 coloured plates.

10.—**Roses.** By H. R. DARLINGTON, with 8 full-page coloured plates. A double volume, price **2/10**, post free. Special presentation edition, with beautiful cover design, in cloth gilt, gilt top, price **3/10**, post free

THE PUBLISHER,

"Gardeners' Chronicle" Offices, 41, Wellington St., Covent Garden, London, W.C.

Handbook of Tropical Gardening and Planting.

By H. F. MACMILLAN, Curator of the Royal Botanic Gardens, Peradeniya, Ceylon.

A fine record of progress in tropical agriculture and horticulture, and testifies not only to the fertility of Ceylon, but also to the resource of the author. The home-keeping reader will find much that is of interest in its rich and varied contents.

Nearly 200 illustrations. Post free, **12/-**

THE PUBLISHER,

"Gardeners' Chronicle" Offices, 41, Wellington St., Covent Garden, London, W.C.

THE

HORTICULTURAL DIRECTORY

for 1912. (53rd year).

1/3 post free. ∴ ∴ ∴ Cloth Bound, **2/6.**

AN UP-TO-DATE WORK OF REFERENCE.

A complete Register of the

Principal Nurserymen, Seedsmen, &c.
,, Mansions, their Occupiers and Head Gardeners.
,, Horticultural Builders, Engineers, Sundriesmen, &c.

Offices: JOURNAL OF HORTICULTURE, 4, Mitre Court, Fleet Street, London, E.C.

"THE FRUIT MAGAZINE, SCIENTIFIC FARMER AND CANADIAN CITIZEN,"

issued Monthly in the interest of Growers, Dealers and Consumers. Subscription **6/2** per annum.

MAXWELL SMITH, Editor, Vancouver, British Columbia.

Sole Agent in U.K., AUGS. RANKING, 21, Mincing Lane, E.C.

NOTICES.

Minehead Urban District Council.

TO LANDSCAPE GARDENERS.

THE Minehead Urban District Council invite COMPETITIVE DESIGNS for LAYING OUT the BLENHEIM MEADOWS at MINEHEAD as a PUBLIC PARK and PLEASURE GROUND.

Plan of the site and conditions may be obtained from the undersigned on deposit of five shillings, which sum will be returned on receipt of bona-fide designs in accordance with the conditions.

A Premium of £10 10s. (subject as stated in the conditions) is offered by the Council for the best design, and the design in respect of which such premium may be awarded shall become the property of the Council.

Designs, &c., enclosed in a sealed package, as directed in the conditions, and endorsed "Blenheim Meadows," are to be sent to the undersigned on or before the 26th day of February, 1912.

Dated this 17th day of January, 1912.

By order,
L. C. WEBBER-INCLEDON, Clerk.
16, Park Street, Minehead.

Royal Gardeners' Orphan Fund.

NOTICE IS HEREBY GIVEN that the ANNUAL GENERAL MEETING of the Subscribers to this Fund will be held at "Simpson's," 100, Strand, London, W.C., on Friday, February 9th, 1912, for the purpose of receiving the Report of the Committee and Statement of Accounts for the past year; to elect officers for the ensuing year; to elect eighteen Children to the benefits of the Fund; and to transact such other business as may arise. The Chair will be taken at 3 p.m. The poll will close at 4.30 p.m., after which time no votes can be received. By order, BRIAN WYNNE, Secretary, 19, Bedford Chambers, Covent Garden, W.C.

IMPERIAL COLLEGE OF SCIENCE and TECHNOLOGY,

SOUTH KENSINGTON,

including

The Royal College of Science,
The Royal School of Mines, and
The City and Guilds (Engineering) College.

A Course of 20 Lectures and Demonstrations will be given, commencing on February 20th next, on

SUBJECT:

Fungal Diseases of Plants and their Remedies.

CONDUCTED BY

Mr. E. S. Salmon, F.L.S.

For further particulars of this and other Courses to follow, and for admission to this Course, application should be made to the Secretary.

PLANTS, &c., WANTED.

WANTED, large KENTIA PALMS, up to 25 feet high; large, well-coloure Dracænas and Crotons, also Aspidistras.—ROBER GREEN (1911), LTD., 28, Crawford Street, London,

WANTED, two dw[illegible] CHERRIES, established in varieties; state price, size, and condition. Ilderton, Wooperton, S.O., Northumberla[illegible]

WANTED, a few plants PHYLLUM.—State size and pric[illegible] Tile Barn Gardens, Woolton Hill, Newb[illegible]

THE
Gardeners' Chronicle

No. 1,309.—SATURDAY, January 27, 1912.

CONTENTS.

Acacia Baileyana ...	59	Pinguicula gypsicola ...	58
Agricultural education...	58	Plants, movement in ...	49
Apples, the colouring of	59	Plants, new or noteworthy—	
Autumn tints, plants for	51	Calceolaria virgata ...	50
Beech trees in Ashridge Park	56	Rats, destruction of ...	59
Benevolent Institution, Gardeners' Royal	56 & 62	Rhododendron Broughtonii aureum	53
Big-bud, spraying for ...	58	Rosary, the –	
Books, notices of—		New Roses of the N.R.S. "Catalogue"	50
Irish Farming World	57	Rose Madame Hector Leuilliot	59
The Orchid Review ...	57	Trials at Bagatelle ...	51
The Orchids of New Guinea	50	Scotland, notes from ...	58
Dimorphotheca aurantiaca	52	Small holdings	58
Drought and tree-growth	58	Societies—	
Forestry and the Development Grant	55	Gardeners' Royal Benevolent Institution	62
Fruit trade of South Africa, the	58	North of England Hort.	63
Fruit trees in grass land	60	Royal Horticultural ...	60
Gardeners, certificated	60	Scottish Horticultural	63
Genetics, lectures on	57, 58	Ulster Horticultural ...	63
Hibiscus hybrids ...	57	Sweet Pea, diseases of ..	52
Iris stylosa	60	Sweet Pea Senator Spencer	60
Law note—		Vitex Agnus-castus ...	52
Action against a horticultural society ...	63	Ward, Mr. William ...	57
Obituary—		Weather in 1911, the ...	58
Bowler, John	63	Week's work, the—	
Murphy, Michael ...	63	Flower garden, the ...	54
Purves, Thomas ...	63	French Garden, the ...	55
Payne, Mr. C. Harman, honour for	58	Fruits under glass ...	55
Pineapple culture at Oakbrook Gardens, Hammersmith ...	59	Hardy fruit garden ...	54
		Kitchen garden, the ...	55
		Orchid houses, the ...	54
		Plants under glass ...	54

ILLUSTRATIONS.

Acacia Baileyana 59
Beech, a veteran 57
Beech "The Queen," in Ashridge Park (Supplementary Illustration)
Calceolaria virgata in the rock garden at Kew 50
Rhododendron Broughtonii aureum... 53
Vitex Agnus-castus 52

MOVEMENT IN PLANTS.

THE day has long gone by when the plant could be contrasted with the animal as an organism devoid of movement, but few people perhaps are aware of the important part which motile organs of various kinds actually play in the economy of plants. We are most of us familiar with the numerous manifestations grouped as sleep movements, and are aware that the leaves of Clover, False Acacia, and of many other trees and herbs, assume a very different position at night from that which they maintain during the daytime. Again, the rapid, and often undesired, opening out of Tulip or Crocus flowers in a warm room, and their closure when the temperature falls, is a feature known to many people who, nevertheless, would be puzzled to explain how the change is brought about. Dionæa muscipula (Venus's Fly-trap), Mimosa pudica ("Humble" or Sensative Plant), and some species of Oxalis afford examples of movements which, in their rapidity of execution, accord but ill with our general conception of the lethargic vegetable and suggest rather, the lively animal. All these movements depend primarily upon the living protoplasm, which is arranged in such a way as to provide the mechanical means that render them possible. Briefly explained, the motile structure consists of cells which are lined internally with protoplasm, and each cell contains so much sap that it is kept very tensely expanded. Now if we imagine that the cells which compose one of the two longitudinal halves of any organ, say the base of a leaf-stalk, are suddenly rendered flaccid by the escape of the water that kept them turgid, these cells will at the same time, of course, become somewhat smaller. If this escape of liquid is confined to the cells of one side the necessary consequence will be that the cells on the two sides will no longer be equal in size, and the organ will bend over towards the flaccid side. One may illustrate this bending movement by damping a sheet of paper on one surface, when it will be observed to curl up with the damp side outermost. This is because the water forces its way between the particles of paper, and so causes a swelling of the area affected. If the sheet of paper be totally immersed in water it becomes flat again, because the water has caused the whole piece to swell equally. Similarly, if the wet sheet be held in front of a fire, it will curl so that the surface next the grate will be concave, because the water is evaporating faster from this than from the outer side.

We can easily prove that this difference in water content is the substantial reason why a Tulip flower, for example, opens in a warm room. A petal should be picked from a moderately young flower and a longitudinal slice be cut out of the middle with a sharp knife. If it is put into a glass of water the slice will, in about half a minute, begin to curve rapidly in the sense of closing the petal. This is because the cells on the outer side have the capacity of taking in water and swelling more than those on the inner side. But these same cells also part with water more easily. By transferring the slice to another glass containing a weak solution (3 or 4 per cent.) of common salt, water is withdrawn from the cells of the slice, but much more quickly from the cells of the outer (lower) side, and the slice straightens out. It is possible to repeat this experiment with the same slice a number of times, and the result is always the same. The straightened-out position is reached as soon as the salt has withdrawn the excess of water from the cells that previously kept them turgid.

These experiments show that in a mechanism of this sort (and it applies to nearly all the mechanisms in which living protoplasm is concerned), the movement depends on a disturbance of equilibrium between the forces tending to stretch each surface to the uttermost.

But we do not know why or how it comes about that the protoplasm shows this difference of sensitivity on the two surfaces. Indeed, whenever we try to get behind the immediate physical cause of any manifestation of life, we are always prevented from penetrating further into the mystery because we do not know enough about the protoplasm itself.

In the Sensitive Plant and the Venus's Fly-trap the mechanism is more complicated. The actual movement depends, as before, on a difference of turgidity on the part of the two surfaces of the motile organ, but the mechanism may be actuated by stimulating another part of the plant.

In the Fly-trap the stiff hairs (three or four on each leaf lobe), situated on the upper surface of the leaf, form the "triggers." When any one of these is touched a change in the protoplasm occurs, and an impulse is instantaneously transmitted to the motile cells of the leaf, and causes them to lose water. Much the same occurs in Mimosa, where, as is well known, injury to one of the leaflets causes an impulse to travel down the leaf-stalk, with the result that the pairs of leaflets are successively affected and change their positions. The movement has been very clearly shown to depend, in this plant, on the exudation of the watery solution of salts from the cells concerned.

There are very many other examples which might be quoted of what we may term vital movements, inasmuch as they depend on the living active protoplasm for their occurrence, but space will not allow of their being dealt with here.

A further series of plant movements depends upon certain physical properties of the water which is present in the cells concerned in producing those movements. To this series belong those movements which result in splitting open the anthers of a stamen, in scattering the spores of a Fern or a Selaginella, or in dispersing the contents of the "fruit" of a liverwort. It is a remarkable fact that when a liquid is contained in a perfectly closed vessel, the walls of which it can wet, it demands tremendous force to break the continuity of that liquid. The reason why this fact was long unknown is largely due to the need of complete cleanliness in the apparatus and liquid used for experimental investigation. As a matter of fact, the recognition of this great cohesiveness of water was largely due, in the first instance, to botanical researches on the behaviour of water in plants.

This is not the place to attempt to discuss the evidence on which our knowledge of this property of liquids is based, and it must suffice to say that in the case of water present in plant cells it is not possible, provided air is excluded from passing through the walls, to cause a space to appear without exerting a force of hundreds of pounds to the square inch. Bearing this in mind then, it will be seen that if water evaporates from such a cell, and air cannot get in to take its place, the wall must be subjected to a tremendous pull, and any weaker part of it will tend to be sucked inwards.

Now, in the light of this, the structure of the anther, so far as its opening mechanism is concerned, becomes intelligible. Just below the epidermis is the so-called fibrous cell layer which is responsible for the dehiscence, or splitting open, of the pollen sac. The individual cells of this layer form a sheet of tissue, interrupted by a line usually running parallel with, and between, the two pollen sacs situated on each side of the stamen which forms the line of dehiscence.

The cells themselves are constructed on the strictest mechanical principles. The otherwise thin membrane is thickened towards the pollen cavity, whilst prongs or bars of thickening also extend over the side walls, leaving the intermediate portions,

R.B.G. Bgt. Garden
1912

and generally (though not invariably) the outer wall as a thin skin. Now when the stamen ripens, and the supply of water from within is gradually cut off, evaporation continues at the outside. The cells contain less and less water, but owing to the great cohesive power of the contained liquid, and the imperviousness of the wet membranes to the passage of air, the side walls are gradually drawn together. And this drawing together is most prominent on the thin outer surface, which, as a whole, contracts in consequence. Presently the anther walls split open and begin to curl back, so that the outer, contracted, surface comes to lie on the inner side of the curve, and the anther thus dehisces. In some stamens, e.g., the Castor Oil plant, when this backward curvature has reached a certain stage, the internal cohesion of the water is broken, and the cells spring back to their former shape. In doing so, they cause the pollen to be forcibly flicked out from the stamen. Generally, however, this does not happen, and only if the anther gets wetted do the walls recover their original positions.

A mechanism like that of the Castor Oil plant is responsible for the jerking out of the four megaspores from the large sporangia of a Selaginella. If one shakes out these sporangia from the plant on to a plate when they are ripe, the scattering of the spores may be easily watched. The sporangium opens slowly, revealing the four spores beautifully packed inside. Suddenly the two valves of the sporangium violently change their shape and position, and the spores are propelled to a considerable distance. Essentially the same process can be seen when a Fern sporangium slowly opens, and, after curling backwards, suddenly springs forward again, and hurls the spores as from a catapult. In both examples water evaporates from the cells, and distortion is produced owing to the consequent approximation of the cell-walls in the motile region. Then the internal cohesion of the water gives way, and the elastic walls recover their original form with an almost explosive violence.

J. Bretland Farmer.

(To be continued.)

NEW OR NOTEWORTHY PLANTS.

CALCEOLARIA VIRGATA.

CALCEOLARIA VIRGATA (see fig. 27) is a native of the Andes of Peru and Bolivia, where it is found at elevations of from 8,000 feet to 13,000 feet. It forms a bushy plant, growing from 1 foot to 1½ foot high. The leaves are ovate and shortly stalked. During the summer and autumn months the somewhat small, white flowers are produced in great numbers. The species was introduced to cultivation by Messrs. Sander & Sons, St. Albans, in 1910 and specimens have flowered freely during the past two summers in the open at Kew gardens, both in a bed and in a shaded place in the rock-garden, where it was an effective and attractive subject. Up to the present the plant has not been grown out-of-doors during the winter, but it will probably prove tender, like the closely-allied C. alba, except in the more favoured parts of Great Britain. Cuttings root readily: those struck in the autumn furnish good flowering plants the following summer. *W. I.*

ORCHID NOTES AND GLEANINGS.

THE ORCHIDS OF NEW GUINEA.*

IN hardly any country of the same size are there so many Orchids as in New Guinea. When all the species collected during the last few years are described, there will be nearly 1,000, and when the difficulties of the country are considered, the successes of plant collectors are remarkable. Amongst these are many well worthy of culture in our stoves, as they possess striking beauty, although most of them are difficult to grow. However, many Orchids which showed for a long time the same difficulty are now easily cultivated, since we know the climatic conditions of their native habitats. So it will be with the Orchids of New Guinea, as there is now in the press a work by one of the best orchidologists, who has spent some years in that island. This scientific work, of which the first two numbers are already published, will be very valuable to cultivators. To the description of each genus is added an explanation of the distribution of the various species, and to each species is appended a description of its locality. Thus, the author points out that the two species of Paphiopedilum, hitherto known, namely, P. glanduliferum and P. præstans, are epiphytes, growing on large trees in Dutch Guinea, whilst the new one, P. violaceum is a terrestrial species, which loves the half-shaded places on the slopes of the mountains, where it grows in the humus on rocks. The localities where the species is growing are: on rocky slopes of the Finisterre mountains, 1,200 metres above sea level, where the plants flower in May; in the humus of the forests of the Maboro at 1,300 metres; on rocks at the Govidjoa brook, 1,000 metres, where flowering takes place in June.

Similar notes are added to the account of each genus and species. The author will give in a concluding chapter descriptions of the climatic conditions of all the localities. *B.*

* *Die Orchidaceen von Deutsch-Neu-Guinea*, by Dr. Rudolf Schlechter; Berlin-Wilmersdorf, F. Fedde. 1911.

THE ROSARY.

NEW ROSES OF THE N.R.S. "CATALOGUE."

(Continued from p. 451, vol. l.)

II.—ROSES OF 1910.

IN the previous article on this subject I dealt with the new Roses brought out in 1911, the names of which appear in the N.R.S. *Catalogue*. In the present article I propose to give some account of the Roses therein mentioned and brought out in the year 1910. Of these perhaps we know a trifle more than of those of 1911, but the difference in our knowledge of them is not great. We have not yet had time to study them in our gardens, and this is the only real test of a Rose. Some few of them that made a particular impression on us we have no doubt got there; but they have been subjected to a summer of quite unusual character and our observation of them must necessarily be inadequate, and any judgment or opinion founded thereon can only be provisional, and subject to many reservations. Not only does the over-propagation to which nearly all new Roses are subjected often cause them to behave in an abnormal manner, but what the amateur really wants to know is how the Rose is likely to behave in his garden when it becomes established. It is just this which it is practically impossible to tell him for a few years after the Rose is first put in commerce. I must therefore ask my readers to accept any statement I may make in this article as subject to revision in the light of fuller knowledge of the varieties.

ALEXANDRA ZARIFI, T.—This Rose is single-flowered, and best described as a chestnut-coloured Irish Elegance; it is equally free-flowering, and much resembles it in habit of growth, but the buds are terra cotta in colour and the flowers are a bright chestnut on a pale-pink ground, passing, as the flowers age, to a clear buff. It is a decorative Rose, and should make a good bedding variety of the taller type of bedding Rose. The foliage is good and shiny, and is a distinct feature of the Rose. It received a card of Commendation from the N.R.S. in 1910. It may be remarked that though Irish Elegance is classed among the H.T.s in the N.R.S.

Photograph by W. Irving.

FIG. 27.—CALCEOLARIA VIRGATA IN THE ROCK-GARDEN AT KEW.

Catalogue, several growers place it among the Teas, a position which its foliage might perhaps justify.

ALICE CORY-WRIGHT, H.T., is of a deep pink colour, rather after the type of a deeper-coloured Caroline Testout.

ALICE DE ROTHSCHILD, T., was brought out as a dwarf bedding Marechal Niel. The *Catalogue* calls it "a very promising novelty; the colour deepens as the flower expands." I think the hot summer was rather against forming a fair opinion of this Rose, for those flowers I have seen have borne little resemblance to Marechal Niel, but since that variety does not come a good colour when opened in hot weather and unshaded, I reserve my opinion for another year.

ARTHUR R. GOODWIN, H.T.—Here we have a Rose of very distinct character, and when in the bud stage it is most beautiful. The buds are of a coppery orange, and open rather too rapidly to a flat but symmetrically-disposed flower paler than the buds, with a rather curious salmon-pink flush which, though slight, is well defined. Many admire the flower when thus expanded, but to me much of its beauty is then lost, and the flat form of the flower does not greatly please me. Still, it is well worth growing for its beautiful and distinct buds, and I propose increasing my stock of this variety somewhat this autumn. The plant is a good grower, and seems quite satisfactory.

ARIEL, Wich., is without doubt a beautiful summer-flowering single Rose. It is described not inappropriately as a single-flowered Tea Rambler, and the flowers are of a shade of coppery pink very like that variety. It is classed as a Wichuraiana, and the bright, ruddy-brown stems and the beautiful shiny foliage may perhaps suggest this origin, but the strong upright habit of growth seems to me to make it more nearly resemble the Ramblers, i.e., the Multiflora scandens section, and I think it is for uses similar to those for which Crimson Rambler and Blush Rambler are appropriate that it will best be employed.

BEAUTÉ DE LYON, Austrian Hyb.—This Rose is certainly of a distinct colour. The raiser's description is coral red slightly shaded with yellow, but this hardly describes the colour. As the Rose has been shown here it is of a crushed strawberry of a rather dull tint, a colour that has not particularly appealed to me, but I am prepared to assume I have not yet seen this Rose at its best. The plant appears to be a strong grower, and it is said to be hardy.

CLAUDIUS, H.T.—This Rose has a fine shape and large flower which is very fragrant. The colour is a bright carmine rose, which is not particularly attractive to me, but I am growing the Rose for its fragrance. It secured a Gold Medal at the autumn show.

ETHEL MALCOLM, H.T., is white-shaded blush of good shape, and said to be free-flowering. It is a strong grower and will probably make a useful Rose for exhibition. It received a Gold Medal at the Luton show, 1910.

LADY HILLINGDON, T.—This Rose is of a wonderful colour, particularly when grown under glass. The *Catalogue* describes it as bright fawn-yellow suffused orange, but I should rather put it the other way, bright orange with a fawn shading. I have had it growing next to Lena this year, and have often been struck with the general resemblance in tint of the two Roses. Under glass the orange colour is more pronounced. It seems a good grower for a Tea-scented Rose, opens readily, and, I think, will make a beautiful decorative Rose for the garden, but it is too thin to be of any use as an exhibition Rose. Flowers of this Rose evidently grown under glass appeared in many of the ladies' decorative exhibits at the Festival of Empire show at the end of September last year. The flower lasts well in water when cut, but the petals are of rather thin substance, and it is probable that, like all Roses of this character, it will succeed best when grown under glass.

LADY PIRRIE, H.T.—A Gold Medal was awarded this Rose at the summer show, 1910. Its colour is its chief claim to distinction; this is deep coppery-salmon on the outside of the petals, with a lighter shade of apricot on the inside. In 1910 I thought this variety one of the most promising of the new Roses, but was rather disappointed with its behaviour last summer, so perhaps it requires a cooler season. It is a garden Rose, not full enough for exhibition, and, from its habit, may possibly make a good bedder. Judgment reserved.

LIEUT. CHAURE, H.T., is a seedling from Liberty crossed with Étoile de France, and, like the latter variety, it seems a strong and tall grower, but it is a better colour, being at its best a good, rich crimson. The flowers are carried well, are fairly full with deep petals, and the buds are long and foliage good. Taken all round, it is a promising garden Rose. *White Rose.*

(To be continued.)

TRIALS AT BAGATELLE.

WE have received particulars from Paris of the annual exhibition of new Roses, which will take place, as in previous years, at the Bagatelle Rosary, Bois de Boulogne. For the benefit of those desiring to compete, we give the following brief directions:

The plants should have been, as far as possible, raised in pots, and at least five specimens of each variety must be sent. These are to be despatched before April 15 next, consigned to Monsieur le Conservateur des Promenades de Paris (Roseraie de Bagatelle, au Bois de Boulogne, à Paris), en gare de Neuilly-Porte-Maillot, Paris. They must be accompanied by a note giving details of any special cultural treatment the plants are to receive. The Roses will be placed in the ground as soon as they arrive at Bagatelle, and will remain there until the month of October in the following year, in order to enable the jury to study the plants during two seasons.

The name and address of each exhibitor will be printed in the small catalogue published by the Librairie Horticole, 26, Rue Jacob, Paris.

We give below a list of awards made during the past five years:—

YEAR.	AWARD.	NAME OF ROSE.	NAME OF WINNER.
1907	Bagatelle Gold Medal	Marquise de Sinety	Pernet Ducher, Lyon.
	Commended	Mme. Edmond Sablayrollis	Bonnaire, Lyon.
	Commended	Mme. Constant Soupert	Soupert & Notting, Luxembourg.
	Commended	Mrs. Peter Blair	Dickson & Sons, Ireland.
1908	Bagatelle Gold Medal	Rhea Reid	E. G. Hill, Richmond, U.S.A.
	Silver-gilt Medal (Ministry of Agr.)	Dorothy Page Roberts	Dickson & Sons, Ireland.
	Silver-gilt Medal (Hort. Soc. of France)	Mme. Segond Weber	Soupert & Notting, Luxembourg.
	Silver-gilt Medal (Rose Section of S.N.H.F.)	Mrs. Dudley Cross	W. Paul & Sons, England.
	Silver-gilt Medal (Society of Rose Lovers)	Frau Oberhofgartner Singer	P. Lambert, Germany.
1909	Bagatelle Gold Medal (French Roses)	Lyon Rose	Pernet Ducher, Lyon.
	Bagatelle Gold Medal (Foreign Roses)	Mme. Segond Weber	Soupert & Notting, Luxembourg.
1910	Bagatelle Certificate, No. 1	Molly Sharman Crawford	Dickson & Sons, Ireland.
	Bagatelle Certificate	Mlle. Marie Mascuraud	Bernaix, Lyon.
	Bagatelle Certificate	Lady Alice Stanley	MacGredy, Ireland.
	Bagatelle Certificate	Commandeur Jules Gravereaux	Croibier, Lyon.
1911	Bagatelle Gold Medal (French Roses)	Beauté de Lyon	Pernet Ducher, Lyon.
	Bagatelle Gold Medal (Foreign Roses)	Jonkheer J. L. Mock	Leenders & Co., Holland.
	Bagatelle Certificate, No. 1	Viscountess Enfield	Pernet Ducher, Lyon.
	Bagatelle Certificate	May Miller	E. G. Hill, Richmond, U.S.A.
	Bagatelle Certificate	William Speed	Dickson & Sons, Ireland.
	Bagatelle Certificate	Désiré Bergera	Barbier & Co., Orléans.

After 1908 no medals were awarded except the Bagatelle Gold Medal.

PLANTING FOR AUTUMN TINTS.

IT was generally anticipated early in the season of 1911 that the autumn tinting of the foliage would not be so pronounced as in ordinary years, owing to the deficiency of moisture. But this opinion proved erroneous, for the foliage was never more beautifully coloured. It is true that the leaf changes took place much later than usual, but the process was sudden, and for a considerable time the landscape presented a combination of glowing tints. Even many of the commoner kinds of trees developed exceptional beauty, especially the Horse Chestnut, which appeared like sheets of gold blotched with bright red. I was so impressed with the great diversity of colouring and charm of the autumn foliage that I made notes of the more conspicuous subjects, and these notes may be useful to readers of the *Gardeners' Chronicle*, whilst the planting season is still with us. The Thorns (Cratægus species) were strikingly in evidence. There is a wealth of species and varieties of these plants, suitable for gardens, many possessing beautiful flowers and showy fruits, but their greatest value is in the autumn colouring of the foliage. The American species and varieties of Cratægus number between 400 and 500, and many of these have been introduced to British gardens, thanks to Professor C. S. Sargent, of the Arnold Arboretum. A few of the more conspicuous members last autumn were Cratægus speciosa (yellow), C. Baxteri (scarlet), C. Illinoiensis, C. Douglasii, C. tormentosa, C. regalis, C. ornata (producing varying shades of scarlet), C. prunifolia (intense scarlet, one of the best of all the Thorns for coloured leafage), C. cuprea (coppery-red), C. Dodgei (orange), C. chippewaensis (red to brown), C. rubicunda (bronze), C. benigna (yellow), C. densiflora, C. pruinosa (dark brown), and C. Maineana (red). At Aldenham these Thorns are planted on either sides of grass paths in the pleasure grounds alternately with ornamental Oaks. The Oaks also, in their autumn garb, were exceedingly beautiful, a few of the choicer being Quercus palustris, Q. texana, Q. velutina, Q. Phellos, and its variety latifolia; Q. cuneata, Q. alba, Q. rubra, and its variety Schrefeldii; and Q. tinctoria.

Other striking features were the masses of plants grown in beds for effect at the different seasons. On the south side of the residence, below the terrace, and near to the park, a large bed of Berberis Thunbergii produced an indescribably beautiful effect for several weeks, the glowing colours of the leaves ranging from yellow to scarlet. The bed contains some four dozen plants, many of them being as much as 6 feet to 7 feet through. Other beds equally conspicuous were planted with Cornus alba, the foliage of which was intensely coloured, although the plants are intended to provide a display of colour in autumn and winter with their red bark; Rhus typhina, which was very showy both in masses and as occasional specimens in the woodland; Rhus Cotinus, the old inflorescences giving an additional charm to the beautiful tinted foliage, and R. glabra laciniata; Pyrus nigra planted in masses was another very striking subject. Of the larger ornamental trees that were especially brilliant may be named Cladrastis tinctoria, Parrotia persica, Liquidambar styraciflua, Liriodendron tulipifera, Koelreuteria paniculata, Gleditschia sinensis, Ginkgo biloba, Fraxinus Ornus, F. excelsior aurea, Amelanchier canadensis, A. oligocarpa, A. asiatica, and A. vulgaris. Some rare colouring was also provided by the smaller trees and shrubs. The Japanese Maples were remarkably

showy, one named Osakasuki being especially gorgeous. Spiræas, grown as isolated specimens, were also attractive, whilst S. prunifolia massed in a bed near to the waterside showed up conspicuously. Rhus copallina, both standard and bush plants, provided excellent colouring, and the Viburnums, including V. Lentago and V. Opulus, were equally as beautiful. Mention must also be made of the handsome Stuartia pseudo-Camellia, Zelkova acuminata, Rosa nitida and R. rugosa, which was splendid seen in the mass in beds. Beside these may be mentioned Pyrus alnifolia, P. Tschonoskii, Prunus Sargentii, P. orthosepala, P. Maximowiczii; many of the Hypericums; Enkianthus japonicus, Euonymus americanus, E. alatus, E. europæus atropurpureus, E. Sieboldianus, Cornus Nuttallii, C. alba atrosanguinea, Berberis vulgaris, B. v. amurensis, B. diaphana, B. virescens, and B. dictyophylla. Amongst the more beautiful of the climbers were noticed the following:—Vitis inconstans (Ampelopsis Veitchii); Rhus toxicodendron, which, trained to a single pole or a tripod formed of stout branches, gives a magnificent display of colour in the shrubberies in late autumn; ornamental Vines, especially V. Coignetiæ, V. Thunbergii, V. armata Veitchii, and V. vinifera purpurea. Several of the new species of Rubus introduced by Mr. E. H. Wilson from China have been excellent, and especially R. Lambertianus, R. massiliensis, R. Playfairianus, and R. coreanus. Other new plants from the same source include several undetermined species of Berberis. Cotoneaster, Cornus, Cerasus, Cratægus, Pyrus, Prunus, Staphylea, Spiræa, and Betula, at present grown under numbers. Mention must also be made of Diervilla japonica, Liquidambar formosana, Rhus vernicifera, Staphylea bumalda, Viburnum fœtidum (scarlet), V. ichangense (bronze), Vitis pentagona (yellow), V. heterophylla Delavayana, V. betulifolia (red), V. Thomsonii, Acer Henryi (red), and A. oblongum (deep yellow). The foregoing is not a complete list of the many beautiful plants grown at Aldenham that are worthy of cultivation for their autumn tinting, but it represents many of the choicer species and varieties. *Edwin Beckett.*

VITEX AGNUS-CASTUS.

IT is recorded that Vitex Agnus-castus was introduced into the British Isles in 1670 from the Mediterranean region, where the plant is commonly known as the "Chaste" tree. Despite the fact that most nurserymen dealing in trees and shrubs offer the plant in their catalogues, it is comparatively little grown in gardens. The reason for this may be that, being a south European shrub, the plants do not succeed well in exposed positions; but whatever may be the shortcomings of Vitex Agnus-castus in this direction, a glance at the illustration (fig. 28) affords sufficient evidence of its value as a subject for a wall, and it need only be grown in the open garden in comparatively mild localities.

A deciduous shrub belonging to the natural order Verbenaceæ, Vitex Agnus-castus grows to a height of some 6 feet or more in favourable positions in the open, but against a wall this height is exceeded, the plant illustrated, on a west wall at Kew, being about 14 feet high. The flowering season extends from the end of August until October. The individual blossoms are on the small side, but the profusion with which they are produced on the long, slender terminal and axillary panicles more than compensates for any deficiency in size. They are white tinged with lilac. The foliolate leaves are generally in fives.

The plants thrive best in light, well-drained soils. Cuttings root readily in sandy soil in a close frame if inserted towards the end of the summer or early in autumn. To obtain long panicles of blossoms, more particularly on wall specimens, fairly hard pruning is necessary in March, similar to that afforded the varieties of Buddleia variabilis. *A. O.*

HERBACEOUS BORDER.

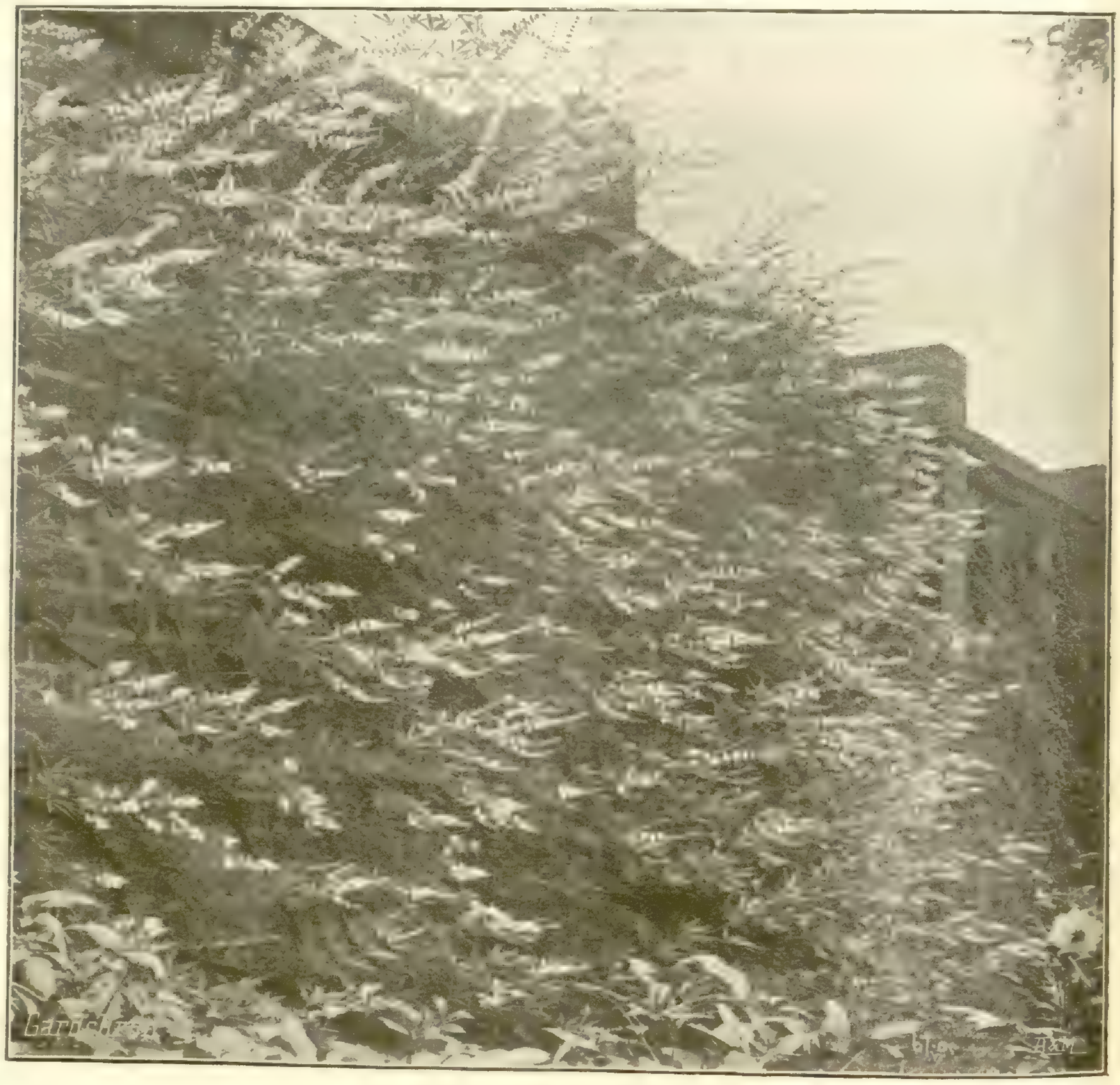
DIMORPHOTHECA AURANTIACA.

AT the R.H.S. Temple Flower Show in 1908 Dimorphotheca aurantiaca, a beautiful, half-hardy annual, of small stature, received an Award of Merit from the Floral Committee, and since then its popularity has increased enormously with each succeeding year.

The flowers are a rich orange-gold colour, and measure from 2 inches to 3 inches in diameter; at the time of its introduction the height was given as 15 inches, but probably from 9 inches to 12 inches would be more accurate. The plant is of a rather spreading habit and very suitable for massing in beds, while it is effective planted in groups in the front of herbaceous borders.

Select the sunniest position in the garden for planting, as the sun has much to do with the plant's well-being. The seed should be sown in sandy soil in early spring in a temperature of from 55° to 65°, and the seedlings, when large enough to handle, transplanted into boxes or small pots. After being thoroughly hardened off, they should be planted in their flowering quarters at about the end of May or beginning of June. Dimorphotheca aurantiaca is also a suitable subject for the cool greenhouse.

In habit, growth and foliage, as well as in height and size of bloom, the hybrids of the plant are similar to the type, but the flowers vary in colour. Some are pure white, others blush-white, red, light orange, sulphur yellow, bright golden-yellow, and beautiful salmon shades from delicate salmon to deep salmony-orange. There are varieties with different-coloured zones, such as white with a broad sulphur-yellow zone, or soft salmon with a deep salmony-red inner circle, and these greatly enhance the beauty of the flowers. *J. B. M.*



[*Photograph by E. J. Wallis.*

FIG. 28.—VITEX AGNUS-CASTUS ON A WEST-WALL: FLOWERS, WHITE TINGED WITH LILAC.

SWEET PEA DISEASE.

(Continued from p. 36.)

I AM afraid it must be admitted that there is no actual cure for the streak. Tomato stripe, which is closely allied to it, is considered to be quite incurable, and until a cure is found for stripe, it is hopeless to expect that one will be found for the streak. The problem is, therefore, how to prevent its appearance, and it is towards the attainment of this object that all our experiments should be directed.

As I said before, I have always held the opinion that the disease may be carried in the seed. This opinion was confirmed by a report made some time ago that the seeds of Tomatos and Potato sets may—and often do—contain mycelium or the germs of disease. In 1910 I had to delay sowing Sweet Peas until April; I then sowed on soil which had produced hitherto nothing but Potatos and fruit. The ground had been heavily manured for the Potatos, and nothing was given to the Sweet Peas but a little dried blood. They bloomed abundantly for a short time, beginning in July; but by the middle of August many of the plants were affected by disease. In order to test whether the disease was transmitted in the seed, I saved a pod or two of Czarina from a plant which took the disease rather late. As a rule, a diseased plant fails to produce seed, but it frequently happens that the plant is attacked after the pods are nearing maturity. The seed I saved was sown the following February. It grew very slowly, but seemed healthy; the plants were set out in the middle of April, and remained healthy until they were 15 inches or 18 inches high. Then they succumbed, collapsing quite suddenly, and I consider that their fate tends to bear out the theory that the disease was latent in the seed.

The great difficulty in the matter is that we have not really known the nature of the disease, and that we have sown and watered and tended blindly, hoping against hope that the crop would be healthy, but utterly unable to ensure it. Experience dashes our hopes again and again; a wet summer leads us to believe that damp, chilly weather favours the progress of the disease. This, again, is contradicted by its rampant progress in the hottest, driest season known for 70 years.

In the *Sweet Pea Annual* for 1909, Mr. George Massee says :—

"*The disease is of a physiological nature . . . plants suffering from it having an absence of root nodules*" After some generalisations, we are further told that "*a suitable quantity of the proper sort of manure would attain the desired object*," viz., a cure; and that an excess of manure would be likely to have a deleterious effect.

In the same issue of the *Annual* a large number of members quote briefly their experience in connection with the disease. Many of these state that they pulled up and burnt the affected plants. Other correspondents, unacquainted with the disease in practice, suggested as a cause the employment of too much nitrogenous manure—a sound theory, but without such manure it has been impossible to grow very large flowers.

In the *Sweet Pea Annual* for 1910, one writer airs the theory that the cold, wet, sunless season was detrimental to the nitrogen-fixing bacteria in the soil, and hindered them in their work—a theory completely disproved by the past summer.

The *Annual* for 1911 contains the report of the sub-committee appointed to investigate the disease; but to all intent and purposes it is merely a negative one. Mr. F. J. Chittenden, who investigated a number of plants, could find nothing beyond Thielavia basicola, eel-worm, and Fusarium, and efforts to inoculate healthy plants with Thielavia proved abortive. At Reading no organisms could be found; but the appearance of the vascular tissues suggested bacterial causes.

These scrappy notes are all that we have had to work upon, and one is inclined to ask how it is that science has done so little towards the solution of an eight-years-old problem. I believe it is the case, that many fungi are difficult to trace under normal conditions; and unless fruiting spores can be discovered, it is often impossible to identify them. In the case under review, nothing was found except Thielavia, Fusarium, and Botrytis; but I wonder whether *all* the available tests were employed? This brings me to the relation of the discovery (though not by recognised scientists) of another organism, which comes near to providing us with an answer to our question.

Mr. Wm. Dyke—a well-known manurial expert and nurseryman—offered, early in this season, to investigate any of my plants in which the disease should appear. I gladly accepted this offer, and, in due course, handed over to him two successive batches, the second of which demonstrated beyond possibility of doubt that the cause of the disease was Macrosporium, with which the affected plants were literally swarming!

Mr. Dyke's report served to justify the theory, long held by me, that the streak is a near relative of the "Tomato stripe," and I cannot understand so common a fungus as Macrosporium having escaped the observation of the previous investigators. I can only think that, not expecting to find it, no attempt was made to ascertain its existence. Although a common disease, it is one that can rarely be found in the fruiting stage, unless the subject be kept for some time in a moist, warm atmosphere. Mr. Dyke wrapped my own and several other specimens in moist paper, and placed them in a warm place; in three days he could scoop up Macrosporium conidia by the thousand! *W.*

(To be continued.)

RHODODENDRON BROUGHTONII AUREUM.

BEFORE the inclusion of Azaleas in the genus Rhododendron, the generic name of Azaleodendron was applied to the subject of this note and similar hybrids, the result of crossing evergreen Rhododendrons with the deciduous kinds, still more generally spoken of in gardens as Azaleas. Although raised many years ago, R. Broughtonii aureum is still our best yellow-flowered hardy evergreen Rhododendron. Its nearest rival is R. sulphureum, which has more of the true evergreen character, but the flowers are a poor shade of yellow when compared with those of R. Broughtonii aureum. True, the Himalayan species R. campylocarpum has primrose-yellow flowers, but the plant is not hardy in this country except in favourable localities.

R. Broughtonii aureum obtains its name from the village of Broughton, in Peeblesshire, where it was raised by crossing a yellow Azalea and a seedling evergreen Rhododendron. There is also in cultivation a plant very similar in some respects, named R. Smithii aureum. This hybrid is the result of crossing a seedling of R. arboreum, and the yellow-flowered R. flavum (syn. Azalea pontica). The raiser of this plant was Mr. W. Smith, gardener to the Earl of Liverpool, at Coombe Wood, and later of the Norbiton Nursery, Kingston-on-Thames. The year 1838 is given as the date it was raised. The plant illustrated (fig. 29) has slightly richer yellow flowers than R. Smithii aureum, and the undersides of the leaves are green. In R. Smithii aureum the bottom surface of the leaves is distinctly glaucous or silvery.

The flowering season is May and early June. In summer the plant resembles in habit an Azalea, but the growths are looser. In winter the evergreen character denotes its relationship with the evergreen Rhododendrons. The average height of the plant is about 2½ feet.

Cuttings of Azaleodendrons, which includes the fragrant R. azaleoides (syn. R. fragrans), root fairly readily towards the end of the summer. Half-ripened shoots should be chosen and inserted in pots filled with sandy peat, placing the pots in a propagating frame provided with slight bottom heat. *A O.*

[*Photograph by E. J. Wallis.*

FIG. 29.—RHODODENDRON BROUGHTONII AUREUM: FLOWERS YELLOW.

The Week's Work.

PLANTS UNDER GLASS.

By THOMAS STEVENSON, Gardener to E. MOCATTA, Esq., Woburn Place, Addlestone, Surrey.

HIPPEASTRUM (AMARYLLIS).—Well-ripened bulbs of Hippeastrum that flowered early last season will now be pushing their flower-spikes. Where flowers are required fairly early in the season, the plants may be placed in a moderately-warm house. A little top-dressing is all that is necessary to give the pots a tidy appearance. Water should be afforded sparingly until the flower-spikes are well advanced, when the plants may be given a little liquid manure. The general collection of these plants should be overhauled later in the season, and any that need potting may be attended to then, although it is my practice to defer this operation until the plants have flowered.

BEGONIA GLOIRE DE LORRAINE.—Plants that flowered early will now be past their best condition. If an increase of stock is required, a few of the best specimens may be reserved for the purpose, shortening the shoots closely. Allow the stock plants a rest in a moderately-cool house; afterwards, when placed in heat again, they will develop suitable shoots for cuttings readily.

BEGONIA GLOIRE DE SCEAUX.—This beautiful variety of Begonia should be kept growing actively and given plenty of room. Under these conditions, large specimens may be obtained in comparatively small pots, and these will be extremely useful at this season of the year, either for decorative purposes in both plant-houses and dwelling-rooms. Other winter-flowering varieties of Begonia, such as Winter Cheer, Ensign, and Agatha, will still be attractive for some little time, especially if the ventilation of the house is attended to carefully. A little fresh air should be admitted on all favourable occasions to keep the atmosphere of the house comparatively dry, which will favour the flowers remaining fresh.

CHRYSANTHEMUMS.—The present is a suitable time for striking a good batch of Japanese Chrysanthemums, whether required for exhibition or decoration purposes. Many varieties rooted now grow freely and develop their first crown buds much better than earlier-struck plants. The following varieties may be rooted now:—James Lock, Mrs. A. T. Miller, Lady Talbot, Walter Jinks, Miss A. Nicol, Reginald Vallis, F. S. Vallis, Lady Crisp, Alice Lemon, Mrs. G. Mileham, Master James, Marie Loomes, Sir A. Rollit, and William Turner. It is now a good time to propagate the main batch of small flowered decorative and single varieties, and I prefer to root these kinds in boxes rather than in single pots. The cooler the structure in which the cuttings are rooted, the sturdier will the plants develop. Batches of cuttings that were inserted in December should now be rooting freely, and, after admitting a little air to them for a few days, they should be removed from the propagating frame into a more airy position. The staging and shelves of a cool greenhouse are probably the best positions, but, failing this, a cold or slightly-heated frame is suitable. No heat should be afforded unless the weather is very cold; but the plants enjoy all the light and air possible when well rooted. They may be sprayed very lightly overhead for a few days after they are brought from the propagating pit, to prevent flagging, but water at the roots must be afforded sparingly till the days get longer, and the plants well rooted.

MIGNONETTE.—If the plants of Mignonette are in 3-inch pots (60's), they will need a shift into receptacles a size or two larger. Employ a good, gritty compost, and pot exceptionally firmly. If the plants are fed carefully when plenty of roots have formed, they should furnish large spikes of flowers. Some place two plants in a pot and pinch the leading shoots once; but if five or six seedlings are grown in each pot and not pinched the flowers develop slightly earlier.

THE ORCHID HOUSES.

By J. COLLIER, Gardener to Sir JEREMIAH COLMAN, Bart., Gatton Park, Reigate.

INTERMEDIATE HOUSE.—Plants of Miltonia vexillaria and M. Bleuana are growing freely, and should gain in strength as the days lengthen. Plants that are well rooted will, from now onwards and until they have completed their pseudo-bulbs, require an increased amount of water at the roots. Often, during dull weather, these Miltonias throw up growths with the leaves folded together tightly. The latter, if not released, will be permanently injured. The handle of a budding knife should be employed to part them, taking care not to injure the tissue. This trouble will not occur when the days lengthen and the sun increases in power. Thrips must be kept under, for once they attack these plants it is a very difficult matter to eradicate them. The best plan is to spray the plants overhead once a fortnight with a solution of Quassia Extract, at the strength of half-a-pint of the infusion to 3 gallons of water. Thrips may also be destroyed by immersing the leaves and young growths in this insecticide, being careful not to let the liquid soak into the compost. Do not allow water to remain in the sheaths at the base of the new growths. Many of the Brazilian Miltonias, such as M. Morelliana, M. spectabilis, M. Lubbersiana and M. Bluntii, will soon be developing new roots. Any that require it should be repotted as soon as these new roots appear, since it is important that the young roots are not injured. The plants succeed best in shallow pans in a compost of Osmunda and A1 fibre mixed with a small quantity of Sphagnum-moss, chopped up moderately short, and a liberal amount of crushed crocks. Any plants that have grown from the middle and over the sides of the pans should be divided. Remove the old pseudo-bulbs except two or three behind each new growth, and arrange the plants afresh into shapely specimens. If the roots are not sufficient to hold the plants firmly in the pans, fix the latter to the soil with small wooden pegs.

ZYGOPETALUM.—As plants of Zygopetalum Macayi, Z. Wiganianum and Z. crinitum pass out of flower they should be potted, if necessary. These plants dislike root disturbance, and potting should not be done until it is absolutely necessary. A suitable compost consists of two-fifths fibrous loam and one part each of peat, leaf-mould and Sphagnum-moss mixed with small pieces of crocks, crushed bones and a little charcoal. The method of potting should be the same as is afforded ordinary greenhouse plants. Z. Ballii, Z. Clayi, Z. rostratum and Z. Rœblingianum thrive best in shallow pans suspended from the roof rafters in a moist, shady part of the house. Employ as a rooting medium a mixture of Osmunda-fibre, A1 fibre, and Sphagnum-moss chopped rather short. Z. Perrenoudii, Z. leucochilum, Z. Clayi and Z. Protherianum are best grown in pots in a similar compost.

THE HARDY FRUIT GARDEN.

By F. JORDAN, Gardener to Lady NUNBURNHOLME, Warter Priory, Yorkshire.

BUSH FRUITS.—Bush fruits do best in a deep soil. Bastard trenching should be practised where the subsoil is poor and manure scarce, but when the top soil is deep and dung and burnt garden refuse plentiful, trenching the ground 2 feet deep is best. In double digging or bastard trenching, allow the top soil to remain on top, simply breaking up the subsoil and enriching it with manure or any other suitable material that is available. If possible, bush fruits should be planted in squares, as then wire netting may be placed around the plantation, and fish nets on the top to protect the buds as well as the fruit from birds. Plant in rows at 6 feet apart, allowing 5 feet between the plants in the rows. Black Currants may be grown in moist, shady positions, where they will bear freely, and succeed better generally than other bush fruits.

PRUNING BUSH FRUITS.—The pruning of the bushes may be deferred till later in districts where bullfinches are numerous; but it is best to prune now, and trust to an occasional sprinkling of limewash or some other wash not injurious to the buds to act as a deterrent to the birds. Quassia extract, with about 2 ounces of Paris Green added to each 30 gallons of extract, is a suitable wash to save the buds from the birds, and it will also destroy the eggs of the sawfly and other insect pests. Before commencing to prune Gooseberries, take into consideration the purpose for which the fruit is required. If the berries are intended for use before they are ripe, the shoots will not require much pruning, but if choice dessert fruits are required, considerable thinning is necessary, shortening the side shoots to two or three buds. In pruning, first remove any branches that are too close to the ground, also those that cross each other, or overcrowd the bushes. Finally, thin the young shoots to 6 inches apart, shortening the leading branches to about one-third of their length. Well-established plants of Red and White Currant should have the side shoots shortened to two buds, leaving 5 inches or 6 inches of the leading growths for extension. Remove worn-out branches, and train young growths from the base to take their places. The shoots of Black Currants do not require stopping, the removal of some of the older and unsuitably-placed branches being all the pruning they require. In many cases beneficial results follow the removal of all the old wood, treating the trees liberally afterwards. Some of the shoots may be saved for making cuttings; the others should be collected and burned. If caterpillars have been troublesome on Gooseberry bushes, remove the soil below the bushes 2 inches or 3 inches deep, and give a good dressing of lime. Afterwards apply manure or fresh soil to replace that which was removed. Deep digging is not necessary or advantageous in fruit plantations, but shallow forking will give a neat appearance to the garden.

THE FLOWER GARDEN.

By J. G. WESTON, Gardener to Lady NORTHCOTE, Eastwell Park, Kent.

PRUNING CLIMBERS.—Advantage should be taken of mild weather to attend to the pruning and regulating of climbers, making them trim and tidy. Many climbing species are afforded warm situations on walls, where they start into growth much earlier than in the open. These wall plants should be attended to first, or young shoots may develop and be injured when the work is done. Considerable experience is needed to prune climbers and shrubs, and the work should be done by a responsible person. An inexperienced operator may remove all the flowering growths. Such plants as Jasminum nudiflorum, Chimonanthus fragrans, and species of Forsythia flower best on strong, well-ripened wood of the previous year's growth, and if these young growths are cut off, the display of flowers is reduced considerably. The pruning of such plants should be left until the flowering is over.

LONICERA AND AMPELOPSIS.—If Honeysuckles and Virginian Creepers have filled their allotted spaces, they may be closely clipped or pruned. If required for extension, the stronger growths may be retained. Climbers are largely grown by nurserymen in pots, therefore they may be purchased and planted at almost any season, but it is best to plant them now, so that they may become established early in the year.

POLYGONUM BALDSCHUANICUM.—This beautiful plant is suitable for growing on walls, and is very handsome when trained on dead trees or on tall poles, such as Larch or Spruce shoots roughly trimmed. The blooms last for several months, whilst the long, slender shoots are very attractive when clothed with the foliage. If it is necessary to restrict the growth of the plant, the shoots may be pruned back to the hard wood; but in the wild garden this Polygonum may be allowed to grow naturally.

ORNAMENTAL VINES.—The various species of Vitis may be planted at almost any time. Vitis Coignetiæ, V. Thunbergii, V. armata, V. Thompsonii, and V. heterophylla variegata are all desirable species. In most of these species the foliage assumes brilliant hues in autumn. Established plants should now be pruned, cutting the shoots back to hard wood, but retaining a few of the strongest branches, where necessary, for extension.

IVY.—Ivy on walls should be trimmed just before growth commences in the spring, clipping the leaves and shoots closely. The plants will present a bare appearance after the operation, but new growth develops quickly, giving a fresh crop of green leaves in a few weeks.

TURFING OPERATIONS.—The mild winter has been favourable for the relaying of turf. All work of this nature should be completed as speedily as possible to allow the grass to become established before drying winds prevail. When making turf paths, see that the soil is properly drained, as paths need to dry quickly in damp weather. To make them firm and pleasant to walk on, place a thick layer of coarse ashes directly under the turf. A moderate amount of treading is beneficial to newly-laid sods, and when the grass is fairly dry a light roller may be employed with advantage.

THE KITCHEN GARDEN.

By EDWIN BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

THE WEATHER.—Up till the time of writing the weather has been anything but favourable for all outside operations in connection with the kitchen garden. The rainfall has been unusually heavy, and the prevailing mild weather has delayed the work in this direction, consequently every endeavour should be made to make good the arrears at the earliest possible moment.

TRENCHING AND DIGGING.—It is essential for the ultimate success of the various crops that ground operations be completed as speedily as possible, for nothing tends to sweeten and improve the condition of the soil more than the influence of frosty weather, which we may reasonably expect during the next two months. At the same time it is unwise (and particularly in the case of retentive soils) to attempt to dig ground when it is in a sodden condition. It will be far better to defer the work until the conditions are favourable, meantime hurrying forward other matters which need to be done sooner or later.

ONIONS.—Seedling Onions raised from seeds sown in heat either at the end of 1911 or the beginning of the present month should be pricked off into boxes. See that the boxes are well drained, and use a moderately-rich, fibrous compost, in a fairly dry condition, making the soil very firm. After the plants have been watered thoroughly, place them in a house having a genial temperature, as near to the roof glass as possible : do not hasten the plants unduly into growth. On bright days the plants should be sprayed two or three times daily. Stir the surface soil frequently with a pointed stick. A further sowing of Onions may be made thinly in moderately shallow boxes. If the seeds are placed regularly, at a sufficient distance apart, the seedlings may remain undisturbed until the time for planting. This sowing should furnish good bulbs, and the plants will be almost sure to escape injury by the Onion fly.

AUTUMN-SOWN ONIONS.—Should the weather remain open and the ground become sufficiently dry, the beds may be prepared and the plants transplanted, allowing distances of 15 inches between the rows and 12 inches from plant to plant. By planting at this early date, and especially on light soils, the results will be much better than if the work is left till later.

LETTUCE.—Cos or Cabbage Lettuces raised from seed sown late in the autumn may be transplanted into cold frames in a sheltered position. Care should be taken that the soil introduced into the frames does not contain wireworm. If the presence of this pest is suspected, traps of some vegetable, preferably Carrot, should be inserted in the soil. Seedling Lettuce raised in heat should be pricked off into boxes as soon as they are large enough. Some of the forcing varieties of Lettuce may be grown in a temperature of from 50° to 55°, for furnishing salad, much in the same way as Mustard and Cress is grown.

JERUSALEM ARTICHOKES.—If ground Artichokes have not been lifted they should be dug up, selecting the largest tubers for consumption and the smaller ones for planting in well-manured ground. The white variety is much to be preferred to the purple sort, and, provided the soil is well enriched annually, this crop may be cultivated on the same site for many years in succession.

CHINESE ARTICHOKES.—Stachys tuberifera should be planted during the next three weeks in an open, sunny position. The best medium is a light, open soil : heavy ground should have leaf-soil, fine mortar rubbish, road grit, and burnt garden-refuse incorporated with it.

GLOBE ARTICHOKES.—See that the crowns of Globe Artichokes are well protected from the cold. If fine cinder ashes are employed, in addition to straw or long litter, these materials must be removed whenever the weather is favourable. The large, smooth, green variety is the best sort.

FRUITS UNDER GLASS.

By E. HARRISS, Fruit Foreman, The Royal Gardens, Windsor.

FIG TREES IN POTS.—With the lengthening days, it will be safe to afford the trees which were started in November a slightly-increased temperature; but no attempt should be made to force them by means of artificial heat. On very cold nights it is better for the temperature to fall to 55° than to be above 60°. The warmth from the sun should be taken full advantage of to maintain the requisite temperature, closing the house early in the afternoon, after spraying the trees with lukewarm water and damping the bare surfaces. The Fig is subject to attacks of red spider, but this pest may be kept in check by keeping the atmosphere moist and vigorously syringing the trees twice daily. Should the insect appear on the foliage, carefully sponge the leaves which are infested with a weak solution of soft soap and sulphur. Pinch the shoots at the third or fourth leaf, and, should the trees be crowded with growths, cut out the weak, unfruitful branches. The shoots should then be regulated carefully and secured to neat stakes. Trees that were not repotted last year should be afforded weak liquid manure, and the soil sprinkled occasionally with some fertiliser. Those which were repotted will not require food till the roots are more active.

FIG TREES IN BORDERS.—The date at which Fig trees planted in borders should be started into growth must be regulated by the time when the fruits are required. It must be remembered that the Fig resents hard forcing, and that it is always better to start the trees a little earlier, bringing them on gradually, than to have to hasten them later on. Trees growing in well-drained borders will require copious supplies of water at the roots, and when growth is active they will also require plenty of stimulants. Syringe the branches thoroughly both morning and afternoon during fine weather, and keep the atmosphere moist by frequently damping the paths and the floor. Admit plenty of fresh air before noon when the weather is favourable. Stop the shoots at the fourth or fifth leaf, and remove superfluous growths that obstruct the light. Late trees that have not been pruned and cleansed should be attended to at once. At this pruning, the removal of some of the older branches will make room for younger shoots, thus giving a better appearance and furnishing the tree with fruiting wood. It is also sometimes an advantage to shorten old branches to encourage young growths to develop nearer to the base of the tree. The branches should be given a thorough cleansing whilst the trees are dormant. The house and trellis-work should be well scrubbed with strong soapy water. Afterwards remove a little of the surface soil of the border, and apply a top-dressing of fresh loam mixed with plenty of old lime rubble. Planting must be no longer delayed. The roots of Fig trees need to be confined inside the house; should the walls have open arches through which they can grow, these should be built up with bricks. The bottom of the border should be covered with a layer of concrete to prevent the roots from penetrating into the subsoil. For young trees, a border 4 feet wide and 3 feet deep, including 9 inches of drainage materials, will be ample size for several years. Mix plenty of broken bricks and old mortar rubble with the loam, and ram the soil to make it firm.

THE FRENCH GARDEN.

By PAUL AQUATIAS.

HOTBEDS.—The making of the hotbeds for the frames is nearing completion. Paths, 9 inches wide, are provided between the frames, and the paths are filled with very dry manure, which has been previously broken up with the fork. No fresh manure is used in the alleys, as it would probably cause too great a fermentation of the bed, to the detriment of the Lettuces and other seedlings. Short manure is preferable for the outside paths, as short manure helps in the building of strong and firm linings. Seeds of Radish and Carrot will be sown as soon as the beds are completed, and before the lights are placed on the frames. When fermentation has provided suitable heat, the Lettuces will be planted; they should not be set deeply to facilitate the removal of decaying leaves. The hotbeds on which cloches are placed will be started as soon as some of the latter are available. Beds 9 inches in thickness are suitable. The materials for fermentation should consist of three parts of dry and one part of fresh manure. The hardier the Cos Lettuces are grown the better will be the results. Where available, a good layer of black soil should be placed on the manure. The soil should be levelled and raked over before the cloches are placed in position, three rows on each bed. Plant three batches of Cos Lettuces on every bed : one under the cloches, the second in the spaces between the glasses on the south side, and the third in the spaces on the north side, making nine rows in all. We shall not plant the third batch here, as the Cos Lettuces grown on unheated beds under cloches will be ready at the same time as these. Instead, we shall make a thin sowing of "Chantenay" Carrots, a variety much in demand in the north.

CROPS IN UNHEATED FRAMES.—The planting of crops in unheated frames should be done without further delay, if the work has not been done already. The best kinds for a succession are Lettuces Little Gott (white seed), and Passion, planting 30 and 25 plants respectively in each light. The paths between the range of frames should be filled with dry manure when possible. Cloches may also be used. They are set in three rows, allowing a 10-inch path after every three rows. Either Carrots or Radishes may be sown as an intercrop. Each cloche may cover (a) one Cos Lettuce and two Passion Lettuces, or (b) one Cauliflower and two Passion Lettuces.

STRAWBERRIES.—The plants intended for forcing should have dead leaves removed, the top soil stirred, and the pots filled up with some fresh compost mixed with bonemeal.

NURSERY BEDS.—Lettuces sown in cold frames in December are ready to be transplanted under cloches. Mats should be employed to cover the cloches at night till the plants are well established. A hotbed to accommodate a frame of three lights will be prepared for the first sowing of Cauliflower intended for planting in April and May. Cabbage Early Etampes is sown as a succession to those planted in the autumn.

GENERAL WORK.—The wet weather has caused a delay in tillage operations, but the beds intended for the first batch of Lettuces and Cos Lettuces must be prepared at once, digging the ground deeply and manuring it freely. Should the soil be very friable, the ground may be simply raked over and seeds of either Radish or Spinach sown broadcast and covered with a layer of black soil.

FORESTRY AND THE DEVELOPMENT GRANT.—The Development Commissioners have made the following grants for forestry to the University of Edinburgh and the East of Scotland Agricultural College. To the University, a contribution of £4,500 for building purposes: £2,000 for equipment of museums and laboratories; £500 a year for five years to provide for increase of teaching staff. An annual subsidy is also promised to the above-mentioned institutions as a contribution toward the establishment and maintenance of a forest garden and experimental plantations.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, *as well as specimens of plants for naming, should be addressed to the* **EDITORS, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Special Notice to Correspondents.—*The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.*

Local News.—*Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Illustrations.—*The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c., but they cannot be responsible for loss or injury.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.*

APPOINTMENTS FOR THE ENSUING WEEK.

THURSDAY, FEBRUARY 1—
Linnean Soc. meet.

SATURDAY, FEBRUARY 3—
Soc. Française d'Hort. de Londres meet.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—38·4°.

ACTUAL TEMPERATURES:—

LONDON.—*Wednesday, January 24* (6 P.M.): Max. 47°; Min. 39°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—*Thursday, January 25* (10 A.M.): Bar. 29·3°; Temp. 42°; *Weather*—Dull.

PROVINCES.—*Wednesday, January 24:* Max 42° Midlands; Min. 33° Yorkshire.

SALES FOR THE ENSUING WEEK.

MONDAY AND WEDNESDAY—
Rose Trees, Fruit Trees, Perennials, &c., at 12.30, at Stevens's Auction Rooms, 38, King Street, Covent Garden.

MONDAY AND FRIDAY—
Herbaceous and other Plants, Hardy Bulbs, &c., at 12; 2,000 Roses and Fruit Trees, at 1.30; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

TUESDAY, WEDNESDAY, THURSDAY AND FRIDAY—
Nursery Stock at the Nurseries, South Woodford, by order of Mr. J. Fraser, by Protheroe & Morris, at 11.30.

WEDNESDAY—
Japanese Lilies and other Hardy Bulbs, Perennials and Other Plants, at 12; Roses and Fruit Trees, at 1.30; Palms and Plants, at 5; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

The Gardeners' Benevolent.

There are few people who are more responsive to the claims of charity than those who for pleasure or profit are connected with horticulture. Thanks to this generous spirit horticulture is able to maintain two great charities for the relief of aged gardeners, gardeners' widows, and the orphan children of gardeners who fall out of the ranks early in life before they have opportunities to provide for those dependent upon them. In each instance the charity is supported by voluntary contributions subscribed in many cases by men who are but moderately recompensed for the skilled services which they render to their employers.

Such thoughts as these arise in the minds of those who read the annual report of the Gardeners' Royal Benevolent Institution which we print on another page. Notwithstanding that last year witnessed the Coronation, and that money was raised for many purposes in connection with that national event, the Benevolent Institution received a greater measure of support than in any previous year; and the Committee acted in the same liberal spirit by making a larger annual grant in the relief of distress than they had ever made before. These facts should inspire a feeling of profound gratefulness, which will be increased by the knowledge that 23 new pensioners were added to the list of beneficiaries at the annual meeting.

Mr. Harry Veitch, whose unsparing labours on behalf of this Institution deserve the lasting thanks of all who are interested in gardening, or who have sympathy with philanthropic work, was able to point to willing colleagues at Worcester, at Reading and other places where local auxiliaries are achieving excellent work in making known the objects of the charity, and in the collection of funds. Mr. Arthur Sutton, Mr. Sherwood and Mr. Monro, only to mention a few of the men who constantly exhibit a liberality that deserves public recognition, are still working for the interests of the Institution, but nevertheless gaps occur in the ranks from time to time. Last year death claimed two members of the Committee in Mr. James Douglas, whose services extended over a very long period, and Mr. James Walker, who was elected a member only a year or so ago. These sad, inevitable events make it all important that others should undertake a share of the work that still remains to be done. More and more workers are needed: the receipts increase, but the number of necessitous cases increases more rapidly!

So much is this the case that, notwithstanding the splendid work the Institution achieves it would appear that only a small proportion of the number of applicants for assistance can be granted permanent relief. It is true that £1,000 is distributed in relief every month, and that 23 pensioners were elected at the recent meeting, but these were selected from a list of 71 candidates! Only one in three was successful in his appeal to the suffrage of the subscribers. Surely whilst this state of things exists there are urgent needs for the creation of fresh auxiliaries in all parts of the country, for hard workers who will support and further the efforts of the Committee and Secretary in London, and for large-hearted employers who will give of their plenty towards the support of a class of men that contributes so much to the amenities of their estates.

How long some of the candidates have to wait was evident from an incident that transpired at the meeting. The election of the 20 candidates had taken place and a candidate had been selected to receive the year's pension volunteered by Mr. Arthur Sutton, when the meeting generously determined by vote to place on the funds two of the most necessitous cases of those still unprovided for. The selection fell on a gardener aged 86 and a gardener's widow, and directly the resolution was adopted there rose from the body of the room a subscriber to return thanks on behalf of the widow. He stated that he had attended four annual meetings in the interests of the widow, who, but for the kindly act of the Committee and members, would have been condemned to yet another weary period of waiting.

We are not unmindful of the fact that the Victoria Era Fund gives some assistance during this period of suspense to candidates who have subscribed to the Institution, but the amount of help which it is capable of rendering is not adequate, as is shown by the gift of £20 by Mr. Sherwood to the unsuccessful candidates last week. Nor do we forget that the Institution has in its Samaritan Fund a further means of relieving acute distress even in cases where the applicant for relief has never assisted the Institution by contributions. All these agencies are beneficient, but they are not sufficient, and fresh sources of income are urgently required. The Committee will do well to consider whether it is possible to make a collection at the forthcoming International Show. It is reasonable to assume that the exhibition will be visited by many wealthy people of this and other lands. The circumstances would therefore appear to be propitious for making an international appeal on behalf of the gardening charities. It may also be found useful to have a stall for the distributing of literature. In any case, no opportunity of obtaining further support must be allowed to slip whilst there are so many candidates whose poignant voices the Committee hears year by year with sympathy, but whose pleading goes unanswered for lack of funds.

OUR SUPPLEMENTARY ILLUSTRATION.—It would be difficult to show two tree trunks of the same species more diverse in their general aspect than those we now illustrate in fig. 30 and Supplementary Illustration. The Queen Beech in Ashridge Park is, of its type of tree, no doubt the finest Beech in the British Isles. According to Mr. ELWES (*Trees of Great Britain and Ireland*, p. 20), it is between 130 feet and 135 feet high, and has attained a greater height than any other deciduous tree in Great Britain except the Elm. Its trunk is, as may be seen from the illustration, a perfectly straight and slightly tapering column. To the first branch it measures about 80 feet, and its girth at 5 feet is 12 feet 3 inches. LOUDON knew the tree, and in his *Arboretum* and *Fruticetum*, vol. iii., p. 1,977, he gives a figure of it. At that time (1837) it was 100 feet high and 10 feet in girth at 2 feet from the ground. To have assumed its present form and developed this beautiful trunk it must, of course, have been drawn up by companion trees growing pretty close to it in its early days. Ashridge Park is remarkable for the number, variety and quality of its Beeches. There could be no greater contrast between the grace and regal height of the Queen Beech and the twisted, gnarled, contorted veteran whose trunk is the subject of the other illustration. Many of the Beeches on this demesne were pollarded when young, and this may be one of them. It suggests, at any rate, the rugged giants of a similar type at Burnham, which are known to have been pollarded in earlier times. The beauty and the peculiarities of tree trunks afford, in the winter season especially, material for very pleasing study. We allude more

Photograph by J. T. Newman.

THE QUEEN BEECH,

Ashridge Park, Berkhamsted, the residence of Earl Brownlow.

Printed by Temple Press Ltd., London, E.C.

particularly to specific peculiarities than to individual characteristics. Many trees have bark so characteristic that their identity is recognizable by it alone. The smooth, blue-grey bark of the Beech is an instance; yet many are not able to distinguish it from the bark of the Hornbeam, distinct as the two are when properly examined. Associated with the study of the trunk is that of the branching, and we can suggest no better winter study than that connected with the permanent characteristics of the hardy trees.

FIG. 30.—VETERAN BEECH AT ASHRIDGE PARK.

(See page 56, and Supplementary Illustration.)

"IRISH FARMING WORLD" DIRECTORY AND ANNUAL.—This is a useful publication issued by the *Irish Farming World*, and contains much of general interest not only to the farmer, but also to the gardener. The list of stewards and gardeners in Ireland is, so far as we know, the only one of its kind published. Other lists include the Officers of the Department of Agriculture, the Council of Agriculture, County Committees of Agriculture, Breed Registration Societies, and Agricultural Societies, with dates of the principal shows in 1912. A garden calendar is furnished, and many experts are recognised among the contributors of articles dealing with agriculture.

'THE ORCHID REVIEW."—The January number of *The Orchid Review* is printed on art paper, and in other directions improvements are noticed, the editor showing that he intends to maintain for the journal a leading place in literature dealing with Orchids. There is a beautiful illustration of Cypripedium Lord Wolmer "Westonbirt variety," and the text includes a variety of interesting subjects. Amongst other articles is one on the vexed question of Cypripedium *versus* Paphiopedilum, which is ably dealt with by the editor. In dealing with the nomenclature of these plants it must be remembered that the only names used in gardens are Cypripedium and Selenipedium (names acknowledged in *Index Kewensis*). The number contains a portrait of the late Sir JOSEPH HOOKER, and illustrations of several Cypripediums besides the one mentioned.

MR. WILLIAM WARD.—The many friends of Mr. WILLIAM WARD, general manager for Messrs. J. BACKHOUSE & SON, LTD., York, will learn with regret that he has been compelled, by reasons of ill-health, to retire for the present from active business.

HIBISCUS HYBRIDS.—An account of the origin of the new Hibiscus hybrids, known in America as Meehan's Mallow Marvels, is given by Mr. E. HEMMING in *Mitt. d. Deutschen Dendrolog. Gesell.*, 20, 1911. The object which the late THOMAS MEEHAN had in view in devoting himself to the hybridisation of Hibiscus species was to obtain plants with good red flowers, which should possess the hardiness of Hibiscus moscheutos, a species widely distributed in the States of East America. After numerous experiments and many failures, MEEHAN succeeded in obtaining red-flowered hybrids by crossing the tender H. coccineus with H. militaris, which is hardy in the neighbourhood of Philadelphia. The hybrids thus obtained proved hardy, and among them were some red-flowered seedlings, which were used for cross-breeding with H. moscheutos. The offspring of this latter cross showed considerable range of colour, some being pale rose, others red or scarlet. Selections from among the best of the mongrels thus obtained have yielded the Mallow Marvels, for which Mr. HEMMING predicts a brilliant future. They are vigorous growers, reaching in the course of three years a height of 6-8 feet and a breadth of 5-6 feet. An open, sunny position suits these semi-shrubby hybrids best, and they thrive most in a deep, rich, moist soil. The plants begin to flower at the beginning of August, and remain in flower for several weeks. Since frost kills them down to the root-stock, Mr. HEMMING recommends that the plants be cut down in autumn to within 5 inches of the ground level. Treated thus, the plants withstand a hard winter, and throw up somewhat tardy but vigorous shoots in the following year.

PROFESSOR BATESON ON "GENETICS."—Professor BATESON, in his opening lecture at the Royal Institution, expressed his intention of dealing with the broader problems of biology in the light of genetic discoveries. The progress that had been made in the study of variation and heredity, by means of Mendelian analysis, shows that variation can no longer be regarded as an indefinite phenomenon. Considering the relation of variation to evolution, though evolution is a generally-accepted theory at the present day, it is still impossible to give a definite answer to the question, "How precisely has evolution proceeded?" It is scarcely possible to say definitely how any domestic animal or plant has arisen. Thus, it is generally believed that the Cochin China fowl has come from Gallus bankiva, the Indian jungle fowl; but no one knows by what exact process of addition or subtraction of elements this evolutionary process has come about. In a broad consideration of the nature of specific difference, it appears that in all classes of living things there are good species, with sharply-defined fixed characters, and others in which there is little fixity, and in which the systematist finds it impossible to decide which are species and which are varieties. DARWIN expressed the hope that with the help of his views, such difficulties would pass away. But it is not too much to say that the theory of natural selection fails exactly at the point where it is most wanted to help us, namely, the meaning of specific difference. Professor BATESON strongly urged all workers in this field to dismiss from their minds pre-conceptions as to how evolution has proceeded, and as to the part played by utility of structures, and to study the properties of animals and plants exactly as they would those of inorganic substances. The doctrine that the degree of fixity of a specific character is a measure of its utility to the organism can no longer be held. The lecturer concluded with the suggestion that toleration is of as great importance as selection in the evolution of specific forms.

MR. HARMAN PAYNE.—Our old correspondent Mr. HARMAN PAYNE has just been the recipient of an unusual honour for an English horticulturist. Among the French New Year's honours his name is included with those upon whom the Government has bestowed the "Palmes académiques." This decoration carries with it the title of "Officier de l'Instruction publique," and is an acknowledgement of his services as a writer in the French horticultural Press.

PINGUICULA GYPSICOLA.—A new species of Pinguicula was discovered by Mr. C. A. PURPUS in 1910 during a plant-collecting expedition in Mexico. The species in question, P. gypsicola, recognised as new and named by BRANDEGEE, is the subject of an interesting article by Mr. A. PURPUS in Möller's *Deutsche Gärtner-Zeitung* (January 6, 1912). The plant was discovered in the Mexican highlands, growing on gypsum rocks and hills in company with species of Cactus, Hechtia, Agave and other dry-climate plants. Mr. A. PURPUS, who has grown the plant in considerable numbers in the Botanical Gardens at Darmstadt, recommends cultivating P. gypsicola in pans containing layers of crocks, coarse sand, sifted turfy loam and chopped Sphagnum. Water must be provided sparingly during the growing period, and not at all, except for an occasional syringing, during the season of rest (from the end of November to the middle of May). During the resting period the plant presents the aspect of a Sempervivum. The old leaves die down and the young, short, spathulate leaves, covered with white, bristle-like hairs, form a close rosette. When growth is resumed the leaves become long and lanceolate, assume a yellow-green colour, except toward the lip, which is reddish; the upper surface of the leaf is covered with glandular hairs, which secrete a thin, slimy fluid, capable of entrapping and digesting small insects. The flowers are violet-like, about an inch in diameter, of a dark to light red-violet colour, and are borne throughout the summer.

SPRAYING FOR BIG-BUD.—The efficacy of various sprays in combating big-bud in Black Currants has been tested by officers of the Board of Agriculture at Harvington, Worcester, and the conclusions to which the tests lead are published in the *Journal* of the Board for January, 1912. The materials used were:—(1) Lime and sulphur in dry form—one part lime (air-slaked) to four of sulphur. (2) Quassia and soft soap (2 lbs. Quassia chips, 1 lb. soft soap and 10 gallons of water). The chips were boiled for two hours, and then the soft soap was added. (3) Soft soap at the rate of 1 lb. to 10 gallons of water. Three sprayings were tried: on April 20, May 4 and May 25. Microscopical examination of the buds in September showed that the sprays had had a certain effect, though not enough to eradicate the pest. Of the substances used, a mixture of lime and sulphur was most effective. Thus the proportion of big-bud to normal (unaffected) buds which in unsprayed bushes was 66.7 per cent. was reduced by lime and sulphur to 45.5 per cent.

SOUTH AFRICAN FRUIT TRADE.—The values of the fresh fruits exported from the South African Colonies during the seven months ended September 30, 1911, are as follow:—Apples, £1,174; Pears, £4,104; Bananas, £263; Pineapples, £600; Oranges, £4,972; Naartjes, £1,555; Lemons, £65; Grapes, £10,427; Nuts, £82; miscellaneous, £2,409. The total value is £25,651, of which £21,532 represents shipments viâ Cape Town. Delagoa Bay sent fruit of the value of £1,409, whilst Durban came third with £1,333.

LECTURES ON GENETICS.—The first of a course of seven lectures on genetics was delivered by Dr. KEEBLE, in the Imperial College of Science, South Kensington, on Thursday, January 18, at 5 o'clock. The subsequent lectures will be given on Thursdays as follow:—January 25, February 1, 8, 15, 23 and 29. Dr. KEEBLE commenced his course by urging on biologists the importance of the study of genetics. He then proceeded to deal with concrete cases of variation, as exhibited by the behaviour of a pure species, Primula sinensis. The variations of this species were described and illustrated by a beautiful series of lantern slides, representing the plants in their natural colours. The slides, which had been prepared by the Lumière process of colour-photography, were put at the disposal of the lecturer by Messrs. SUTTON & SONS.

THE DROUGHT AND TREE-GROWTH.—The Royal English Arboricultural Society is conducting an enquiry into the effects of the abnormal drought of last summer on trees. It was noticed amongst other injuries that many trees had the foliage and shoots affected or killed, in others vertical cracks formed in the bark or stem, whilst on some the bark died in patches on one or more sides of the stem. Those willing to furnish information on the subject, whether members of the society or not, are invited to write to the secretary, Mr. EDWARD DAVIDSON, Haydon Bridge-on-Tyne, Northumberland, for a form. The following data should be furnished: The year of planting, the season—whether autumn, winter, spring—should be stated, if known; the method of planting, notching, pitting, &c.; the character of the soil, and the slope and exposure of the land.

SMALL HOLDINGS.—We learn from the *Journal* of the Royal Society of Arts that the President of the Board of Agriculture has been visiting the estate purchased by the Northumberland County Council from Lord RIDLEY for the purposes of the Act. The estate contains 871 acres of arable land, and about 12 under wood, the average annual rental being about 34s. per acre. The tenants speak very hopefully of their prospects, and there are nearly 400 applicants still waiting for land. The county council could absorb 20,000 acres if they could be obtained, and many of the actual tenants are earning a livelihood out of land which was practically derelict. In another part of the county, an estate is in occupation of small holders, many of whom are miners who work the regulation eight hours in the pits, and devote the remainder of the day to the cultivation of land and the breeding of stock.

THE WEATHER IN 1911.—Supplementing the records of the weather published in the last issue, Mr. E. MATTHEWS states that at Ardtornish the mean temperature for the year was 47.7°. August was the hottest month with a mean temperature of 59.9°. In this month also occurred the highest temperature for the year, 84° on the 12th. The coldest day was February 1, when the thermometer registered 20.5°, and on the ground level only 19°. The mean relative humidity for the year was 82 (100 = saturation). June was the driest month as regards atmospheric moisture, with a mean humidity of 75. Rain fell on 240 days. The total rainfall for the year was 80.52 inches, this being in excess of the average by 9.13 inches, and exceeding the rainfall of 1910 by 6.61 inches. May was the driest month with only 4.11 inches. In December, 16.56 inches of rain fell, or more than half an inch each day. There were 12 days during the year when the rainfall exceeded 1 inch, and the wettest day was on December 23, when 2.57 inches were registered. The drought lasted 21 days, from May 26 to June 15. At Waltham Hall Gardens, Lincolnshire, Mr. C. FRANKISH states the total rainfall for 1911 was 25.41 inches, as compared with 28.16 inches in 1910. The driest month was July, when only .56 inch was registered. The heaviest rainfall was registered in June, when 3.30 inches fell in three days. September, October, November, and December were very wet months, rain falling on 92 days out of a possible 122 days.

AGRICULTURAL EDUCATION AND THE BOARD OF AGRICULTURE (see leading article in issue for November 4, vol. l.).—The Board of Education has issued the following Memorandum:—We have had under consideration the arrangements for the promotion of agricultural education made by our predecessors as Presidents of the Board of Agriculture and Fisheries and the Board of Education, and published in the Memorandum [Cd. 4,886] of September 22, 1909; and have come to the conclusion that, in view of the large additional sums which have become available since 1909 for the purposes of agricultural education and research under the Development and Road Improvement Funds Act, 1909, those arrangements now require some modification. It no longer appears possible to delimit the spheres of work of our two Boards by assigning to the Board of Agriculture the responsibility for the Universities and Colleges in which advanced work is being done, and to the Board of Education the responsibility for farm schools and such other provision for agricultural education as is on a lower plane than that of agricultural colleges. It has therefore been decided that, in future, the responsibility for farm institutes, as well as for the agricultural work of Universities and Colleges, shall be transferred to the Board of Agriculture, and that this Board shall be regarded as the Government Department concerned with this branch of educational work for the purposes of the Development Fund. The application for an advance from the Development Fund in aid of farm institutes, which has been made by the Board of Education, will therefore be withdrawn by them, and the Circular 778 on "Aid from the Development Fund for the Provision and Maintenance of Farm Institutes" issued by them on July 14 last, is hereby cancelled. A fresh application for an advance in aid of farm institutes will, in due course, be put forward by the Board of Agriculture. Frequent consultation and co-operation between the two Boards and their respective officers will be still necessary under the redistribution of functions, and the existing arrangements will be simplified and strengthened. *Walter Runciman, President of the Board of Agriculture and Fisheries. Joseph A. Pease, President of the Board of Education.*

SCOTLAND.

FIRE AT A NURSERY.

MESSRS. TAYLOR BROTHERS, Cedar Grove Nurseries, Dirleton, East Lothian, sustained a serious loss through a fire which broke out there on the morning of January 17. The dwelling house, a timber structure, was totally destroyed, together with several of the greenhouses, the stables with two horses, the cowhouse, office, stores and workshop. The loss is estimated at upwards of £1,500.

FORESTRY IN EDINBURGH.

AT the meeting of the Highland and Agricultural Society of Scotland, held in Edinburgh on the 10th inst., it was resolved, on the motion of Mr. R. C. Munro-Ferguson, M.P., of Raith, to make the usual annual grant of £50 towards the salary of the lecturer on forestry at the Edinburgh University.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

ROSE MME. HECTOR LEUILLIOT.—I was extremely interested in the criticism (see vol. l., p. 335) by *White Rose* on my notes on the finely-coloured Hybrid Tea Rose, Mme. Hector Leuilliot. I do not think that climatic conditions are responsible for the shy-flowering propensities sometimes attributed to this Rose, neither do I think it is a question of soil. In Mid-Lothian we are not blessed with the glorious climate of, say, Essex, or even the North of London, but, notwithstanding this, we can flower Mme. Hector Leuilliot satisfactorily. Then, as to soil, I find this Rose grows strongly on a stiff, clayey loam, although the position is exposed. On the other hand, in a somewhat sheltered position, some seven miles from the exposed place, and on a light soil upon a gravel subsoil, it also grows well, but not so strongly as in the conditions already described. With plants grown under glass in pots I also find no paucity of flowers, but an absolute immunity from mildew. I believe the secret of success lies in the treatment accorded in the pruning, and the time also at which this operation is performed. These notes are based upon experience of plants budded low on the seedling briar. As to the pruning, I can better illustrate what I mean on this subject if I refer *White Rose* to *The Handbook on Pruning Roses*, issued by The National Rose Society. In that book we are told to prune this Rose according to instruction six, the method being illustrated by reference to plates numbered 7, 8 and 9. Plate 7 represents a plant (unpruned) of a Rose requiring light pruning, while plate 8 represents the same plant pruned for exhibition purposes, plate 9 giving a representation of the same plant treated for garden purposes. To begin with, plate 7, while it may represent a Rose requiring light pruning, certainly does not do justice to any plant of Mme. Hector Leuilliot I have seen, and appears more like some of the strong-growing and robust Hybrid Perpetuals. If the plants are pruned according to instruction five, as represented by plate 8 in *The Handbook*, the results will be disastrous. The pruning for garden purposes, as recommended by plate 9, is much nearer the treatment required by this Rose, yet it is too severe, and two more "eyes," at least, should be left upon the laterals. *The Handbook* recommends that the pruning of Hybrid Teas should be done in March; here we find that it is best done from the middle to the end of April. Gustave Regis and Mme. Hector Leuilliot seem to require almost similar treatment, and careful observation will soon teach the student the requisite experience for a successful operation. If, as is sometimes the case, the Rose grows too strongly, a judicious root-pruning will be useful. *George M. Taylor, Mid-Lothian.*

DESTRUCTION OF RATS.—I have read with much interest the remarks of Mr. Kenwood (p. 28) and *E. M.* (p. 44) respecting rat-catching. Perhaps my own experience may be acceptable. I have with two ferrets and one crossbred bull terrier caught 85 rats during the last ten weeks. I have hunted one hour every weekday, from one till two p.m.. It is a mistake to wait too long between the hunts. *W. Currell, East Cliff Lodge Gardens, Ramsgate.*

HOME-GROWN PINES AT OAKBROOK, HAMMERSMITH.—Since the advent of imported fruits market-growers and many private gentlemen have given up Pineapple culture, although at some large establishments, such as The Hendre, Monmouth, they are still cultivated, as public exhibitions testify. I was agreeably surprised, to find, when calling recently at the well-kept garden attached to Oakbrook, Ravenscourt Park, Hammersmith, the charming residence of Mrs. Brandon, that Mr. West, the head gardener there, grows the smooth-leaved Cayenne Pine very successfully. Considering that the culture is expensive, and is only practised in few private gardens, great credit is due to Mr. West. *J. B.*

ACACIA BAILEYANA.—I am enclosing a few sprays of an Acacia. This is the first time the plant has developed such a profusion of bloom here. The tree is growing out-of-doors in an exposed situation. Last season there were prospects of a good show of bloom similar to this year, but the flowers were spoiled by cold winds and frost. Apart from this damage no other injury was caused to the tree. The flowers have been out for nearly a fortnight. Are there any records of this Acacia flowering so early and so well out-of-doors? *A. J. Morgan, Porthgwidden Gardens, Devoran, Cornwall, January 18, 1912.* [The Acacia is A. Baileyana (see fig. 31), an Australian species. The intensely-glaucous foliage and the profusion of bright yellow blossom provide a beautiful contrast in colouring.—EDS.]

FIG. 31.—ACACIA BAILEYANA: FLOWERS YELLOW.

THE COLOURING OF APPLES.—I have been greatly interested in this subject since the autumn of 1909, when I visited a head gardener in Kent, who had at that time Apples which were more brilliantly coloured than any I had seen. The soil was a fairly rich loam on the chalk, and the gardener informed me that he obtained the high colour by allowing one or two strong roots to go down into the chalk and confining the others to the loam above. I have long held the opinion that "all factors which tend to induce sturdy, short-jointed growths also tend to accentuate colour," and perhaps this is the pivot, so to speak, of the whole question. It is a well known fact that poor colouring effects, but if the chemical conditions are changed by adding lime-rubble, chalk, &c., or by confining the roots to the surface soil, then an improvement may be expected in the colour of the fruit. This may sometimes be due to chemical action itself or to the by-products of such action. What happens, for instance, in the soil, and what goes into the plant after certain chemicals, such as potash and sulphate of iron, are added is still an obscure question. We may add either, but does the plant contain more of what was added than it did before, or does it contain more of something else as a consequence of the chemical change, or the by-products of such a change or changes? growth continues throughout the night if the temperature is sufficiently high, but no food is formed, so that the growth is liable to be anything but sturdy; on the other hand, growth diminishes with a lowering night temperature. Therefore, other things being equal, we should very likely find that in those districts where nights are cold growth is more sturdy, and the colour of fruits brighter than in other districts where the nights are warm; as illustrated by pot Apples showing a remarkable change in colour when placed outside (see p. 13). It seems to me also that the question of colour is a chemical one (although we do not at present, perhaps, fully understand it), and that whatever affects and changes the chemical conditions in the soil and outside the plant will also affect the chemical conditions inside the plant, including, of course, the colour of the fruit. Soils which are more or less of an acid nature as a rule give

Then, again, the question of colour is undoubtedly an hereditary one also. In some varieties the colour varies but little whatever the environment, while in others a slight change will often produce marked results. It would perhaps be of interest to your readers if a column in the next fruit report was set aside for remarks on the colour of Apples, and these, if read in conjunction with the local soil and weather conditions, might give some useful data on a very important subject. *Wm. H. Johns, Kilmarnock.*

———Our soil has been dressed with many tons of wood and other ashes from the garden fire every season for some years past in order to improve the ground, which has a clay subsoil. The colouring of the Apples last season was exceptional in many varieties, such as Worcester Pearmain, Beauty of Bath, Lady Sudeley, Mére de Mènage, Baumann's Red Reinette, Bismarck, Blenheim Pippin, Lord Burghley, The Queen, Adams's Pearmain, American Mother, Annie Elizabeth, Langley Pippin, Cox's Orange Pippin, and Gravenstein, but they did not develop the very deep bronzy-red colour that I noticed in fruits from the southern counties at the October Fruit Show of the Royal Horticultural Society. These gardens are situated about 700 feet above the sea-level, and have a northern aspect. I am sending a small box of fruits for your inspection. *G. F. Hyland, Ashby St. Ledgers Gardens, Rugby.* [The fruits were not only highly coloured, but excellent specimens in every respect. —EDS.]

IRIS STYLOSA.—The beautiful, sweet-scented Iris stylosa (unguicularis) appears to have benefited greatly from the long drought and tropical heat of the past summer. We are gathering hundreds of flowers from a small colony growing on a south-west border, in well-drained soil. Not only are the plants more floriferous this season, but the length of stem is greater, and the individual flowers finer than usual. From enquiries I have made in this south-west district, other gardeners have specimens equally as fine this season. All this shows that to be successful with this lovely species of fibrous-rooted or rhizomatous Iris the plants must be thoroughly ripened. *F. W. Rich, Elfordleigh Gardens, Plympton.*

CERTIFICATED GARDENERS.—I have been deeply interested in the discussions at the N.E.H.S. meetings on this important subject—important because something must be done and done soon to satisfy the demand of gardeners for some sign of recognition. So far as I am able to do so, I would like to sum up the debates. (1) The first point that struck me was the desire of competent gardeners to be distinguished from mere "hewers of wood and drawers of water." (2) The next point which seemed to be unanimously agreed upon was the little value attached to a first class R.H.S. Certificate by practical men. (3) The problem resolved itself into the question how can head gardeners be practically examined? (4) The one-man examiner was at once vetoed. (5) Then again, the financial aspect comes in—who is to pay the £3 3s., or whatever the fee is? This brings the owner of the garden at once into the question. (6) A small visiting deputation was ultimately, so far as I could gather, agreed to be the solution. (7) The all-important question of the composition of this deputation was not thoroughly discussed, although several members assumed that it would be a miniature inquisition! (8) From certain remarks made, I gathered that a deputation of four would be suitable—two head gardeners, whose names would first be submitted to the gardener, and who could be protested against if desired, and two independent gentlemen, qualified to take a general practical view of the whole question. I also gathered that the gardener would have every opportunity of stating his disadvantages and limitations. I see that the B.G.A. *Journal* has some quite unnecessary sarcastic remarks about schoolmasters and other amateurs forming the deputation. I suppose the writer in that *Journal* is ignorant of the fact that there are some excellent and intensely practical schoolmasters in the very front rank of horticulturists; also ignorant of the fact that the N.E.H.S. has some first-class head gardeners on its committees who would naturally be the advisers of the council regarding any scheme finally agreed upon; otherwise he would have never tiraded against "amateurs, schoolmasters and others." Why weaken a cause by excluding amateurs, who can stand the same identical, practical tests—on a smaller scale it may be—as a professional, from obtaining certificates? Engineers and merchant shipping officers do not exclude efficient amateurs from certificates; also, do not amateurs in open competition often beat the professional? (9) As a matter of fact, the two visiting head gardeners would in less than a quarter of an hour have a very good idea of the work being done, and the two independent gentlemen would be there to see fair play, and, if necessary, criticise the owner for expecting "bricks to be made without straw." (10) To my mind it is hopeless trying to make some people see that, speaking generally, the owners of gardens, and I speak from 20 years' experience of masters and mistresses, highly esteem and value the work of their head gardener, and would gladly help their "fellow worker" in the uplifting and ennobling art and science of horticulture to obtain his "dues" and rightful "mark of appreciation." There are a few mean interfering masters, but the only way to settle them is to obtain a certificate of merit from some society willing and able to grant the same. *S. E. C.*

SWEET PEA SENATOR SPENCER.—This Sweet Pea was introduced by the American firm of Burpee a few years ago. The ground colour of the flower is pale French grey, with chocolate-coloured stripes. Messrs. House, of Westbury-on-Trym, have a somewhat similar variety which they name President. It is one of the most distinct Sweet Peas, reminding one of Iris Susiana. The flower has excellent form and proportions. During last summer I could not help observing how this most distinct variety (Senator Spencer) appeared as a rogue in most unexpected places. One plant appeared in the pure white Etta Dyke. One appeared in Aurora Spencer, which is a distinct and beautiful rose flake on white ground. One appeared in a seedling Cream (parentage The King × Primrose Seedling). One appeared in F_3 of The King × Burpee's Primrose Spencer. One appeared in F_2 of The King × Rose Helio Seedling. Two appeared in $F\frac{1}{3}$ of The King × Zarina. It is worthy of note that the variety The King is one of the parents in each of the above crosses. The parentage of The King was Countess Spencer × King Edward VII. The question I should like to put is—Does Senator Spencer come into the family through Countess Spencer? Was Countess Spencer one of the parents of Etta Dyke and of Aurora Spencer? What was the parentage of President? Had the exceptionally dry summer of 1911 anything to do with the appearance of Senator Spencer in such unexpected places as amongst seedlings of Etta Dyke and the seedling Cream referred to above, which was grown in large quantities and was pure but for the one rogue in a thousand, or might it be the conditions which prevailed in the previous autumn? *W. Cuthbertson.*

FRUIT TREES IN GRASS LAND.—The prominence which you have kindly given to our last Woburn report induces me to believe that sufficient interest may be taken in the matter there dealt with, to allow me to correct what might prove to be somewhat misleading in your reviewer's suggestions in reference to our experiments in growing grass in trays immediately over the roots of trees. These, we believe, afford the strongest evidence yet obtained that the effect of grass is due to something emanating from the grass itself, and not to the abstraction by the grass of anything from the soil in which the tree is growing; and it is important, therefore, to point out that the suggestion that the particular results obtained in these cases were due to the presence of the trays themselves, was put out of court by the trees grown under such conditions being compared with trees growing in other parts with precisely similar trays of sand above their roots, but without any grass growing in them (p. 89), all the other conditions, also, being precisely similar. Your reviewer very correctly remarks that leachings taken from grass grown away from the trees, would, when poured into the latter, reach the roots in less than a minute, and hence finds some difficulty in understanding why different results should have been obtained in this case, and in that wherein the grass was grown in the trays immediately over the roots. The reason is that in the former case ample opportunity was, as a matter of fact, allowed for the leakings to become oxidised before they were applied to the trees, and it was in order to ascertain whether their oxidation was responsible for the results, that the experiments with trays over the roots, where oxidation would be reduced to a minimum, were devised. *Spencer Pickering.*

SOCIETIES.

ROYAL HORTICULTURAL.

JANUARY 23.—The usual fortnightly meeting was held on Tuesday last in the Society's Hall, Vincent Square, Westminster. The exhibition was a remarkably good one, and, although the weather was most unfavourable, there was a good attendance of visitors. The chief exhibits before the FLORAL COMMITTEE were of Carnations, Primulas, Cyclamens, Ferns, and flowering shrubs. The FLORAL COMMITTEE made no award to a novelty.

The most important exhibits before the FRUIT AND VEGETABLE COMMITTEE included a collection of Apples shown by Messrs. GEO. BUNYARD & Co., for which the Society's Gold Medal was awarded, and a collection of vegetables shown by Messrs. SUTTON & SONS. This Committee also made no award to a novelty.

The exhibits of Orchids were remarkably fine, both from traders and amateurs. The ORCHID COMMITTEE recommended one First-class Certificate and five Awards of Merit. The lecture on "Horticulture and the Proposed Taxation of Land Values" by Mr. H. Morgan Veitch was postponed, owing to the indisposition of Mr. Veitch.

Floral Committee.

Present: Henry B. May, Esq. (Chairman); and Messrs. W. J. James, W. P. Thomson, G. Reuthe, John Dickson, Charles Dixon, W. J. Bean, R. C. Notcutt, John Green, Chas. T. Druery, E. H. Bowles, C. R. Fielder, J. F. McLeod, J. Jennings, W. Howe, Herbert J. Cutbush, Arthur Turner, E. H. Jenkins, Chas. E. Pearson, George Paul, and R. Hooper Pearson.

A beautiful group of the blue-flowered Saintpaulia ionantha, arranged in the centre of a batch of Euphorbia jacquiniæflora was set up by Lord SALISBURY, Hatfield (gr. Mr H. Prime). The Euphorbia flowers were very richly coloured, whilst the other plants were model specimens. (Silver Flora Medal.)

Messrs. W. CUTBUSH & SON, Highgate, London, filled a table with greenhouse plants, forced shrubs, Carnations, and Alpines. The forced shrubs were interspersed amongst the greenhouse plants, and furnished a remarkable wealth of gay blossoms. Peaches, Magnolias, Lilacs, Azaleas, Prunus triloba, and Pyrus Malus Scheideckeri were all carrying a wealth of flowers. The Alpines included a selection of the choicer kinds in season, the more notable being Eranthus cilicicus, Anemone blanda, and Iris Danfordiæ. The Carnations completed a pretty group, the principal novelty in this section being a scarlet-coloured "Malmaison" named King George. (Silver-gilt Banksian Medal.)

Messrs. SUTTON & SONS, Reading, showed a splendid exhibit of Chinese Primulas and Cyclamen latifolium. They were shown in batches of plants of distinct sorts, the Primulas alternating with the Cyclamen in mounds. The fine Reading Blue (a shade of mauve), The Duchess, Royal White, and The Czar Primulas were all remarkably good. The Cyclamens included varieties with fringed petals and the handsome White Butterfly variety. The exhibit included some of this firm's fine strain of Primula obconica. (Silver Banksian Medal.)

Messrs. JAS. VEITCH & SONS, LTD., King's Road, Chelsea, staged a beautiful group of indoor flowering plants, in which Begonias, Azaleas, and Camellias were conspicuous subjects. Amongst the other subjects, Senecio

grandiflora, mingled with Coleus thyrsoideus, provided a striking contrast in gold and blue. Begonia Winter Gem, a hybrid of the socotrana section, was the first hybrid of this class in which B. socotrana was the seed-bearer and the male parent a tuberous-rooted variety. (Silver Banksian Medal.)

Messrs. STUART LOW & Co., Bush Hill Park, Enfield, again showed pans of Cyclamen and Daphne odora, and varieties of perpetual-flowering Carnations. Cyclamen Salmon King was remarkably good. In the centre of the Carnations was a stand of the fine, rosy-salmon variety named after Lady Alington. White Wonder, Gloriosa (pale, clear pink), Fairmount (mauve or deep heliotrope), Beacon, and Baroness de Brienen are other choice varieties. (Silver Banksian Medal.)

Mr. L. R. RUSSELL, Richmond, showed plants of Primula malacoides in considerable numbers, flanked at one end with Orange trees in fruit, and with the pretty Azalea amœna indica as a centre-piece. A background of Jasminum primulinum, Buddleia asiatica, and Garrya elliptica, with a row of Prunus triloba, completed the exhibit. (Silver Banksian Medal.)

Messrs. H. B. MAY & SONS, Upper Edmonton, arranged choice Ferns amongst Begonias, the golden-leaved Oleander, Eranthemum pulchellum, and Ardisia crenulata, the last-named with bunches of its pretty scarlet berries. (Silver Banksian Medal.)

Messrs. H. CANNELL & SONS, Swanley, Kent, showed hybrid Begonias, such as Corallina, President Carnot, Richardsiana vastissima (with white flowers and unequally-lobed foliage), nitida alba odorata, semperflorens gigantea rosea, Vesuve (red), and hybrida floribunda, all these most uncommon Begonias having pendulous flowers. There was also a batch of the pretty B. fuchsioides. (Bronze Banksian Medal.)

A large bank of Jasminum primulinum was shown by LEOPOLD DE ROTHSCHILD, Esq., Gunnersbury Park, Acton (gr. Mr. Geo. Reynolds). The plants were large specimens, mostly standards. (Silver Flora Medal.)

A beautifully-fringed Cyclamen named Mrs. Buckstone was shown by the Rev. BUCKSTONE, Derby (gr. Mr. A. Shambrook). The colour is a shade of salmon. The plants were crowded with the beautiful blossoms. (Silver Banksian Medal.)

Messrs. R. GILL & SONS, Penryn, exhibited hybrid Rhododendrons of the arboreum section; Iris stylosa speciosa, a fine form of this beautiful flower; a bank of Erica codonodes, and Cyclamen Coum. (Silver Banksian Medal.)

Mr. G. ENGELMANN, Saffron Walden, Essex, had a miscellaneous group of Carnations, in which we noticed most of the choicer sorts in cultivation. Triumph, a dark-clove-coloured variety, is a novelty of promise. Lady Northcliffe, one of the finest of the salmon-pink shades, was conspicuous in a tall epergne. (Bronze Banksian Medal.)

Messrs. ALLWOOD BROS., Wivelsfield Nurseries, Haywards Heath, showed Carnations in variety, including Wivelsfield Wonder, La Rayonnante (yellow), Regal (mauve), and Gloriosa (the latest novelty in pink varieties, being a flower of great promise).

Mr. H. BURNETT, Guernsey, showed Carnations of the perpetual-blooming type, the blooms being of outstanding quality. White Wonder, R. F. Felton, Niagara (white, with a clove scent), Mrs. C. F. Raphael, and Marmion are a selection. (Silver Flora Medal.)

Messrs. W. WELLS & Co., Merstham, showed a small collection of perpetual-flowering Carnations.

Mr. BERTIE E. BELL, Guernsey, showed his new perpetual-flowering Carnation named Coronation, a flower of rich rose-pink colour, also a few other better-known varieties. (Bronze Flora Medal.)

Messrs. CARTER PAGE & Co., London Wall, London, showed large numbers of Cyclamens, Primula malacoides and P. obconica.

Messrs. JAS. CARTER & Co., Raynes Park, London, showed hybrid Primulas from their nursery at Forest Hill. The outstanding feature was their new oak-leaved variety named Oak-leaf.

Mr. PHILIP, nurseryman, Swanley, Kent, showed a salmon-coloured form of the well-known Paul Crampel Pelargonium.

Messrs. BARR & SONS, King Street, Covent Garden, London, showed excellent spikes of the fragrant Soleil d'Or Narcissus from out-of-doors, also other bulbs, various Lachenalias, and a rock-garden exhibit, containing Snowdrops, bulbous Irises, Crocuses, Narcissus bulbocodium, Hellebores, and other spring-flowering plants. (Bronze Flora Medal.)

Messrs. J. CHEAL & SONS, Crawley, exhibited a rockery planted with early flowers, and a few shrubs in flower.

Exhibits of hardy plants were made by Mr. G. REUTHE, Keston, Kent; Messrs. T. S. WARE, LTD., Feltham (Bronze Banksian Medal); the GUILDFORD HARDY PLANT NURSERY; JOHN PEED & SON, West Norwood, London; and the Misses HOPKINS, Mere Gardens, Shepperton-on-Thames.

Orchid Committee.

Present: J. Gurney Fowler, Esq. (in the Chair); and Messrs. Jas. O'Brien (hon. sec.), Harry J. Veitch, Gurney Wilson, F. J. Hanbury, W. Cobb, G. F. Moore, T. Armstrong, A. A. McBean, J. Charlesworth, J. Cypher, W. P. Bound, J. E. Shill, H. G. Alexander, A. Dye, W. H. White, J. Wilson Potter, W. Bolton, J. S. Moss, de Barri Crawshay, and Sir Jeremiah Colman, Bart.

Lieut.-Col. Sir GEORGE L. HOLFORD, K.C.V.O., Westonbirt (gr. Mr. H. G. Alexander), was awarded a Lindley Medal for the high state of cultivation shown in a select number of specimen Orchids. They comprised Lælia anceps G. D. Owen, with nine spikes, bearing 26 flowers; L. anceps Amesiana, with nine spikes, bearing 29 flowers; L. autumnalis alba, with four spikes of pure white blooms; Lælio-Cattleya Cappei "Westonbirt" variety, with 13 flowers on one spike; and the pretty Vanda Watsonii, with seven spikes.

Sir JEREMIAH COLMAN, Bart., Gatton Park, Reigate (gr. Mr. Collier), was awarded a Silver Flora Medal for a beautiful group of fine white varieties of Lælia anceps, including the very distinct "Gatton Park variety," with light-violet front to the lip; L. anceps Hilliana rosefieldensis, a fine, white flower, the middle lobe of the labellum being pink-coloured; several specimens of L. anceps Sanderiana and Dawsonii. Examples of the white and blush-white forms of Phaio-Calanthe Colmanii were also exhibited.

Messrs. CHARLESWORTH & Co., Haywards Heath, were awarded a Silver Flora Medal for a group of exceptionally fine Orchids, which included Lælio-Cattleya Belle alba, a very handsome form of Cattleya Octave Doin, Odontioda Diana (with large, deep-red flowers), a fine form of O. crispum Xanthotes, O. hibernicum, Stanhopea Shuttleworthii (a deep-yellow flower with a blackish spot on each side of the lip), and various hybrids.

Messrs. SANDER & SONS, St. Albans, received a Silver Flora Medal for an interesting group of showy hybrids and rare species, Cymbidium erythrostylum and other Cymbidiums, a fine blush-tinted form of Pha'ænopsis allied to P. leucorrhoda, a selection of Odontoglossums and Odontiodas; the handsome clear-yellow-flowered Oncidium Jamesonii, which has, in addition to fully-developed flowers, others with rudimentary organs only; Odontoglossum Groganiæ; and other hybrid Odontoglossums were all interesting plants.

Messrs. ARMSTRONG AND BROWN, Tunbridge Wells, were awarded a Silver Flora Medal for a group, in the centre of which was their fine white Cattleya Maggie Raphael alba "Orchidhurst variety," for which an Award of Merit was gained at the last meeting. The flowers were uniformly good, the pretty, rose-coloured labellums being veined with gold in varying degrees. Lælio-Cattleya Wilhelmina, of rich colour, and other Lælio-Cattleyas, showy Cypripediums, together with excellent specimens of Masdevallia tovarensis and M. Schröderiana completed the collection.

Messrs. STUART LOW & Co., Bush Hill Park, Enfield, were awarded a Silver Flora Medal for an effective group of Calanthe Veitchii, good Odontoglossums, Cattleyas, Lælio-Cattleyas, and other Orchids. The following plants were specially noteworthy, viz., Dendrobium cymbidioides, Angræcum superbum, and A. citratum.

Messrs. J. CYPHER & SONS, Cheltenham, were awarded a Silver Flora Medal for a group of choice Cypripediums, C. Mrs. F. Du C. Godman (Mrs. Wm. Mostyn × insigne), a bold flower with large, white dorsal sepal, blotched with purple; C. aureum Surprise, C. Victor, C. Actæus Sybil (a light form of good shape), C. Beeckmanii (a clear white), C. Venus, C. Leeanum Corona, C. Vandyke, C. Thompsonii, and C. aureum Langleyense being a selection.

Messrs. J. & A. A. MCBEAN, Cooksbridge, were awarded a Silver Banksian Medal for a group in which forms of Odontoglossum crispum were well displayed, also white Lælia anceps, a good specimen of Cattleya chocoensis alba, Cattleya Maggie Raphael alba, Cypripedium Earl of Tankerville, Brasso-Cattleya Mrs. J. Leemann, and Sophro Cattleya × Thwaitesii.

Mr. E. V. Low, Vale Bridge, Haywards Heath, staged a collection for which a Silver Banksian Medal was given. The best plants were Cypripedium Laconia (Leeanum × Sallieri aureum), a flower of fine shape, coloured greenish-yellow, the dorsal sepal having a white tip and a faint purple band through the middle of the dorsal sepal, the petals and lip being also tinged with the same colour; C. Ulysses (Mrs. Wm. Mostyn × Thompsonii), fine in shape and of good colour; C. Actæus Langleyense, and C. Waterloo.

Messrs. JAS. VEITCH & SONS, Chelsea, showed Cypripedium Idina (insigne Harefield Hall × Countess of Carnarvon), Odontoglossum Doris (an evenly-spotted flower), and the favourite Cypripedium Actæus Langleyense.

DE B. CRAWSHAY, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), sent his home-raised Odontoglossum harvengtense Crawshayanum, which far surpasses all of its class; O. Yula (Adrianæ × Lambeauianum); and Zygopetalum brachypetalum Crawshayanum.

PANTIA RALLI, Esq., Ashtead Park, Epsom, showed three white forms of Cattleya Trianæ, "Ralli's variety," a fine albino, of good form; Cymbidium grandiflorum, Lycaste Balliæ, and other Orchids.

H. S. GOODSON, Esq., Fairlawn, Putney (gr. Mr. G. E. Day), showed Lælio-Cattleya Wellsiana "Goodson's variety," the showy Odontioda Cooksoniæ, Royal Scarlet, and Odontoglossum Ceres "Goodson's variety."

FRANCIS WELLESLEY, Esq., Westfield, Woking (gr. Mr. Hopkins), showed Cypripedium Thalia The Baron (insigne Sanderæ × Baron Schröder), which, contrary to what might be expected, is the darkest of the Thalias, and with considerable character of C. Baron Schröder, especially in the heavy chocolate-purple blotching. Mr. WELLESLEY also showed C. King Emperor, a hybrid of C. Beeckmanii, yellow in colour, and with uniform, small, dark spots.

Mr. W. A. MANDA, St. Albans, showed forms of Cattleya Trianæ.

Sir TREVOR LAWRENCE, Bart., K.C.V.O. (gr. Mr. W. H. White), exhibited Zygopetalum brachypetalum.

Sir WM. MARRIOTT, Down House, Blandford, sent flowers of a hybrid between Lælia anceps Sanderiana and Cattleya Aclandiæ, in shape nearest to Lælia anceps, but larger, and of a pale pink colour.

C. J. PHILLIPS, Esq., The Glebe, Sevenoaks, showed Cymbidium Pauwelsii, "Phillips's variety," a better form of the plant, which gained an Award of Merit last year; the bright-red front to the lip is a very attractive feature.

Messrs. HASSALL & Co., Southgate, staged a small group, in which were noted Cattleya Blackii (Gaskelliana alba × Mendelii alba), a good white flower, which, in the variety shown, had a slight pink tint on the lip; a distinct Lycaste Skinneri, with bright, rose-pink petals and pure-white lip; Cattleya Octave Doin, Odontoglossum Aireworth, O. eximium, O. ardentissimum, O. Lambeauianum, and other hybrids.

Sir JULIUS WERNHER, Luton Hoo (gr. Mr. Metcalfe), staged Calanthe Vulcan, a very fine hybrid, with flowers of a deep magenta rose, and evidently a better grower than most of the other dark Calanthes.

AWARDS.

FIRST-CLASS CERTIFICATE.

Cypripedium Nora (Mons. de Curte × aureum Œdipe), from Lt.-Col. Sir GEORGE L. HOLFORD, K.C.V.O., Westonbirt (gr. Mr. H. G. Alexander). A flower of perfect shape, and with all the segments well balanced. The round dorsal sepal bears heavy lines of deep rose-purple, feathered in the upper part, the centre being coloured rose-purple, surrounded by a white margin. The petals and lip are yellow, tinged and marked with purple.

AWARDS OF MERIT.

Cypripedium Duke of Marlborough (parentage unknown), from the Duke of MARLBOROUGH, Blenheim Palace (gr. Mr. Hunter). The dorsal sepal is white, with a dark middle line, and purple spotting rising from the small, green base. The petals and lip are yellow tinged with purple.

Cymbidium Schlegelii (insigne × Wiganianum), from Messrs. J. & A. A. MCBEAN, Cooksbridge. A plant having the elegant habit of C. insigne, but with large flowers, and nearest to Wiganianum. The sepals and petals are cream-white, slightly spotted with purple. The broad, white lip is blotched with red and crimped.

Zygocolax Charlesworthii "Cobb's variety" (Colax jugosus × Z. Perrenoudii), from WALTER COBB, Esq., Rusper (gr. Mr. C. J. Salter). A larger and lighter form than those previously shown. The flowers are white, the sepals and petals barred with violet, and the lip blotched with deeper violet.

Zygopetalum Mackayi Charlesworthii, from Messrs. CHARLESWORTH & Co. A very remarkable plant, being the first albino of the species. The sepals and petals are pale pea-green, whilst the large lip is pure white.

Lælio-Cattleya amabilis (L.-C. Fascinator × C. Luddemanniana Stanleyi), from Messrs. CHARLESWORTH & Co. A charming, pure-white flower, with clear-purple veining in the lip.

CULTURAL COMMENDATION.

To Mr. Branson, gr. to GEORGE HANBURY, Esq., Blythewood, Burnham, for exceptionally well-grown spikes of Calanthe William Murray, each inflorescence being about 4 feet in length, and carrying numerous, large flowers.

Fruit and Vegetable Committee.

Present: J. Cheal, Esq. (in the Chair); and Messrs. C. G. A. Nix, H. Somers Rivers, J. Harrison, P. D. Tuckett, A. Dean, J. Willard, J. Vert, J. Davis, and A. R. Allan.

Messrs. GEO. BUNYARD & Co., LTD., Maidstone, exhibited an extraordinarily good collection of Apples, embracing some 180 dishes. Most of the fruits were coloured to a high degree, and the quality generally was superb, especially considering the length of time they have been stored. The following varieties are a selection :—*Culinary:* Lady Henniker, Norfolk Beauty, Lord Derby, Baumann's Red Reinette, Calville des Femmes (a large, round, green Apple, of fine appearance), Beauty of Kent, Waltham Abbey Seedling, Smart's Prince Arthur, Royal Jubilee, Mére de Mènage, Striped Beefing, Lane's Prince Albert, Hambling's Seedling. *Dessert:* Christmas Pearmain, Fearn's Pippin, Hubbard's Pearmain, Duke of Devonshire, King Harry, Easter Orange, New Bess Pool, Scarlet Nonpareil, American Mother, Egremont Russet, Wealthy, Rosemary Russet, Cornish Aromatic, Ross Nonpareil, Rival, and Aromatic Russet. (Gold Medal.)

Messrs. W. SEABROOK & SONS, Chelmsford, staged a collection of 48 baskets and dishes of clean, richly-coloured fruits of Apples, including the varieties :—*Culinary:* Lord Derby, Bramley's Seedling, Warner's King, Dumelow's Seedling, Bismarck, Golden Noble, Beauty of Kent, Newton Wonder, The Queen. *Dessert:* Ribston Pippin, King of the Pippins, Worcester Pearmain, Fearn's Pippin, and Barnack Beauty. (Silver Knightian Medal.)

Messrs. SUTTON & SONS, Reading, set up a collection of root vegetables, all of great excellence and of much interest. Selected Ailsa Craig Onions were perfect in form and finish. Good bulbs of the long, deep Cocoanut, the broader Sutton's A1, and Giant Red Rocca were also staged. Bedfordshire Champion Onions were exhibited in ropes. Tender and True Parsnips were wonderfully fine and clean. Beet were represented by Sutton's Black, a very long, dark root; Pineapple, and the richly-coloured Blood Red varieties. Carrots included Scarlet Intermediate and Favourite, the latter a stout, short, stump-rooted Carrot of great excellence. Besides these there were white and red Artichoke tubers and Potatos. (Silver Knightian Medal.)

Mr. W. E. SANDS, Hillsborough, Co. Down, Ireland, staged a collection of Potatos, embracing 36 varieties, grown at Hillsborough, and including several Irish-raised varieties. The tubers were not large, but they were of even size, although they had lost their autumn freshness. White varieties were represented by Duchess of Cornwall, Lady Llewelyn, White Pebble, Conquest, Erin's Queen, Erin's Best, Irish Hero, The Factor, Leinster Wonder, Eclipse, and Favourite. The coloured varieties were Epicure, Flourball, and Shamrock. (Silver Banksian Medal.)

The Superintendent, Mr. S. T. WRIGHT, exhibited from the Society's Gardens at Wisley a collection of forced Rhubarb under 22 diverse names. One of the earliest, longest-stemmed, and richest-coloured sorts bore no name : it has been grown at Wisley for the past 14 years, and has never been recognised. Other good varieties were Hawke's Champagne, Early Red, Collis's Ruby, and Crimson Perfection.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.

(ANNUAL MEETING.)

The Results of the election were recorded in our last issue.

JANUARY 18.—The 74th annual general meeting of the subscribers to this Institution took place on the above date. The proceedings were reported in our last issue, and we now reproduce the report of the Executive Committee for 1911.

REPORT OF THE COMMITTEE.

The Committee have much pleasure in submitting their annual report—the 72nd—together with a balance-sheet (as audited) showing receipts and expenditure for the year 1911, and, in doing so, desire as in former years to express their thankfulness at having been enabled to maintain the good work of benefiting those horticulturists or their widows who, through sheer calamity and misfortune, have been obliged to seek assistance.

Established in the year 1839, the charity has since that time distributed in relief no less a sum than £137,000, whilst during the past year £4,344 was disbursed in permanent assistance alone, being £150 more than in any other year of its history.

At the commencement of 1911 there were 246 persons—140 men and 106 widows—in receipt of annuities of £20 and £16 a year respectively. During the year 13 men and 10 widows have passed away. Of the men, eight left widows—one of whom (Harriet Gough) has since died—whose cases, being in every way deserving, have been placed on the funds in succession to their late husbands for the widow's allowance of £16 a year, in accordance with Rule III., 10, and the Committee recommend the election this day of 20 candidates from an approved list of 71 applicants. They deeply regret that it is not possible to place a larger number on the funds, especially as so many deserving cases must necessarily be left over for another year.

The "Victorian Era Fund" and the "Good Samaritan Fund" are still proving of the utmost value and help. The former fund is for assisting unsuccessful candidates who have been subscribers whilst awaiting election, whilst the latter fund dispenses temporary and immediate relief in urgent cases of trouble and distress. It may again be mentioned that the income only of these two funds is available for distribution, so that any augmentation in the way of donations to one or either of them will be gratefully welcomed.

The annual festival dinner took place in June last, in the hall of the Worshipful Company of Grocers, and by kind permission of the Court. Ladies were for the first time in the history of the institution present on the occasion, and Sir Marcus Samuel, Bart., presided, to whom the Committee tender their sincere thanks, not only for his able advocacy of the claims of the charity, but for his generous contribution and personal services, which resulted in the dinner being a great success. They also take this opportunity of expressing their thanks to those gentlemen who kindly acted as stewards and collectors; to the donors of flowers; to the decorators of the tables; to the horticultural Press for invaluable and gratuitous assistance at all times, and to other friends in all parts of the country who contributed in any way towards the satisfactory result.

The Committee have again to express their indebtedness to those noblemen, ladies and gentlemen who have so kindly allowed their beautiful gardens to be thrown open to the public for the benefit of the funds of the institution, amongst whom may be mentioned the Rt. Hon. Earl Beauchamp (Madresfield), the Lady Battersea (Overstrand), Sir Frank Crisp, LL.B., J.P. (Friar Park), and E. J. Wythes, Esq. (Epping).

The Committee have also to thank the "George Monro" Concert Committee for again allocating a portion of the proceeds of their well-known annual concert in aid of the work. Mention must also be made of the kindness of Messrs. Sherwood, Sutton, Rochford, and Monro, for their handsome donations for unsuccessful candidates. The recipients of these gifts were most truly thankful.

The Committee gratefully acknowledge the services of the

STATEMENT OF RECEIPTS AND PAYMENTS OF THE GARDENERS' ROYAL BENEVOLENT INSTITUTION FOR THE YEAR ENDING DECEMBER 30, 1911.

DR.	£ s. d.	£ s. d.
To Balance		1,067 0 7
,, Amount of deposit		3,430 0 0
,, ,, Wolfe's legacy		1,000 0 0
,, Annual subscriptions	1,375 9 6	
,, Donations at and in consequence of annual festival dinner	2,338 14 4	
,, Royal Horticultral Society for Schröder Annuity	20 0 0	
,, Dividends and interest	903 16 11	
,, Return of Income Tax	49 15 5	
		4,687 16 2
		£10,184 16 9

CR.	£ s. d.	£ s. d.
By Annuities and gratuities, including special gifts (Messrs. Sutton and Monro)		4,344 18 4
,, Expenses of annual meeting and election		9 19 8
,, Rent, firing, lighting, &c., and salaries of Secretary and Clerk	100 5 5	
,, Printing and stationery, including report, polling papers, &c.	143 14 7	
Less advertisements	41 3 0	
	102 11 7	
,, Postages, reports, polling papers, appeals, &c.	53 14 3	
,, Advertisement in Fry's Charities	3 3 0	
,, Carriage, telegrams, and incidental expenses	12 14 4	
,, Travelling and deputation expenses	5 2 9	
,, Bank charges	3 0	
		777 14 4
,, Expenses of festival dinner	291 6 9	
Less dinner charges	211 1 0	
		80 5 9
,, National telephone		6 10 0
,, Placed on deposit		2,830 0 0
,, Ditto Wolfe's legacy		1,000 0 0
,, Balance with Treasurer	*1,128 0 9	
,, ,, ,, Secretary	7 7 11	
		1,135 8 8
		£10,184 16 9

*Required to meet the quarterly payments due January 1, 1912.

In accordance with the rules of the Gardeners' Royal Benevolent Institution, we report that we have audited the accounts, having obtained all the information and explanation required. We have also verified the securities in the hands of the bankers. In our opinion the balance sheet is properly drawn up and as shown by the books, which we found in perfect order.

THOMAS MANNING.
J. WILLARD.

January 16, 1912.

VICTORIA ERA FUND.—BALANCE SHEET, 1911.

DR.	£ s. d.	£ s. d.
To Balance, January 1, 1911		134 1 10
,, Dividends	202 2 4	
,, Returned Income Tax	11 8 7	
,, Balance of Ryland's legacy with interest transferred from deposit account	1,055 18 0	
		1,269 8 11
		£1,403 10 9

CR.	£ s. d.
By Gratuities	204 15 0
,, Investment of balance and interest of Ryland's legacy, New South Wales, 3½ per cent.	1,055 18 0
,, Balance in hand, December 30, 1911	142 17 9
	£1,403 10 9

GOOD SAMARITAN FUND.—BALANCE SHEET, 1911.

DR.	£ s. d.	£ s. d.
To Balance January 1, 1911		345 15 6
,, Dividends	133 18 10	
,, Donations	73 8 0	
,, Return of Income Tax	8 3 10	
		215 10 8
		£561 6 2

CR.	£ s. d.
By Gratuities	210 0 0
,, Balance in hand, December 30, 1911	351 6 2
	£561 6 2

January 16, 1912.

Audited and found correct. { THOMAS MANNING. J. WILLARD.

following honorary officers of the several auxiliaries which have been and are of such invaluable assistance to the Institution:—

BRISTOL AND BATH.

Presidents.	*Hon. Treasurers.*	*Hon. Secretaries.*
Col. H. Cary Batten.	W. A. Garaway, Esq.	Mr. Geo. Harris.

WORCESTER.

Rt. Hon. Earl Beauchamp, K.C.M.G.	John White, Esq.	Mr. Percy G. White.

DEVON AND EXETER.

	Mr. W. Mackay.	Mr. W. Mackay.

WOLVERHAMPTON.

C. T. Mander, Esq., J.P.	Mr. Geo. Bradley.	Mr. Geo. Bradley.

BERKSHIRE, READING AND DISTRICT.

Mrs. Rowland Sperling.	Arthur W. Sutton, Esq., J.P., V.M.H.	Mr. L. Castle.

LIVERPOOL AUXILIARY.

The Rt. Hon. The Earl of Derby, K.G.	Mr. A. J. Cripps in.	Mr. R. G. Waterman.

Unfortunately the Committee have to deplore the loss of a large number of subscribers by reason of death during the past year, amongst those may be mentioned:—Mr. James Douglas, Mr. James Walker, both members of committee, the former having served on the Board for 35 years. Both these gentlemen were whole-hearted supporters of the Institution, and their presence and help will be sadly missed.

In conclusion, the Committee most earnestly appeal for further support and renewed effort on behalf of this National Horticultural Charity. After to-day's election there will be 51 applicants left on the list who are appealing for aid, every one of them fully investigated deserving cases. To help them, an increased income is sorely needed, although the Committee are deeply sensible of the generous support accorded to them in the past, they again plead for further aid to enable them to extend the benefits of the Charity to those who are in so much need.

HARRY J. VEITCH, Chairman.
GEORGE J. INGRAM, Secretary.

Messrs. Donald MacDonald, E. A. Bunyard (of the Royal Nurseries, Maidstone), and R. G. Cuthbert (of the firm of Messrs. R. & G. Cuthbert, Southgate Nurseries, Middlesex) were elected members of the committee.

FRIENDLY SUPPER.

A good company assembled in the evening of the same day at the annual friendly supper, the chairman on this occasion being Mr. S. M. Segar. In the course of the proceedings, Mr. N. N. Sherwood announced his intention of making a donation of £20, to be divided between the unsuccessful candidates at the election. Mr. George Munro gave a sum of £10 towards a pension in favour of one of the candidates.

ULSTER HORTICULTURAL.

JANUARY 11.—The annual meeting of this society was held on the above date under the presidency of the Lord Mayor of Belfast, Mr. R. J. M'Mordie, M.P. The income from all sources amounted to £725 3s. 8d., and the expenditure to £760 16s. 5d.

Mr. Alexander Dickson, in seconding the adoption of the report, stated that an important feature of the year's work had been the extending of direct financial assistance to the society by the Department of Agriculture. The society had for many years been spending a great deal of money, for which the public who subscribed saw very little return beyond a few dishes of ordinary market fruit in the show. But in St. George's Market, when the fruit was coming in from the country in the course of business, there could be observed signs of the marked improvement in the packing, grading, and handling of the fruit, the result of this branch of the society's efforts. The Department of Agriculture had at last acknowledged that this work was worthy of support, and had helped them generously.

The following office-bearers were elected:—President, the Lord Mayor of Belfast (Mr. R. J. M'Mordie, M.A., M.P.); hon. treasurer, Mr. David Allen; hon. secretary, Mr. Thomas Paul; and secretary, Mr. J. MacBride.

SCOTTISH HORTICULTURAL.

JANUARY 16.—The annual meeting of this association was held on this date. Mr. Massie, presided, and there were 155 members present.

The annual report stated that the work of the association had been well maintained, and that there had been an average attendance of 100 at the ordinary meetings. The list of members showed a small decrease for the year. The Chrysanthemum Show resulted in a profit of £31 15s. 9d. The council recommended a revision of the constitution and by-laws, embodying the proposals set forth by the president in his inaugural address, and providing for other developments in the near future. The leading proposals were: A readjustment of the finances; immediate steps to be taken to start a fund for the foundation of a Horticultural Institution and Library; more facilities for the young men to take part in the work; and the starting of a Benevolent Fund to aid gardeners who may be overtaken by misfortune. Other proposals included the holding of examinations in horticulture, and the providing of bursaries for students in horticulture. The most important of the financial proposals was to abolish the uniform annual subscription of 2s. 6d., and to adopt a scale varying from 2s. 6d. to £2 2s. As regards the foundation of a horticultural institution, it was stated that the council were already in possession of the nucleus of a fund for the purpose, consisting of a donation of £80 from the surplus of the Scottish National Exhibition (1908), and of promises of donations from the office bearers of the Association of about £200. It was also stated that an anonymous donor had promised £25 to start a benevolent fund.

The chairman moved the adoption of the revised constitution and by-laws, and after some slight amendments had been accepted these were adopted.

Captain Stirling, of Keir, was elected honorary president for the current session. Mr. Massie was re-elected president, and Messrs. Jas. Dobbie and D. W. Thomson were elected to the vacant vice-presidencies. The following were elected to vacancies on the council:—Messrs. D. Kidd, Jas. Whytock, A. Chalmers, J. Highgate, T. Fortune, E. P. Laird. Mr. W. J. Thomson was re-elected secretary and treasurer.

It was intimated that Captain Stirling had invited the members to visit Keir on July 27.

Fifteen new members were elected.

The president will deliver his opening address on February 6, his subject being "Garden City Problems."

NORTH OF ENGLAND HORTICULTURAL.

JANUARY 17.—The first annual meeting of this society was held in the Queen's Hotel, Leeds, on the above date. The chairman of the council, Major Dent, presided over an attendance of 60 Fellows and Associates. The annual report and balance-sheet were submitted by the chairman, who briefly reviewed the work of the society during the past year. He alluded to the energetic and whole-hearted work of the secretary, Rev. J. B. Hall, who was responsible for much of the success the society had attained. The list of members numbers considerably over 200, and the number of Associate members is about the same. Twelve societies are in affiliation. The balance-sheet shows a loss on the year's working of about £150, which is accounted for by (1) the heavy preliminary expenses; (2) about £100 deficit on the monthly shows. In future these shows will be held in the Corn Exchange, which has been acquired at a moderate rental.

On the motion of the chairman, Earl Grey was unanimously elected president.

The council was re-elected, and the following names added: Professor R. S. Seton, and Messrs. W. Cuthbertson and T. H. Gaunt. The Hon. Rupert Beckett was again elected treasurer, and Mr. J. C. Jackson, A.C.A., auditor. The committees were also appointed. Several minor alterations were made in the by-laws, the chief of which were (1) That the council be increased to 30 members. (2) That the members of the R.H.S. Committees be honorary members of the N.E.H.S. Committees. (3) That R.H.S. Fellows and bonâ-fide gardeners be entitled to become Fellows on payment of 10s. 6d. (4) That all affiliated societies be empowered to send one of their members with powers to vote at the annual general meetings.

The programme for the ensuing year was placed before the meeting. It comprises a series of shows to be held in conjunction with several local societies in various localities. Arrangements have also been made for several shows and lectures to be held in Leeds.

During the evening a lecture on "The Development of the Modern Sweet Pea" was given by Mr. Wm. Cuthbertson. There was a good attendance, and Mr. Ker, Liverpool, presided. The lecturer traced the history of the Sweet Pea from the date of its introduction in 1700 until the present time. He said that the National Sweet Pea Society was the outcome of the bicentenary meeting and conference held in 1900. The lecturer referred to the work done by such pioneers as Mr. Laxton and Mr. H. Eckford. To show how largely Sweet Peas are cultivated, Mr. Cuthbertson said that one firm, Messrs. Moss, of California, cultivated 400 acres of Peas for seed purposes. In his, Mr. Cuthbertson's opinion, the American stocks were not so pure as those grown in Great Britain, because the American firms grew varieties on a large scale from many plants, instead of breeding from single plants. The latter course, although slower, is essential if stocks are to be kept true. Referring to the first variety having a waved standard, Countess Spencer, Mr. Cuthbertson gave the following history of its origin: The variety "Lovely" was crossed with "Triumph." The resulting seed was saved and a good seedling crossed with "Prima Donna." The result of this latter cross was Countess Spencer, but only five seeds were obtained. These were sown, but three were destroyed by mice; the others grew successfully. The following year a waved variety was also raised by Mr. Eckford.

In the Countess Spencer type the keel is compressed or clamped, and the anthers laid close in, whilst in flowers of the older type the keel is more open, and the anthers stand out.

Mr. Cuthbertson prophesied that the double variety "Duplex" was the forerunner of a wonderful race of flowers.

Lantern slides, illustrating choice varieties of Sweet Peas, were shown during the delivery of the lecture.

LAW NOTE.

ACTION AGAINST A HORTICULTURAL SOCIETY.

MR. W. H. EWEN, Lanark Aerodrome, Lanark, recently sued the Kirkcaldy Horticultural Society, in Kirkcaldy Sheriff Court, for the sum of £50, which he claimed in terms of contract. Mr. Ewen alleges that he entered into a contract with the society to bring an aeroplane to their show in August, and that he was to be paid £50 on the aeroplane arriving on the ground and another £50 on giving two flights. Owing to the weather conditions, the flights could not take place, but he claims that he is entitled to the £50 for bringing the machine on to the ground. The defenders state that the pursuer was to bring an aeroplane capable of flying, but that the machine he brought was broken, that the pursuer was aware of this, and that the machine was incapable of flying. They allege that the weather was quite favourable for flying, and make a counter-claim of £100 for breach of contract.

The Sheriff has fixed the proof for February 23.

Obituary.

MICHAEL MURPHY.—Mr. Michael Murphy, gardener at the Harry P. Whitney Estate, Newport, U.S.A., died at his home on the 1st inst. Mr. Murphy was a native of Queenstown, Ireland, and settled in Newport 58 years ago; he held the post of gardener on the estate mentioned for 46 years.

THOMAS PURVES.—The death of Mr. Thomas Purves, managing director of Messrs. F. H. Brunning, Ltd., 64, Elizabeth Street, Melbourne, on October 4, 1911, is announced in *The Journal of Horticulture of Australia*. The deceased gentleman was born in 1840, in the Lothians. After learning the business of farming, he proceeded to Australia in 1863, and for 13 years managed the business of Messrs. Law, Somner & Co. He afterwards took over the business of Adamson's Seed and Plant Warehouse, which is now one of the principal seed firms in Melbourne.

JOHN BOWLER.—Mr. John Bowler, gardener for the past 46 years at Caldecote Hall, Nuneaton, died at Caldecote on the 13th inst. Mr. Bowler was a skilful gardener and was well known in the Midlands. He was churchwarden and overseer for the parish. The funeral took place at Caldecote on the 17th inst., the mourners including Captain Townshend, deceased's employer.

ANSWERS TO CORRESPONDENTS.

APPLE BLENHEIM PIPPIN: *W. H. Cobham.* Blenheim Pippin and Blenheim Orange are synonyms. Blenheim Orange is the name adopted by Dr. Hogg in the *Fruit Manual*. The following account of the origin of the variety appeared in the *Gardeners' Chronicle* for April 12, 1851, p. 228: "In a somewhat dilapidated corner of the decaying borough of ancient Woodstock, within 10 yards of the wall of Blenheim Park, stands all that remains of the original stump of that beautiful and justly celebrated Apple, the Blenheim Orange. It is now entirely dead and rapidly falling to decay, being a mere shell about 10 feet high, loose in the ground, and having a large hole in the centre; till within the last three years it occasionally sent up long, thin, wiry twigs, but this last sign of vitality has ceased, and what remains will soon be the portion of the woodlouse and the worm. Old Grimmett, the basket-maker, against the corner of whose garden wall the venerable relict is supported, has sat looking on it from his workshop window, and while he wove the pliant osier has meditated, for more than 50 successive summers, on the mutability of all sublunary substances, on juice, and core, and vegetable, as well as animal, and flesh and blood. He can remember the time when, 50 years ago, he was a boy and the tree a fine, full-bearing stem, full of bud, and blossom, and fruit, and thousands thronged from all parts to gaze on its ruddy, ripening orange burden; then gardeners came in the spring-tide to select the much-coveted scions, and to hear the tale of his horticultural child and sapling from the lips of the son of the white-haired Kempster. But nearly a century has elapsed since Kempster fell, like a ripened fruit, and was gathered to his fathers. He lived in a narrow cottage garden in old Woodstock, a plain, practical labouring man, with his bees and flowers around him, and his 'glorious pride' in the midst of his little garden he realised Virgil's dream of the old Corycian: 'Et regum equabat opes animis.' The provincial name for this Apple is still 'Kempster's Pippin,' a lasting monumental tribute and inscription to him who first planted the kernel from whence it sprung."

AURICULAS: *H. T.* Articles on the Auricula appeared in the issues for May 4, 1907, December 14, 1907, December 21, 1907, January 25, 1908, October 17, 1908, April 30, 1910, and March 18, 1911.

CAUSTIC ALKALI ON VINES: *G. B.* It would not be safe to spray vines with caustic alkali wash, even when they are dormant. Neither would it be safe to use this preparation on Peach or Nectarine trees under glass. Voss's carbolised wash No. 1 is recommended by the makers for destroying mealy-bug on vines. The specific must be worked, by means of a stiff brush, into the lurking places where the insects hide. The other trees may be sprayed with the same firm's No. 1 wash at a strength of one in one hundred parts of water. In using washes of this nature the operator should protect his hands with leathern gloves.

COMPENSATION: *Market Gardener.* The question as to whether you are entitled to claim compensation or not in connection with the Market Gardeners' Compensation Act will depend upon many circumstances besides those mentioned in your letter. In such a matter you will do well to consult a solicitor, giving him access to all the documents you possess.

DECAY IN TREE-TRUNKS: *C. C.* In an article by Mr. W. J. Bean, in the *Gardeners' Chronicle* for April 21, 1906, p. 244, on pruning trees and shrubs, he states that all, or as much as possible, of the decayed wood should be removed; then the surface should be washed with a strong solution of carbolic acid; after this has become quite dry, the surface should be smeared with coal tar. This antiseptic treatment is intended to destroy parasitic fungi and arrest the decaying process. The hole must then be filled up and made water-tight. If it be small, the best "stopping" is formed of a piece of oak made to fit; but large holes should be filled with cement. In either case a final coating of tar should be given. Except when the hole is very large, a new layer of bark will grow over the cavity, when filled in the way described.

EMPLOYMENT AT KEW GARDENS: *Kewite.* Application for admission as gardener in the Royal Botanic Gardens, Kew, must be made on a form furnished by the Director of the Gardens. Applicants must be unmarried, between the ages of 19 and 24, and must have been employed for not less than four years in good gardens or nurseries. They must be healthy, free from physical defects, and not below average height. Applicants are informed whether their names have been entered for admission, and on a vacancy occurring will receive a notice to that effect. Should an applicant not be appointed within three months after the date of his application, he should write again if he still desires admission. Those selected for appointment as gardeners who are British subjects, if they render approved service, are eligible to remain at Kew for a period of two years from the date of joining. At the termination of two years' experience in the Royal Botanic Gardens, a gardener ceases to be employed at Kew unless he has in the meantime been selected for service as a sub foreman for a further definite period of strictly limited duration. Gardeners whilst at Kew receive an allowance of 21s. per week to meet the cost of subsistence. Sub-foremen are paid 27s. per week.

EREMURUS: *I., S. E.* Eremuri should be planted not later than the end of January in your district. Choose for them a sunny site, sheltered from strong winds, especially those from the east. Plant the roots 4 inches or 6 inches deep in well-stirred soil, and if the soil is of a heavy and close texture, apply a good dressing, both above and below the roots, of old mortar rubble. If the staple is light and friable, lime will not be necessary. When the crowns appear through the soil cover them with Spruce or Fir branches to protect them from severe frosts. This method of protection will preserve the plants from damage by strong winds. If the soil is of a light nature it will not be necessary to lift the crowns every year, but in heavy, wet land lift the crowns when the foliage dies down, store them in a box of sand in a dry shed, and replant them in well-worked soil. December, if the soil is not too wet, is the best month to plant in your district, but it is better to plant a month later in wet, sticky soils. E. himalaicus, E. robustus, and E. Elwesianus are the best kinds to commence with, and as you gain knowledge of their requirements you might try E. Bungei, E. Shelford, and E. Olgæ. The three last-named should form a group apart from the others, it being quite unnecessary to lift these roots every year. Eremuri require plenty of root-room. We thank you for your complimentary letter, and for your expression of good wishes.

NAMES OF FRUITS: *J. House.* Scarlet Pearmain. —*W. Thompson.* D'Arcy Spice.—*J. W. H.* 1, Royal Jubilee; 2, Claygate Pearmain; 3, Northern Greening; 4, Imperial; 5, Curl Tail. —*J. Harris.* Hormead's Pearmain.—*A. H. Abrahams.* 3, Claygate Pearmain; 4, Pile Russet; 6, Egremont Russet. The other fruits were inferior specimens and could not be named with certainty. Next time send better examples.

NAMES OF PLANTS: *A. G. B.* 1, Fittonia argyroneura; 2, F. Pearcei; 3, Dracæna Godseffiana; 4, Maranta Makoyana. — *W. G. H.* 1, Leptospermum scoparium; 2, Spiræa Thunbergii; 3, Anona Cherimolia.— *J. S. K.* The Chrysanthemum closely resembles the variety Mrs. Swinburne.

PUBLIC APPOINTMENT: *Out-of-work Gardener.* It is most improper for exclusive information to be officially supplied to certain candidates when applying for public appointments. The preference shown to one of the candidates as described in your letter should not have been permitted. We fear that you cannot claim expenses incurred in keeping your appointment with the committee unless the committee had entered into an agreement to pay such expenses. The publication of your letter would not be likely to effect any good.

RAILWAY FARE: *Stafford.* If you have an agreement stating that your employer would return you after six months' service the travelling expenses incurred by your acceptance of the situation, there should be no difficulty in compelling him to pay that sum. On the contrary, if you have no agreement to this effect, we fear you have little chance of obtaining redress on the strength of a mere verbal statement of the head gardener.

ROYAL HORTICULTURAL SOCIETY'S EXAMINATION FOR PUBLIC PARK EMPLOYÉS: *T. B.* Write to the secretary, Rev. W. Wilks, Vincent Square, Westminster, for a copy of the syllabus.

SEEDLING ORANGES: *F. J. R.* Oranges may be propagated in two ways, by budding and by grafting. Budding is the most simple plan, but should not be carried out until the first week in July. The process is identical with that of budding fruit trees and Roses. After the trees are budded they should be placed in a somewhat shady position, and watered whenever necessary in order to cause the sap to flow freely Grafting should be done during the first or second week in March. The best kind of grafting for Oranges is "side grafting." Cut down the trees to the required height, and select a scion about half the size of the stock. The scion should be securely tied to the stock with worsted, or if the tree forming the stock is extra large, some untwisted soft string may be used to advantage. Bast or raffia should on no account be used. Grafting-wax, sufficient to cover the top of the stock and scion, should be applied to the graft in order to keep out water. The grafted trees should be kept in a close place, preferably a pit, and shaded whenever there is sunshine. The temperature of the pit may range from 40° to 45°. After the grafts have formed a good callus the trees may be gradually brought to the light, and the shading discontinued. The grafts need not be untied until the autumn, unless the tying material is found to be cutting into the stock. If you intend to use your seedling trees as stocks it will be necessary to obtain scions of good varieties from a nurseryman. Probably Messrs. Rivers & Son, Sawbridgeworth, would be able to supply you.

VIOLAS FOR EXHIBITION: *E. P., Alderley Edge.* The following 24 varieties of Violas are recommended by Mr. W. Cuthbertson for exhibition purposes in the most recent work on the subject, *Pansies, Violets and Violas* [Present-day Gardening Series]:—Agnes Kay, white centre, edged with heliotrope; Archibald Grant, rich, indigo-blue; Duke of Argyle, glossy-purple, striped with rose; Geo. C. Murray, smooth back, bottom and side petals, top petals light, sky-blue; General Baden Powell, large, orange-coloured, rayless self; Glencoe, lower petals rich mahogany, deepening towards the centre, upper petals copper colour; Helen Smellie, white centre, without rays, evenly edged blue; Hugh Reid, rosy-purple, a shade lighter on the top petals; Kate Cochrane, lower petals crimson-purple, with a trace of lavender; Kate Houston, white ground, heavily belted with rosy-mauve; Lady Knox, large primrose self, rayless; Lawmuir, rich crimson, streaked with magenta; Lizzie Storer, glossy black under petals, each tipped with lavender; upper petals clear lavender; Louie Granger, rose-coloured self; Mme. A. Gray, large white, rayless; Madge Craig, lower petals deep rose, a little darker in centre, upper petals lavender flushed with rose; Mary Burnie, creamy-white or primrose, edged with dark heliotrope, rayless; Mrs. C. M'Phail, heliotrope deepening to pale purple; Mrs. H. Pearce, large, pure-white, rayless self; Nellie Chapman, white, edged and shaded with blue; Rose Noble, rich orange-yellow, rayless; Viola Stirling, creamy-white, edged with heliotrope; and W. P. A. Smyth, cream ground, clouded and edged with heliotrope, a very large flower.

Communications Received.—Erin—J. B.—W. F. & Co.—P. H. D.—X. Y. Z.—Cyc Peach—T. S.—G. F. H.—T. M., Denmark—J. A. T.—F. C. P.—J. B. H.—E. D.—S. A.—F. C. E.—Bogbean—E. M.—W. C., Ramsgate—H. H. R.—H. T.—A. B. W.—L. J., Brussels—G. G.—J. H. A.—C. H. P.—G. M. T.—W. H. A.—C. T. D.—H. R. D.—A Journeyman—A. H. T.—J. H.—C. O.—E. R.

National Institute of Horticulture.

THE GARDENERS' CHRONICLE

ESTABLISHED 1841

No 3710

No. 1,310.—VOL. LI. {THIRD SERIES.} SATURDAY, FEBRUARY 3, 1912. {Registered as a Newspaper. WITH SUPPLEMENT: PRICE 3d. POST-FREE, 3½d.

SUBSCRIPTION—Inland, 15/-; Foreign, 17/6 [22fr. 10c.] [$4 26c.] per annum. Entered at the New York Post Office as second-class matter.

Postal Address—41, Wellington Street, Covent Garden, W.C. Telegraphic Address—"Gardchron, London." Telephone—Gerrard, 1543.

☞ **For CONTENTS see page 65.**

Sow Now Under Glass.

WEBBS' NEW FREEDOM CUCUMBER, Mr. W. GOODWIN, Gardener to J. Dempster, Esq., writes:—"Your New Freedom Cucumber is very prolific and a good colour, splendid for exhibition and general purposes."

WEBBS' NEW CONQUEROR TOMATO, 1s. 6d. and 2s. 6d. per packet, post free. Winner of FIRST PRIZE for Quality and Flavour at the National Vegetable Show, London, 1911.

WEBBS' HARBINGER DWARF BEAN 2s. 6d. per quart, post free. Mr. H. E. MILLWARD, Gardener to Mrs. Macdonald, writes:—"Webbs' Harbinger is a grand forcing Bean, and invaluable for early supplies."—WEBB & SONS, The King's Seedsmen, Wordsley, Stourbridge.

GARDEN PESTS.—Cross's "Clubicide" is the Gardeners' Insurance against damage by Eelworm, Wireworm, Slugs, Maggot, and all Disease Germs and Insect Pests. Kills all harmful Bacteria, reinvigorates the soil, stimulates plant life. In 1s. flasks and ½-gall. and 1 gall. drums. From all Seedsmen. Sole Manufrs.: A. CROSS & SONS, Ltd., Glasgow.

POULTRY and KENNEL APPLIANCES of every description. Write for latest Catalogue free on application. BOULTON & PAUL, Ltd., Norwich.

FIDLER'S NEW ILLUSTRATED CATALOGUE of CHOICE GARDEN SEEDS will be sent post free to any address on receipt of postcard. Write at once for a copy; it may help you to save 50 per cent. on your seed bill this season. FIDLER & SONS, Royal Berkshire Seed Stores, Reading.

BATH'S SELECT SEEDS.—New Illustrated Catalogue of Choice Vegetable and Flower Seeds, with full cultural notes, is now ready, and will be sent post free on application. (Dept. A), R. H. BATH, Ltd., The Floral Farms, Wisbech.

THE COMING OF THE SPRING reminds you of the importance of sowing the Best Seeds. These are John K. King & Sons', grown on their great Essex Seed Farms.

THE COMING OF THE SPRING.—Send for John K. King & Sons' Manual of Gardening for 1912, the best Seed Book of the year, replete with cultural instructions, charming illustrations, and correct descriptions—post free on application. JOHN K. KING & SONS, Seed Growers to H.M. The King, Coggeshall, Essex.

WELLS' CATALOGUE OF CHRYSANTHEMUMS, Perpetual Carnations, Herbaceous Plants, Alpine and Rock Plants, now ready, post free on application. Wells' Book, "The Culture of the Chrysanthemum," post free, 1s. 6d. W. WELLS & CO., Merstham, Surrey.

RITCHIE'S SWEET PEAS.—Universally acknowledged to be the best procurable; Exhibition collection, containing the best 12 Spencers, viz., Asta Ohn, Clara Curtis, Edna Unwin, Elsie Herbert, Gladys Burt, Jno. Ingman, Marj. Linzee, Maud Holmes, Mrs. Sykes, Mrs. Breadmore, Prince Asturias, Tennant Spencer, 30 seeds each, 2s. 6d., post free; Sweet Pea list free on request.—A. S. RITCHIE & CO., Seedsmen, Belfast.

LISSADELL ALPINE & HERBACEOUS PLANTS.—Write for our new illustrated and enlarged List, containing many beautiful novelties at moderate prices. Also List of Seeds collected from above in 1911. J. A. COOPER. Lissadell (No. 2), Sligo, Ireland.

SUTTON'S DELICIOUS MARROWFAT PEAS. Seven months in the year. Special collections of the finest varieties, eight sorts, our selection. 2 quarts of each, 48s. 1 quart of each, 24s. 1 pint of each, 13s. 6d. Carriage free.

SUTTON & SONS, The King's Seedsmen, READING.

THE BEST OF ALPINES, and new and old-fashioned Perennials, Rock Gardens, Borders, Water Gardens, and Wild Gardens designed and planted. Illustrated Catalogues (free).—THE GUILDFORD HARDY PLANT NURSERY, Guildford.

Roses and Herbaceous Plants.

GUNN & SONS were awarded the 25 Guinea Challenge Cup in each collection at the Leamington Show. Up-to-date List for each now ready. Address: Olton, Warwickshire.

CHRYSANTHEMUMS.—Descriptive Catalogue of choice up-to-date varieties and novelty list for 1912, sent free. Apply H. W. THORP, Durrington, Worthing.

PERPETUAL FLOWERING CARNATIONS—My stock is the largest in Europe; Inspection invited. Export to the Colonies a speciality. Catalogue free on application. C. ENGELMANN, Saffron Walden.

GREENHOUSE PAINTING & GLAZING "Vitrolite" superior to White Lead Paint, 9/- per gall. "Plastine" supersedes Putty, 16/- per cwt. Full particulars from W. CARSON & SONS, Grove Works, Battersea. Agents throughout the country.

LANDSCAPE GARDENING.—W. INNES STUCKEY, Landscape Gardener, Piccadilly Mansions, Piccadilly Circus, W. (With the late Mr. H. E. Milner).

DICKSONS Horticultural Manure & other high-class Fertilizers; also Dicksons Improved Mushroom Spawn. Priced Circulars free on application to DICKSONS, Royal Seed Warehouses & Nurseries, Chester

GISHURST COMPOUND is harmless in use; its soluble Sulphur, &c., has for 40 years cured Blights and Fungus on Plants, and is good for washing unhealthy dogs. Gishurstine keeps boots dry in all weathers; they will polish. Good for Harness. Wholesale from— PRICE'S PATENT CANDLE CO. LTD., London.

WM. DUNCAN TUCKER & SONS, Ltd., 27, Cannon Street, London, E.C.; Works, Tottenham. Conservatories, Winter Gardens, Vineries, Peach-houses, Portable Buildings, etc. Catalogue gratis.

FRUITING VINES IN POTS.—Muscat of Alexandria, and leading Market varieties. We make Vines a speciality. G. COLEMAN, The Vineries, Burgess Hill, Sussex.

THE Popularity of "XL ALL" Specialities increases every year. All gardeners proclaim that nothing equals these celebrated preparations. "XL ALL" NICOTINE VAPORISING COMPOUND, the gardeners' favourite Fumigant, both Liquid and Cake. "XL ALL" NICOTINE INSECTICIDE WASH for Syringing, Dipping and Dressing Fruit Trees and Plants; Mealy Bug, Scale, etc., cannot exist where this is used. "XL ALL" INSECTICIDE WASH B (*sine* Nicotine), best non-poisonous Wash on the Market. No licence required to sell this. Other preparations of great renown, both poisonous and non-poisonous, are:—"XL ALL" WEED KILLER, "XL ALL" FERTILISER, "XL ALL" WINTER WASH for Fruit Trees, RICHARDS' BANDING GREASE, etc. Don't forget to ask your Nurseryman, Seedsman or Florist for Richards' small pink list.—G. H. RICHARDS, Manufacturer, 234, Borough High Street, London, S.E.

For Advertisement Charges see page xii.

KELWAY'S "Manual of Horticulture" is the best of all Garden Books, 2s., post free. From ——, Esq., Northwood, Middlesex, September 28th, 1911: "I find that I have never forwarded 2s. for your lovely Catalogue you sent me some weeks since. It would be cheap at five times the price, and I sincerely regret the oversight."—KELWAY & SON, Langport, Somerset.

NOW is the time to plant Kelway's Delphiniums—fine, bold upstanding plants with a wealth of bloom in all shades of blue and purple. They are from strong country-grown stocks, and flourish under almost all conditions. From —— Esq., —— Greenock: "All the Delphiniums received from you last Spring did very well indeed. I have now about three dozen of your Delphiniums. They are the admiration of all the flower lovers in this district." Choice named collections 15s., 24s, 34s., 56s. a dozen.—KELWAY & SON, The Royal Horticulturists, Langport, Somerset.

IRON & WIRE FENCING for GARDENS, Tree Guards, Gates, Arches, Espaliers, Rose Stakes, and Ornamental Garden Iron and Wire Work of every description. Send for Illustrated Catalogue, free. BOULTON & PAUL, Ltd., Manufacturers, Norwich.

New Phloxes.

GUNN & SONS were Awarded a Silver Cup at the Great Show at Olympia. New Lists now ready. Address: Olton, Warwickshire.

ALPINES & HERBACEOUS PLANTS, —Himalayan and other rare Rhododendrons, rare Shrubs, Construction of Rockeries. Catalogues ready. G. REUTHE, Keston, Kent.

BUNYARD'S CATALOGUES, free on application.

FRUIT TREES AND VINES.

SHRUBS AND CONIFERS.

ROSES AND OTHER CLIMBERS, in Pots.

HERBACEOUS & AQUATIC PLANTS for present planting.

GEORGE BUNYARD & CO., LTD., Royal Nurseries, Maidstone. Established 1796.

TO NURSERYMEN.—THE NEW PATENT MULTI-DIBBER. Indispensable to all who raise seedlings in boxes, frames, or in the open ground. Send for special list with prices. BOULTON & PAUL, Ltd., Norwich.

BARR'S VEGETABLE AND FLOWER SEEDS of finest selected strains and tested growth. Descriptive Catalogue, with Cultural Notes, free.

BARR'S BEAUTIFUL LILIES, GLADIOLI, MONTBRETIAS, CANNAS, TIGRIDIAS, etc. for Spring planting. Special Catalogue free. BARR & SONS, 11, 12 & 13, King St., Covent Garden, London.

BARR'S REMOVAL SALE OF HARDY PLANTS.—Clearance List of surplus plants at greatly reduced prices (prior to removal of nurseries from Surbiton to Taplow), post free. BARR & SONS, 11, 12 & 13, King St., Covent Garden, London.

OSMUNDA for Orchids.—Consignments arrive fortnightly. 2s. 6d. per bushel; per bag, 8s. 6d. SANDER & SONS, St. Albans.

AUTO SHREDS FUMIGANT kills Leaf-mining maggot, insects in greenhouses, frames. For 1,000 cubic feet, 6d.; 10,000, 3s. 6d. No apparatus. WM. DARLINGTON & SONS, Patentees, Hackney, N.E.

WALTERS & CO., Morland Rd., Croydon, Makers of Lath Roller Greenhouse Blinds; Trellis Screens and Fences, Arches, Arbours, Rose Pillars. Established over 20 years. Catalogues free.

SALES BY AUCTION.

Rose Trees, Shrubs, Fruit Trees, Lilies, Perennials.

MR. J. C. STEVENS begs to announce that his Sales by Auction are held every

MONDAY and WEDNESDAY,

at 12.30.

Catalogues post free.

Lots purchased, packed and forwarded to all parts.

STEVENS' AUCTION ROOMS

(Established 150 Years),

38, King St., Covent Garden, London, W.C.

Monday, Wednesday and Friday next.

MONDAY and FRIDAY NEXT, FEBRUARY 5th and 9th, at 12 o'Clock.—Japanese Liliums, Gladiolus, Montbretias, Begonias, Gloxinias, Lily of Valley, &c., Herbaceous Plants, Flowering and Decorative Shrubs, Spiræas, Iris, Pæonies, &c.

At 1.30 o'Clock.—2,000 ROSES, Standard, Dwarf, Climbing, &c., also Fruit Trees in variety, Azaleas, and Rhododendrons.

WEDNESDAY NEXT, FEBRUARY 7th, at 12 o'Clock.—Choice Herbaceous Plants, Perennials, and Rock Plants, Lily of Valley, Gladiolus, Begonias, Japanese Lilies and Iris, Carnations, Pinks, Pæonies, &c.

At 1.30 o'Clock.—8,000 ROSES, English, French, and Dutch grown, comprising Standard, Dwarf, Climbing, T., H.T., and H.P., together with Standard, Pyramidal, and Dwarf-trained Fruit Trees.

At 5 o'Clock.—Azaleas indica and mollis, Rhododendrons, Aspidistras, Standard Bay, Ornamental, and Decorative Palms and Plants from Belgium, also Stove and Greenhouse Plants in variety, 11 Specimen Japanese nananized Trees in porcelain pots.

MESSRS. PROTHEROE & MORRIS will SELL the above by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, E.C. On view mornings of Sale and Catalogues had.

Wednesday Next, February 7th, at 12 o'Clock.

Trade Sale of thousands of miscellaneous Hardy Bulbs, Roots, and Forcing Plants, Gladiolus, Begonias, Gloxinias, Hyacinthus, Candicans, Hardy Lilies, Spiræas, Crozy Cannas, &c., Berlin Crowns, Lily of the Valley, 1,500 choice young Fruit Trees of approved varieties, suitable for trade requirements, 20,000 Cocos Weddeliana Palm seeds,

at 2.30 o'Clock.

An important consignment just to hand of

1,216 CASES JAPANESE LILIUMS,

comprising

40,250 LILIUM AURATUM.
1,910 " " PLATYPHYLLUM.
320 " " RUBRO-VITTATUM.
8,890 " SPECIOSUM ALBUM.
720 " " " yellow stamens.
29,920 " " RUBRUM.
500 " " RUBRUM MAGNIFICUM.
1,470 " " MELPOMENE.
4,220 " LONGIFLORUM.
5,470 " " GIGANTEUM.
2,450 " TIGRINUM FORTUNEI GIGANTEUM.
340 " HENRYI.
790 CALOCASIA MULTIFLORA.
4,250 IRIS KÆMPFERI, 490 HERBACEOUS PÆONIES, 190 IRIS JAPONICA, 1 case IRIS DRAWINGS, HOLLYHOCK, MORNING GLORY and HIBISCUS SEEDS, and
29 large stems CYCAS REVOLUTA.

MESSRS. PROTHEROE & MORRIS will SELL the above by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, E.C. On view morning of Sale and Catalogues had.

Friday Next, February 9th, at 12.45 o'Clock.

By order of Messrs. Sander & Sons, St. Albans.

230 lots of freshly-imported Dendrobium formosum giganteum, also D. albo Sanguineum, including many fine masses, together with choice cool, intermediate and hothouse Orchids in variety from various sources.

MESSRS. PROTHEROE & MORRIS will SELL the above by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, E.C. On view morning of Sale and Catalogues had.

BUSINESSES FOR SALE, &c.

FOR IMMEDIATE SALE, through death of proprietor, LEASEHOLD MARKET NURSERY, of about 2½ acres; 1,150 feet run of well-heated glasshouses in full working order, stocked with a grand lot of Strawberries in pots ready for forcing and stock Chrysanthemums; one minute from station; 10 miles from Covent Garden.—For full particulars, apply TUBBS, "Avondale," Southwood Road, New Eltham, Kent.

Over 100 Nurseries, Market Gardens, Florist & Seed BUSINESSES to be DISPOSED OF.

MESSRS. PROTHEROE and MORRIS' HORTICULTURAL REGISTER contains full particulars of the above, and can be obtained gratis at—67 and 68, Cheapside, London, E.C.

OWNER GOING ABROAD.—Capital FREEHOLD NURSERY, situate in an important town in Warwickshire; facing main line station; four capital greenhouses, and large show house; excellent stock; shop could be rented in town if desired for sale of produce; price as a going concern, £900.—Full particulars of Messrs. PROTHEROE & MORRIS, 67, Cheapside, E.C

SUFFOLK.—FREEHOLD MARKET GARDEN, in excellent position; 7½ acres, including three under Fruit; newly-erected dwelling-house and trade buildings; good opportunity for Lady Horticulturist; price, £1,000 as a going concern.—Particulars of Messrs. PROTHEROE & MORRIS, 67-68, Cheapside, E.C.

NURSERY FOR SALE; 1,450 feet run of glass; practically new; well heated; good house, packing shed, stable, &c.—Particulars, apply, J .W. C., 12, Five Wents Cottage, Swanley, Kent.

PENRITH (Main line, London and North-Western Railway).—For Sale, owing to ill-health of proprietor, a genuine NURSERY, MARKET GARDEN, and FLORIST'S BUSINESS, with or without shop in town; established 60 years; grounds of about seven acres; one mile from town; five glasshouses, practically new, modern heating apparatus; quantity of frames; varied and general stock of growing plants, florists' requisites, &c.; shop in central position; total valuation, £1,500; offers invited for quick sale; splendid opportunity for energetic man with moderate capital.—Full particulars from THORNBORROW & CO., St. Andrew's Churchyard, Penrith.

PUBLISHERS' NOTICES.

ALPINE FLOWERS AND ROCK GARDENS. By Walter P. Wright. A practical book containing magnificent colour and half-tone plates of the flowers as they grow. The most beautiful book on the subject yet produced. 12s. 6d. net.
HEADLEY BROTHERS, Bishopsgate, London.

ROSES AND ROSE GARDENS. By Walter P. Wright. A companion volume to above. *The Sphere* says: "Buy the book this winter and you will have a fine rose garden next June and July." 12s. 6d. net. Write for illustrated booklet post free.
HEADLEY BROTHERS, Bishopsgate, London.

AMONG THE HILLS. By Reginald Farrer, being an account of the Author's wanderings in search of Alpine Flowers. Profusely illustrated in colour. "Mr. Farrer has won for himself a unique place among writers on Alpine Plants."—*The Gardener's Chronicle*. 10s. 6d. net. Prospectus post free.
HEADLEY BROTHERS, Bishopsgate, London.

KYNOCH'S "Wild Flowers of Barmouth," fourth edition, including Salwey's Scarce List, Habitats and Notes, published 1863, pp. 50, price 6d.—J. KYNOCH, 8, College Road, Brighton.

THE

HORTICULTURAL DIRECTORY

for 1912. (53rd year).

1/3 post free. ∴ ∴ ∴ Cloth Bound, **2/6.**

AN UP-TO-DATE WORK OF REFERENCE.

A complete Register of the

Principal Nurserymen, Seedsmen, &c.
" Mansions, their Occupiers and Head Gardeners.
" Horticultural Builders, Engineers, Sundriesmen, &c.

Offices: JOURNAL OF HORTICULTURE, 4, Mitre Court, Fleet Street, London, E.C.

Pronunciation of Plant Names.

A few copies are still to be had. Post free, **1/1½.**

Present-Day Gardening.

Edited by R. HOOPER PEARSON, Managing Editor of the GARDENERS' CHRONICLE. Now Ready. Post free, **1/9** each.

Numerous Beautifully Coloured Plates are contained in Each Volume.

1—**Sweet Peas.** By HORACE J. WRIGHT, late Secretary and Chairman of the National Sweet Pea Society. With Chapter on "Sweet Peas for Exhibition," by THOS. STEVENSON.

THE PUBLISHER,

"Gardeners' Chronicle" Offices, 41, Wellington St., Covent Garden, London, W.C.

NOTICES.

Minehead Urban District Council.

TO LANDSCAPE GARDENERS.

THE Minehead Urban District Council invite COMPETITIVE DESIGNS for LAYING OUT the BLENHEIM MEADOWS at MINEHEAD as a PUBLIC PARK and PLEASURE GROUND.

Plan of the site and conditions may be obtained from the undersigned on deposit of five shillings, which sum will be returned on receipt of bona-fide designs in accordance with the conditions.

A Premium of £10 10s. (subject as stated in the conditions) is offered by the Council for the best design, and the design in respect of which such premium may be awarded shall become the property of the Council.

Designs, &c., enclosed in a sealed package, as directed in the conditions, and endorsed "Blenheim Meadows," are to be sent to the undersigned on or before the 26th day of February, 1912.

Dated this 17th day of January, 1912.

By order,
L. C. WEBBER-INCLEDON, Clerk.
16, Park Street, Minehead.

MRS. J. FIELD wishes to express her gratitude and thanks to all those who so ably supported her at the recent Gardeners' Benevolent election.

TENDERS.

County Lunatic Asylum, Lancaster.

THE Visiting Committee of the above Asylum is desirous of receiving Tenders from persons willing to contract for supplying Flower, Vegetable, and Farm Seeds, &c.; printed specification and form of Tender (none other will be accepted) may be obtained on application to the undersigned at the Asylum. Tenders and specifications addressed "The Chairman of the Visiting Committee" must be delivered at the asylum not later than Saturday, February 10th, 1912. The committee does not bind itself to accept the lowest or any Tender.

J. R. WILSON,
Clerk and Steward.

Clerk's Office.
29 January, 1912.

EXHIBITIONS.

Glasgow Centenary Flower Show

September 4th, 5th and 6th, 1912.

The Schedule which is now ready contains the following important Competitive Classes open to the United Kingdom:—

Group of Plants. Prizes of **140/- 100/- 80/- 40/-** **The Veitch Silver Medal** and **£5** presented by The Veitch Memorial Trustees, additional to winner of 1st Prize.

Table of Dessert Fruit (decorated). Prizes **150/- 100/- 55/- 30/-** **The Veitch Silver Medal** and **£5** presented by the Veitch Memorial Trustees, additional to winner of 1st Prize.

Collection of Vegetables (13 varieties). Prizes **100/- 60/- 40/- 20/-.** Presented by Messrs. Sutton & Sons.

Similar Vegetable Class confined to Scotland.
Important Prizes in all Sections, including Cut Flowers.

HUGH M. MACKIE, Secretary.
124, St. Vincent Street, Glasgow.

PLANTS, &c., WANTED.

BOXWOOD EDGING.—Wanted, a quantity of the above for re-laying.—State height and price per running yard to BERRY, 13, George Square, Edinburgh.

WANTED, Offers of specimen LAPAGERIAS, alba and rubra.—Sizes and prices to SANDER & SONS, St. Albans.

WANTED, large KENTIA PALMS, up to 25 feet high; large, well-coloured Dracænas and Crotons, also Aspidistras.—ROBERT GREEN (1911), LTD., 28, Crawford Street, London, W.

WANTED, large quantity of BOX EDGING; must be first-class stuff.—Samples and price, &c., per 1,000 yards, to HY. W. DUDMAN, The Gardens, Norman Court, Salisbury.

WANTED, BOX EDGING per 100 or 1,000 yards; old edging would do; Golden Privet, 2 feet, 3 feet, 4 feet to 5 feet, well rooted, bushy; Lilacs, named kinds, 3 feet, 4 feet to 6 feet.—Cash price offers to "NURSERYMAN," Box 2, 41, Wellington Street, Covent Garden, W.C.

PLANTS, &c., FOR SALE.

CUTHBERT'S SPECIALITE MUSHROOM SPAWN.—NEW SPAWN NOW READY. We continue to receive the most gratifying testimonials as to the productiveness and good quality of our Spawn. Per bushel, 5s.—R. AND G. CUTHBERT, Seed and Bulb Merchants, Southgate, Middlesex.

THE
Gardeners' Chronicle

No. 1,310.—SATURDAY, February 3, 1912.

CONTENTS.

Acacia Baileyana and Iris stylosa 76
Apples, the colouring of 76
Apple trees in grass land 76
Board of Agriculture and Fisheries statistics ... 74
Books, notices of—
Annual and Biennial Garden Plants ... 69
Plantæ Wilsonianæ ... 69
The City Gardener ... 65
Carbon-dioxide or nitrogen 76
Cattleya Maggie Raphael alba "Orchidhurst variety" 75
Cobæa scandens var. Deutscher Ruhm ... 74
Estates, the break-up of 74
Foreign correspondence—
French visitors to the London International Exhibition 66
Genetics, Prof. Bateson on 74
"George Monro" concert, the 73
Habenaria conopsea alba 68
Halesia tetraptera ... 73
Hales, Stephen, memorial to 73
Institute of horticulture, need for a national ... 72
Insurance Act, 1911, the 73
Land purchase, State-aided 69
Lilium sulphureum and L. Fortunei 77
Limestone, the value of, as a fertiliser 76
Manures, phosphatic ... 74
Obituary—
Clarke, Thaddeus ... 80
Orchid notes and gleanings—
Orchids at Westfield... 67
Parasites, flowering plants as... 73
Pasteur, Louis, memorial of 73
Plants, movement in ... 75
Plants, new or noteworthy—
Nannorrhops Ritchieana 66
Pronunciation, the, of plant names 77
Rosary, the—
New Roses of the N.R.S. "Catalogue" 68
Scotland, notes from ... 75
Societies—
Brighton Hort. ... 78
British Gardeners' Association ... 75, 78
Glasgow Fruit Trade Benevolent 78
Haslemere Chrys. ... 78
Horticultural Club ... 78
Leeds Professional Gardeners' 77
Linnean 78
Liverpool Hort. ... 78
Manchester and N. of England Orchid ... 77
National Chrys. ... 73
Royal Horticultural ... 73
Royal Meteorological . 77
Southampton Hort. ... 77
South African fruits, R.H.S. exhibition of, abandoned 75
Strobilanthes Dyerianus 68
Trees, street, in Canada 77
Vacuum cleaner, the, as a destroyer of plant pests 74
Weather guides for French farmers ... 74
Week's work, the 70, 71
Zacharias, Professor, the late 74

ILLUSTRATIONS.

Cattleya Maggie Raphael alba "Orchidhurst variety" 75
Habenaria conopsea alba in Mr. Bowles's garden ... 68
Halesia tetraptera (Supplementary Illustration)
Lælia anceps "G. D. Owen" 67
Nannorrhops Ritchieana 66

"THE CITY GARDENER."

WHEN *The City Gardener* was published in 1722, a galaxy of horticultural stars was scintillating in the Metropolitan firmament, and it is remarkable that many of these were not content merely to shine among their contemporaries, but elected to illuminate by means of books the succeeding ages. Thomas Fairchild was undoubtedly the most noteworthy of this group. Although his writings are but meagre in extent, they have the merit of absolute originality. We find the explanation in the originality of the man. He was not merely a gardener or nurseryman intent on producing material for sale. He went deep into the mysteries of the crude science of the period. The generation of plants and the circulation of sap were questions which he did not a little to solve in a practical manner. He raised the earliest known hybrid Dianthuses. He grafted Daphne Laureola on D. Mezereum, Evergreen Oak on English Oak, and when the scions continued to carry their foliage over winter he claimed to have established the theory of the movement of the sap. Another of his experiments which confirmed that view was the budding of a variegated Jasmine on the common species, when a variegated growth emanated from the stock below the bud. Whitmill, a neighbour nurseryman, was engaged at the same time in making similar experiments, but whereas Fairchild conducted his on plants botanically related, Whitmill tried the Fig upon the Mulberry, the Passiflora on a Vine, and the Laurel upon the Plum.

Fairchild's collection of exotics and other plants was unsurpassed, Catesby being one of the botanists of the period who consigned novelties to him; hence we find the former referring to Aster grandiflorus as "Catesby's Virginian Aster," and another as "Catesby's new blue Starwort." And it is perhaps worth recording that he consigned plants to Catesby in America, as we gather from a letter of instructions from the latter to Fairchild. Miller states that he was the only person whom he knew to have the Winter Aconite and the Christmas Rose, and Bradley, treating of the last-named, the Green Hellebore and Adonis vernalis, states "they are hardly to be met with, unless at Mr. Fairchild's at Hoxton." In one of Bradley's monthly tracts (March, 1721) a stove of Fairchild's, with three flues, is illustrated and described, with a series of heated frames in front that were intended to force early bulbs. We are also indebted to Bradley for "A Catalogue of Plants flowering in Mr. Fairchild's Garden at Hoxton." There we find that he had two mules, and not one, as is usually supposed, and of "Sweet Pease" he had scarlet and common. A list of 50 varieties of Grapes completes the catalogue, which the exigencies of space preclude us from dipping into further. Pulteney describes Fairchild, Miller and Knowlton as the three greatest gardeners of their day, but the two last were young men when the former was aged, and we may safely affirm that Fairchild, as a florist and a general practitioner, was easily first. His memory is kept green by means of a legacy, amounting to £25, which he left to provide for the preaching of a sermon every Whitsun Tuesday in Shoreditch Church, "On the wonderful works of God in the Creation."

Beside *The City Gardener* he published an article in the *Philosophical Transactions* for 1724, "On the different and sometimes contrary motion of the Sap in Plants." He died an old man in 1729; Pulteney says in November, but October 10 is the correct date.

The City Gardener is an unpretentious little volume of 70 pages, but it is crammed with information of a very varied character. The title page reads:—"The City Gardener. Containing the most Experienced Method of Cultivating and Ordering such Ever-greens, Fruit-Trees, flowering Shrubs, Flowers, Exotick Plants, &c., as will be Ornamental, and thrive best in the London Gardens. By Thomas Fairchild, Gardener of Hoxton, London: Printed for T. Woodward, at the Half-Moon against St. Dunstan's Church in Fleet-street, and J. Peele, at Locke's Head in Pater-noster Row. M.DCC.XXII. (Price One Shilling)." It is dedicated to The Governors of the Hospitals of Bethlem and Bridewell. There are two illustrations, one, the frontispiece, is a rude representation of part of a flower garden with greenhouses; Agave americana, Opuntia and other plants in tubs, and some figures. The other is a design for a London square. The volume is divided into six parts, which comprise an introduction. "Chap. I.—Of Squares, and large open Places in London and Westminster: The Plants proper to adorn them. Chap. II.—Of making and adorning Squares; and how to dispose the several Plants in them. Chap. III.—Of the Part of London next the River Thames; how far we may promise ourselves Success in Gardening there. Chap IV.—Of Court-Yards and close Places in the CITY. Chap. V.—Ornaments and Decorations for Balconies, and the Outsides of Windows in large Streets."

The introduction is intended to demonstrate the inherent love which all men cherish for flowers and gardens, so that even in a city like London, when people could get nothing better they were content with a nosegay, while others furnished "their Rooms or Chambers with Basons of Flowers and Boughpots, rather than not have something of a garden before them." Basons, as we gather later and elsewhere, were filled with plants. Boughpots are mentioned very early, and were still in use in the middle of last century, the word, sometimes spelled Bowpot, occuring frequently in all kinds of books. Latterly the pots were stood on window-sills, but at this time they stood in the fire-place during the summer months, and were kept furnished with branches of trees. A few years later, in the preface to the *Dunciad*, we find the remark "and chang'd from day to day, in like manner as when the old boughs wither, we thrust new ones into a chimney" (fire-place). The object of Fairchild was to show how public squares, private "closes," and even fire-places might be beautified with living plants, and in the course of his disquisition he furnishes a great deal of information regarding the more popular plants of the period, and also on things which are overlooked by other writers. Unfortunately most of the plants he names are in the vernacular, and they are difficult for the ordinary reader to identify, but on the whole it might have been worse had he used botanical names as "Citissus 2 Clutis" for "Cytisus secundus Clusii." This plant, Cytisus sessilifolius, he informs his readers, was thriving in gardens along with the Scorpion Bladder Senna in Lincoln's Inn Fields. White Jasmine was common, White and Red Provence Roses succeeded, but were not common. The Syringa (Philadelphus) grew in Soho Square, and Althæa frutex (Hibiscus syriacus) in other parts. Apples on Paradise Stocks were a success, and Pears in "allies" about Barbican, Bishopsgate, &c. In Leicester Fields a vine bore Grapes annually; "At the Rose Tavern Without Temple bar there is a Vine that covers an Arbour where the Sun rarely comes and has had ripe Grapes upon it" (but that was almost country at that period). In many "close" places they were known to fruit. Mulberries were not uncommon, and Fairchild instances "two large Mullberry-Trees growing in a little yard at Sam's coffee-house in Ludgate Street, two

likewise at the Hall belonging to the Worshipful Company of Clothworkers." Figs also were a success, and "prospered extremely as in Dr. Bennett's Garden at Cripplegate," and elsewhere in the vicinity, as well as in the Rolls Garden, Chancery Lane. The Virginian Acacia (Robinia Pseud-acacia) was established at Russel House and Westminster, where it remained till cut down in 1801. The Bladder Senna grew "well in a Court in Crutched Fryers." Hops grew "very vigorously" in a close alley near Whitecross Street. The Privet at several places, and White Thorns of large proportions, Mezereon, Horse Chestnuts, Almonds, and Morello Cherries are among others mentioned. The Creeper of Virginia was very common, and there was "hardly a Street, Court, or Alley in London without some examples."

Of flowers he mentions Auriculas and Carnations being cultivated in pots by Mr. Heymens, at Whitehall, and for the adornment of balconies he notes quite a large selection of plants, including Guelder Roses, Lilacs, common hardy flowers, Apples on the Paradise, Aloës, Fig Marigolds, which "Mr. Jobber, a very curious gentleman in Norfolk Street," cultivated successfully. It is incidentally remarked that water could be carried as high above the streets as a balcony to furnish a jet for a fountain as a "Plummer" at the "upper end of the Hay Market" had working for a "long Time."

In the few paragraphs devoted to Chambers, Fairchild deemed that it would be not impossible to replace boughs, &c., with plants. He remarks "The Chimneys which are generally dress'd in Summer with fading Bough Pots might be as well adorn'd at once with living Plants, as I have observ'd at her Grace's, the late excellent Dutchess of Beaufort." Among the plants mentioned are "Campanulas" (Campanula pyramidalis, which received the name of "Chimney Bellflowers" on account of the great esteem in which they were held for furnishing fireplaces. He thought Aloës and Torch Thistles, then rare, would "add an extraordinary Gaiety" if mixed with the plants he had already recommended. It is noted how purchasers were cheated by "Higglers in Plants" and others, and how he had seen plants "to be sold in the markets that were as uncertain of growth as a Piece of Noah's Ark." I cannot conclude without recording how in the part relating to furnishing Squares, Fairchild recommends planting lines of the same flower—really a Ribbon border. *R. P. Brotherston.*

FOREIGN CORRESPONDENCE.

PROPOSED VISIT TO THE LONDON INTERNATIONAL SHOW.

A FEW of my comrades and myself of the Ecole Nationale d'Horticulture de Versailles would like to visit the Royal International Horticultural Exhibition, which is to take place in London in May next. It has been the custom for many years for the students of our school to make a journey, for their instruction, in the last year of their studies. This year, however, the authorities object to our journey to London on account of the high prices asked in the hotels. For this reason I should like to get information of some means of lodging about 20 young men at a reasonable price for about a week. I should be much obliged for any information or suggestions that will enable us to visit that remarkable exhibition. *Gustave Adrion, élève à l'Ecole Nationale d'Horticulture de Versailles.*

[We have forwarded the above note to the president and founder of the Société Française d'Horticulture de Londres, Mr. George Schneider, 3, Meredyth Road, Barnes, whose kindly interest in gardeners and others from the Continent is so well known. Mr. Schneider states that his society will do what is possible for the visitors.—EDS.]

NEW OR NOTEWORTHY PLANTS.

AFGHAN MOUNTAIN PALM.

(NANNORRHOPS RITCHIEANA.)

AT the last meeting of the Linnean Society a letter was read from Dr. G. Henderson, stating that Nannorrhops Ritchieana, of which he sent a quantity of seeds for trial in British gardens, grows in the Khyber Pass, where it is sometimes covered with snow in winter, whilst the summer is very hot. In 1886 (see *Gardeners' Chronicle*, November 20, 1886, p. 652) some particulars were given of this Palm, seeds of which had been sent to Kew by the late Surgeon-major Aitchison, who was with the troops under General Roberts in Afghanistan. These seeds were distributed, some being sown at Kew; but, although we had the advantage of particulars as to climatic conditions supplied by Dr. Aitchison, none of the plants raised here were established, nor is there any report of success elsewhere, so that it is doubtful if this Palm is in cultivation anywhere in Europe. Seeing that another effort is to be made to accomplish what we failed to do 25 years ago, it is worth while to give some particulars of this Palm from information furnished partly by Dr. Aitchison, who had seen it growing wild in the Kuram Valley.

FIG. 32.—NANNORRHOPS RITCHIEANA.

Nannorrhops used to be Chamærops, and the main difference between N. Ritchieana and the European Chamærops humilis is in the foliage, the latter having a spiny petiole, whereas, in the Nannorrhops the leaves are unarmed. Aitchison said that, on the higher hills in Afghanistan, N. Ritchieana was dwarf and stunted, but in sheltered situations it grew to a height of 15 feet to 25 feet, which is exactly what happens in the case of Chamærops humilis in Europe. The leaves are about 3 feet long, the petiole being half as long as the palmate blade, which is stiff and tough in texture, and is covered with a whitish powder. The leaf divisions number from 8 to 15, and they are about a foot long. The inflorescence is terminal, erect, and paniculate. The fruit is a roundish berry, about the size of a Grape, and the hard, bony seed is covered with an edible pulp, and known to the Afghans by the same name as the fruit of the Date. The stem of this Palm is sometimes branched, owing, it was thought by Dr. Aitchison, to the early abortion of the inflorescence.

With respect to the hardiness of this Palm, we must not overlook the fact that, for a considerable period every year, it is covered with snow, this covering, no doubt, serving as a protection from severe frost. Plants which, in nature, are snowed under during the cold season, and are not exposed until the sun is powerful enough to melt the snow, after which there is

no further danger from cold, are not nearly so liable to be frostbitten as those that have to support less frost without any covering of any kind. It is for this reason that so many plants from the high Alpine regions, where snow never fails to blanket them down, have a worse time of it in this country, where alternations of snow, frost, sunshine, fog, rain, &c., characterise our winter spell. So far as winter conditions are likely to affect it, the Nannorrhops will probably be most comfortable in the south and west of the British islands, although it may miss the great sun heat of summer which it gets in Afghanistan. It may prove to be a child of extremes, to which intermediates are not congenial. If it can be made to live with us, as the Chusan and European Palms (Chamærops Fortunii and C. humilis) do, so much the better. We are so clever nowadays that we might even succeed in turning it to account for producing home-grown Dates! Anyhow, it ought to be an interesting companion to the Yuccas, Bamboos, and the two Chamærops, the ligneous representatives of the Monocotyledons that have made their home in the British Islands. *W. W.*

ORCHID NOTES AND GLEANINGS.

ORCHIDS AT WESTFIELD, WOKING.

Mr. Francis Wellesley's collection of Orchids in his gardens at Westfield, Woking, includes many remarkably fine hybrid Cypripediums, an equally good selection of handsome hybrid Cattleyas and Lælio-Cattleyas, and choice Cattleyas of the C. labiata section among which are rare white forms, some not to be found in any other establishment. Select varieties of Cattleya Mendelii number more than 30, the most prized of these being C. M. His Majesty the King, which has been awarded the First-class Certificate of the Royal Horticultural Society, and of which the late King Edward was presented with the only plant that has been parted with by Mr. Wellesley. Others of special merit are C. M. alba Venus de Medici, C. M. Majestica, the largest coloured Mendelii, and the varieties Gwenda, Lady Wolseley, Golden Queen, and W. J. Mills. Of Cattleya Mossiæ there are many white petalled forms, the finest white variety being C. Mossiæ alba Purity. The best coloured form of C. Trianæ is The Premier, which has obtained the First-class Certificate of the R.H.S., and has been pronounced the best of its kind. The plants, in the care of Mr. W. Hopkins, the gardener, thrive in the most satisfactory manner, and especially the white forms of Cattleya labiata and C. Gaskelliana; C. G. Armstrongiæ grows and flowers with the greatest luxuriance.

At present the larger Cypripedium house provides the finest display of flowers with new and rare hybrid Cypripediums in bloom. Many are hybrids raised at Westfield, and selected from large quantities of seedlings which have flowered. In raising seedling Orchids Mr. Wellesley has found it a most difficult matter to obtain a cross between two hybrids of C. Fairrieanum. Another well-known raiser, Mr. Seden, made the attempt repeatedly and always failed. Mr. Wellesley continued the experiment, and finally succeeded in securing a tiny plant between C. Niobe and C. Arthurianum. The seedling grew slowly to about an inch in height, but its stature never increased, and it loses one little leaf as regularly as it develops another. Among the best Cypripediums in flower are C. San-Actæus "Westfield variety," which received the R.H.S. Award of Merit on January 9. The prevailing colour is yellow, but the upper two-thirds of the clear white dorsal sepal has lines of small purple spots; C. King Emperor (Beeckmanii × Sallieri), the flower being mainly a bright yellow colour with a glossy surface; C. guildfordense (exul × Calypso), resembling a large, darkly-spotted C. Earl of Tankerville; C. Thalia The Baron (insigne Sanderæ × Baron Schröder), a dark coloured hybrid with much of the character of C. Baron Schröder, though of larger size and finer in colour; C. W. J. Mills (Actæus Langleyense × Sallieri Hyeanum), yellow with a slight purple tinge and a fine white dorsal sepal, with purple spotting; two handsome and quite dissimilar hybrids raised by the late James Douglas between C. Leeanum and C. Druryii, being C. Princess Louise, a grand flower, bearing some resemblance to C. Leeanum J. Gurney Fowler, but with broader and darker petals and lip, and fine purple spotting on the large white dorsal sepal; and C. Duke of Argyl with showy white dorsal sepal measuring $3\frac{1}{2}$ inches across, the purple spotting being confined to a small area above the greenish-yellow base. Other handsome Cypripediums were C. Troilus "Westfield variety," with very dark blotching on the dorsal sepal; C. Memoria Mostynii (Actæus Langleyense × aureum Surprise), of fine form and clear yellow colour, the upper part of the dorsal sepal being snow-white; C. Delhi (Earl Tankerville × insigne Harefield Hall), with the shape of C. Earl of Tankerville, which it far surpasses in the size and with the greater part of the dorsal sepal of the purest white; C. Thalia Mrs. Francis Wellesley, which, however, was not in such good form as usual, probably owing to the very hot summer, which, while favouring Cattleyas and Lælias, affected certain Cypripediums adversely. There were also observed C. Fulshawense "Bromilow's variety"; C. Waterloo; C. elatior Rex, a fine hybrid raised by Messrs. Veitch; C. The Premier; C. Memoria Jerninghamiæ, a beautiful flower; C. Actæus Langleyense; C. Germaine Opoix "Westfield variety"; C. Mrs. Wm. Mostyn, and several hybrids of the last-named, all bearing rich rose-purple spotting in the dorsal sepals.

There were only a few plants in flower in the house devoted to Cattleyas and Lælio-Cattleyas. L.-C. Ophir "Westfield variety" had large buds showing its buttercup-yellow colour, whilst the very fine L.-C. Mrs. W. Hopkins, which secured the R.H.S. Award of Merit, represents a fine and distinct hybrid of glowing Indian yellow and violet-crimson colour; L.-C. Denganii, another good hybrid for which the R.H.S. Award of Merit was also obtained, having similar rich and rich marking of the upper sepal; C. Little Gem, raised by Messrs. James Veitch & Sons between C. Baron Schröder and C. Harrisianum superbum, the latter giving good shape and fine colour to the hybrid. The best example of this is in the original C. Royal George (Harrisianum superbum × Minos Youngii), for which Messrs. Armstrong & Brown, of Tunbridge Wells, were awarded a First-class Certificate at the Royal Horticultural Society's meeting on October 10, 1911, the plant being purchased by Mr. Wellesley at a very substantial price. Mr. Wellesley regards it as the best Cypripedium in his collection, and prides himself in having the stock of the true variety. Several strong plants of the very handsome and rather puzzling C. Mr. F. Sander were also in bloom, the handsome and finely-marked flowers showing some features of C. nitens. A curious point about this plant is that the leaves show slight reticulation, as though the barbatum section took part in the cross, though in the flower there is no indication of this. Other very fine forms noted were C. Miss Alice Wallace, clear yellow like C. Bianca, colour; and L.-C. Morningtoniæ, which secured a First-class Certificate at the last Temple Show. The last-named is an improvement on others of its class in shape, and is delicately fragrant. Among Brassavola hybrids noted were a strong plant of the original Brasso-Lælia Digbyano-purpurata King Edward VII., which gained the R.H.S. First-class Certificate in 1902; the handsome Brasso-Cattleya Mrs. Francis Wellesley, the largest and brightest rose-tinted Brasso-Cattleya; and the large, pure white, fragrant B.-C. Wellesleyæ (C. Mossiæ Wageneri × B. glauca), one of the best varieties of its class.

Odontoglossums are not extensively grown at Westfield, although the fine, healthy plants comprising the small selection would appear to warrant their greater inclusion. The best noted were the hybrid O. Armstrongiæ, shown at the Temple Show, 1909, and the nearest to blue in the colour of its blotching; O. crispum Mrs. Francis Wellesley, a perfectly formed white variety; and O. c. Mrs. Wm. Mostyn, a heavily-blotched flower. *J. B.*

Fig. 33.—Lælia anceps "G. D. Owen."

(Exhibited by Lieut.-Col. Sir George Holford at the R.H.S. meeting on January 23. See p. 61 *ante*.)

THE ROSARY.

NEW ROSES OF THE N.R.S. "CATALOGUE."

II.—ROSES OF 1910.

(Continued from p. 51.)

The Marchioness of Waterford, H.T., is a bicolor Rose, the outside of the petals salmon-rose, the inside lighter and more silvery.

Mary Countess of Ilchester, H.T.—Several of my friends think this Rose has a future as a good garden Rose, but I have little personal knowledge of it. The colour is carmine, and the plant seems to flower freely.

Mrs. A. E. Coxhead, H.T.—This Rose has many good qualities as an exhibition Rose. The form is good, and it is very fragrant, but I do not like the colour, which is claret-red. Such as it is, however, it keeps well. It received a card of Commendation from the N.R.S. But for the colour it would be a grand Rose.

Mrs. Foley Hobbs, T., is likely to make a good exhibition Rose. It is ivory white, sometimes nearly self-coloured, sometimes with a tinge of pink in the centre, which is very delicate and pleasing. I think the pink colour is probably more often noticed in Roses grown under glass or when we get hot weather early in the season. The flower is fragrant.

Mr. Fred Straker, H.T., is a decorative Rose. The colour of the flower is salmon-pink with a yellow base to the petals, and the buds are orange-crimson. The colour is both striking and delicate, and I have thought so well of this Rose that I planted a good batch of it last autumn. It is not full enough for exhibition.

Mrs. Herbert Stevens, T., is another good Tea-scented Rose with pointed white flowers. Some call them white shaded with fawn, and others say shaded with yellow, but the flowers I have seen have been as nearly white as may be. This Rose has been compared, not altogether inaptly, to Innocente Pirola, and if it prove as useful as that old favourite, it will be a useful garden Rose, for it is hardy for a Tea. It was well shown last autumn, and may perhaps give exhibition flowers from time to time.

Mrs. Leonard Petrie, H.T., promises to make a good decorative Rose for the garden. It is described as sulphur-yellow, but that hardly expresses the colour shade. To my mind it is rather a soft honey-yellow; that is, it has a brownish shade, neither pink nor orange, which is quite attractive.

Mrs. Maynard Sinton, H.T., is a gold medal Rose and fragrant. Beside this, it will suffice to say that it will probably make an exhibition Rose for the back row. That is, it is a large flower; colour, white, tinged pink.

Rayon d'Or, Austrian Hyb.—It is probably a long time since any new Rose created so much interest as this has done. The chief points about it seem to be its fine, deep, canary-yellow colour and its bright, glossy, green foliage, which looks well in the garden and is quite mildew-proof. It is free-flowering and perpetual, but not a very strong grower. So far as I can judge from one year's experience, it does not seem affected by that ugly habit of shedding its leaves in the early autumn which is so disagreeable a feature of some of its relatives, such as the Lyons Rose. The flower itself is not very shapely, and the petals are rather floppy, so perhaps we may hail its advent principally as a herald of good things to come, a prospect that seems to be held out to us by its raiser in a really wonderful simile. "Such as the swallow is the pleasant messenger of spring, Rayon d'Or bids us fair for a next and future introduction of a marvellous set of deep yellow-coloured Roses which will add a new charm to the pleiads of these magnificent perpetual-flowering varieties which nowadays adorn our gardens."

Recuerdo de A. Peluffo, T., a cross between those two grand Roses Mme. Mélanie Soupert and Mme. Constant Soupert, ought to be a good Rose, and I think it is so. The *Catalogue* calls the colour light yellow with a pink edge, but the flowers I have seen are rather a chrome or slightly brownish-yellow, with a deeper centre. The flowers are large and well formed, and the plants I have seem strong growers.

Sheilagh Wilson, H.T., is a Rose I know chiefly by repute, though I put some plants in my garden last autumn. It is said to be a perpetual-flowering Carmine Pillar, and some have said it is even better than that bright and admirable Rose. I hope to see this year. It has received a card of Commendation.

Shower of Gold, Wich.—This is a beautiful Rose, with golden-yellow flowers, and magnificent foliage even for a Wichuraiana. I think it is the best of its class that we have had for some years, and all who have not got it should try it.

[*Photograph by J. A. James.*

Fig. 34.—The white variety of Habenaria conopsea in Mr. Bowles's garden.

Theresa, H.T.—This Rose is a pretty colour when it first opens, showing a mixture of several shades of orange-apricot. It makes a well-grown and shapely bush, and is fairly fragrant. That is all I can say in its favour, for I have found the colour quickly deteriorate and the plant badly given to mildew. Perhaps last summer was too hot for it, seeing that it was better early in the year than later, but it has been a disappointment, though I propose to give it another chance.

Viscountess Enfield, H.T., another of the Pernet Ducher Roses, is promising. Coppery old gold is the *Catalogue* description, but the flowers in my garden have been nearer a strawberry pink. The plants in my garden have not been quite so strong-growing as Arthur R. Goodwin, but it seems hardy enough. The points on which I am a little uncertain are (1) whether it is sufficiently free-flowering, and (2) whether it will keep its colour. I put in some more plants last autumn to determine these questions, and if the answer is favourable, it will be a useful addition to our garden Roses. I have seen it in exhibition boxes more than once, but think it will not often be grown for that purpose.

Of Georges Reimers, said to be an improved Richmond; Mrs. W. Easlea, well spoken of as a garden Rose; and Reliance I have as yet no personal knowledge. *White Rose.*

(To be continued.)

HABENARIA CONOPSEA ALBA.

The accompanying illustration shows one of my greatest treasures, a family group, mother and daughter, of the white form of the fragrant Orchis. The photograph was taken in my rock garden in June, 1909, and it was six years earlier that I found the plant growing wild in one of the most delightful meadows I know of in England. I was there entomologising with its owner, who had invited me to stay with him for a day or two among the rare varieties of one of the Burnet moths that he had discovered there. The insects were not so plentiful, however, as we had known them a year or so earlier, this family having an unexplained habit of disappearing and reappearing suddenly in their habitats. The meadow was left unmown for some seasons to give the moths every chance, and its floral wealth was surprising, even for a Sussex upland, but the chiefest jewel was this snow-white Orchis.

My kind host generously overruled my reluctance to remove such a treasure from his keeping, by saying that, very probably, if left there, he would never chance to find it again, so it has found a home and many admirers in my rock garden. Fortunately, this species will thrive in a garden, and even increase, as the two flower-spikes of the picture show. When I found it, the single plant bore a spike no larger than that of the smaller plant now shown, and lately, when I replanted it, I found four separate plants. Mr. A. D. Webster, in his delightful book, *British Orchids*, records one found by Mr. Reambottom in Ireland, and I quote his account of it to show I am not alone in praising its beauty. "The whole plant measured 21 inches in length, with shining, green, lanceolate leaves, and had a most magnificent spike of paper-white flowers. The flower-spike alone was 6 inches in length, remarkably compact, and deliciously fragrant. Half-a-dozen such flowers as this would certainly grace a spare corner in any Alpine garden." *E. A. Bowles, Waltham Cross.*

PLANT NOTE.

STROBILANTHES DYERIANUS.

Strobilanthes Dyerianus is the most generally cultivated species of the genus, being largely grown in plant stoves as an ornamental foliage plant. But I have often considered the plant well worthy of cultivating as a flowering subject. The supplementary illustration (*Gardeners' Chronicle*, January 20, 1912) shows its confrères flowering as profusely in India as Buttercups in an English meadow. For decorative purposes young, quickly-grown plants of S. Dyerianus should be relied upon, growing them in tropical conditions. Cuttings should be pinched when rooted to induce from six to eight growths to break. Plants treated in this manner will flower satisfactorily in 5-inch pots. After the flower-heads appear the plants may, with advantage, be given cooler and more airy quarters, and they will remain in a good condition for a long time. *Fred. W. Jeffery, Woodend Gardens, Renfrewshire.*

NOTICES OF BOOKS.

FURTHER CONTRIBUTIONS TO THE FLORA OF CHINA.*

THIS useful publication is another tribute to the activity and success of Mr. E. H. Wilson, both as a collector of herbarium specimens and an introducer of plants into cultivation by seeds and other means of propagation. Judging from the present publication, his later journeys have been as fruitful as the earlier ones. The families dealt with in this part are: Pinaceæ, Saxifragaceæ, Rosaceæ, Aquifoliaceæ, Aceraceæ, Vitaceæ, and Caprifoliaceæ—all families of great interest to horticulturists. The contributors are mostly specialists, and their investigations, in many instances, are not limited to Wilson's collections, but include all available material and sources of information. Pinus scipioniformis, Masters, and P. Mastersiana, Hayata, are identified with P. Armandii, Franchet. P. Henryi, Masters, is referred to P. densiflora, and P. prominens, Masters, is regarded as a synonym of the same authors' P. densata. P. Wilsonii is a new species of the affinity of the last-named. About a dozen new species of Deutzia and several hybrids are described; supplemented by a key to the 33 Chinese species enumerated. The primary characters employed in this classification are taken from the æstivation, inflorescence, the various modifications of hairs in the indumentum, the structure of the stamens, &c. Hydrangea is another genus described in some detail. Including nine new ones, 26 species are recorded from China, and there is a key to them. The primary divisions in the classifications adopted are based on the seeds and petals. Of Ribes 15 species are enumerated, and of Rubus about 40, including one new one. R. innominatus is still retained as a valid species, though it has been (falsely) identified with another species in some horticultural publications. A critical revision of the section Padus of the genus Prunus includes a dozen new species, and a key to the whole of the Chinese species. A considerable number of novelties in Acer are described, especially varieties of A. tetramerum, to which A. betulifolium is reduced. Another important reduction is that of A. lætum, with its numerous varieties, to R. cappadocicum, though the latter is based "only on a single leaf without flowers or fruit." This, in spite of the fact that the name A. lætum has been in use during 80 years! Planchon's classification of the Vitaceæ is adopted. No new species are described. This part closes with the Caprifoliaceæ represented in China by the genera Adoxa, Sambucus, Viburnum, Triosteum, Symphoricarpos, Dipelta, Abelia, Linnæa, Lonicera, Diervilla, Kolkwitzia, and Leycesteria. By far the greatest concentration of genera and species of this family is in Western China. Symphoricarpos sinensis, Rehder, adds another, otherwise North American genus, to the Chinese Flora. The same author retains Abelia as generically distinct from Linnæa, a course which probably most botanists will approve. A synoptical key is given to 27 species of Abelia, all Chinese except the Mexican A. coriacea. Half a dozen new species of Lonicera and one of Viburnum brings the representation of these genera in China up to about 100 of the former and 75 of the latter. Considering how little of Western and Central China has even yet been explored, it may be safely assumed that it supports the richest temperate Flora of the world. *W. Botting Hemsley.*

* *Publications of the Arnold Arboretum, No. 4.*—Plantae Wilsonianæ. An enumeration of the woody plants collected in Western China for the Arnold Arboretum, of Harvard University, during the years 1907, 1908 and 1910, by E. H. Wilson. Edited by C. S. Sargent. Part I., July 31, 1911. 8vo., pp. 144. (Cambridge: U.S.A., The University Press.)

ANNUALS AND BIENNIALS.*

IT is not improbable that Mr. Speer's book may be of use to many people who want to get a general idea of the character of the bewildering number of plant seeds which confront them in the annually-issued lists of nurserymen and seedsmen. An account of height, period of flowering, colour, &c., is given for a very large number of species, and notes as to origin and date of introduction of many are added. Hints as to conditions of sowing, place in the border, and such-like points will be of use to many an amateur, even if the book does not go very deeply or critically into the plants themselves. As a "handy guide," it can be safely recommended, but why does its author indulge in such wild vagaries in the matter of pronunciation of names? We fail to find any excuse for ins'ignis (p. 30), nor do we see why, on the same page (29), we should find Bel'lis and Be'llium! The illustrations are good in many instances, they are artistically reproduced, and the paper is light—a matter of importance when a book is intended for use. *J. B. F.*

* *Annual and Biennial Garden Plants*, by A. E. Speer F.R.H.S., with illustrations by the author. (London: John Murray.) 1911. Price 7s. 6d.

STATE-AIDED LAND PURCHASE.

REPORT OF THE DEPARTMENTAL COMMITTEE.

THE Departmental Committee appointed by the Board of Agriculture in March, 1911, to enquire into the position of tenant farmers on the occasion of change of ownership of their holdings has now issued its report. The Committee recommends:—

"(1) That the period of notice of intention to claim compensation for disturbance under section 11 of the Agricultural Holdings Act, 1908, should be amended.

"(2) That in the absence of agreement, two years' notice should be required to determine the tenancy of an agricultural holding.

"(3) That, except when notice to quit is given for one of the purposes referred to in section 23 of the Agricultural Holdings Act, 1908, or where the tenancy is for a period of 12 months or less, notices to quit for less than 12 months should be made void by statute.

"(4) That the tenant should be empowered to demand extended notice in the case of a sale.

"(5) That the Small Holdings Act, 1910, should be amended to provide for payment of compensation for disturbance in all cases when land is actually acquired for small holdings.

"(6) That, if special legislation be enacted for Wales, effect should be given to certain recommendations of the Welsh Land Commission, unanimously adopted by them.

"(7) That a scheme of State-aided purchase should be instituted on the lines of Sir Edward Holden's scheme.

"(8) That a scheme of State purchase should be instituted as supplementary to Sir Edward Holden's scheme of State-aided purchase."

THE SCHEME OF STATE-AIDED PURCHASE.

The Departmental Committee was impressed by the general agreement among the witnesses which appeared before it that tenants should be enabled to purchase their farms by means of money advanced by the State. The general considerations on which the Committee bases its recommendations for State-aided purchases are as follow:—

"In considering whether a scheme of State-aided purchase is desirable, the Committee have endeavoured to keep in view four main requirements which they are of opinion should be satisfied before it is possible to recommend its adoption. The primary requirement is to ensure as far as possible that no loss should be incurred by the State, and the Committee are glad to say that this view was agreed to by all the witnesses. Although the tenant farmer is eager to take advantage of the State credit of which he would have the benefit, it is, the Committee think, clearly understood that any scheme must be conducted on commercial lines, and that the State should be safeguarded in every way possible. The second consideration is that care should be exercised in selecting the tenants to whom advances should be made. In the third place, care must also be taken that the purchase price to be paid for the farm in no case exceeds the proper market value of the property. Fourthly, the scheme should be framed in such a way as to ensure that the annual payments in respect of interest on the loan and the sinking fund for its repayment, should not exceed an amount which the farmer can afford to pay with a reasonable probability of success."

SIR EDWARD HOLDEN'S SCHEME.

"The Committee have carefully considered the schemes which were submitted to them for dealing with this important question, and they have come to the conclusion that the proposal put before them by Sir Edward Holden, Bart., a member of the Committee, complies with the requirements which we have mentioned. The scheme provides for the establishment of a Land Bank or Institution to lend money to the farmer to enable him to purchase his holding. It is proposed that the directorate of the institution should consist of representatives of three Departments of the State—the Treasury, the Board of Agriculture and Fisheries, and the Board of Trade—a member of the Government, an agricultural land agent, two practical bankers, and a practical farmer. In order to assist the institution in its transactions, it is suggested that an advisory committee consisting of two or three members should be set up in each of the different districts where land is likely to come into the market. It is recommended that the State should advance the sum of £500,000 to constitute the capital of the bank or institution, which will pay the State 3¼ per cent. interest on the loan, this interest to be cumulative. The institution will then lend to the farmer four-fifths of the purchase money to be repaid by annual instalments spread over a period of 75 years or such period as may be arranged between the purchaser and the institution. Additional money will be obtained when necessary by the issue of bonds to carry interest at 3½ per cent. or such a rate of interest as would cause them to be taken up whenever issued."

Certain obvious and necessary safeguards, if money is to be lent out of the public purse, are then considered, the Committee recommending that a purchaser should be put under covenant (1) to keep the buildings in repair; (2) to farm in a husbandlike manner; (3) to use the holding for agricultural purposes only; and (4) to insure against fire.

"The Committee recommended that in the first instance the scheme should be limited to sitting tenants, subject to the approval by the institution of the purchase price proposed to be paid."

THE STATE AS LANDLORD.

Seeing that, broadly speaking, purchase is only an acceptable proposition to the average farmer as an alternative to being dispossessed, the Committee favours the acquisition and management of landed estates by the State.

"Under a scheme of State-aided purchase, the State would undoubtedly incur a risk, not merely as regards reduction in value, but also of depreciation owing to bad cultivation, as, in the latter case, the personal remedy against the occupier is valueless in the majority of cases, whilst any profit on the transaction due to appreciation in the price of land would, in the absence of restriction on the tenant's right to sell after the expiration of a short period, benefit the individual farmer, and it is an open question how far State funds should be utilized to benefit some members of the by no means large class of farmers who desire to purchase their holdings. If, however, the State purchases and lets to the tenants, it takes the profit, if any, as well as the risk, and, whilst obtaining for the tenant security of tenure, he will be left free and untrammelled to apply the whole of his capital to his business, which is primarily agricultural and not landowning."

Five members of the Committee dissent from the recommendations with respect to State purchase, and Mr. Trustram Eve, the secretary of the Farmers' Club, proposes that tenants should be enabled to purchase their holdings by voluntary methods from their landlords by means of reducible mortgages to be arranged by the State.

The Week's Work.

THE HARDY FRUIT GARDEN.

By F. JORDAN, Gardener to Lady NUNBURNHOLME, Warter Priory, Yorkshire.

INSECT PESTS.—One of the most important and necessary operations in the culture of hardy fruits is the annual spraying of the trees. This is now the rule rather than the exception in all well-managed gardens, and those who have regularly practised spraying know that the trees make clean and healthy growth, without which fine fruit cannot be expected. American blight and mussel-scale are two of the most persistent pests, and when established are also the most difficult to eradicate. The woolly aphis spreads from tree to tree with great rapidity, and only by constant attention to winter spraying and care during the season of growth can it be kept in check. Mussel-scale attacks every part of the tree including the fruit, and if not kept in check it also increases rapidly. February is one of the best months for winter spraying, for it is best practised after all pruning has been completed, and the prunings carefully raked up and burnt. There are now so many cheap and effective preparations on the market that it is not worth while to prepare home-made washes unless large quantities are required. Select a mild day for carrying out the work, using a knapsack sprayer; an ordinary garden syringe will answer equally well where only a small number of trees have to be sprayed. Gloves and an old suit of clothes should be worn by the operater.

THE PEAR MIDGE.—This tiny insect is most destructive in some seasons, especially on Williams's Bon Chrétien Pears, and is most difficult to eradicate, especially in the case of trees growing in grass land. In cultivated gardens the surface soil should be removed to a depth of 2 inches and taken to the garden fire; all fallen and deformed fruit should also be gathered and destroyed. Give the soil a good dressing of Kainit—1 lb. or 2 lbs. to the square yard, or a dressing of vaporite afterwards worked well into the ground in the spring. Apply a dressing of fresh soil to replace that which was removed, and repeat the operation the following spring. The Pear slug should be treated in a similar manner. This creature buries itself a little deeper in the ground than the Pear Midge. Kainit, lime or soot may be applied to grass orchards with beneficial results where this pest is troublesome.

FRUITS UNDER GLASS.

By E. HARRISS, Fruit Foreman, The Royal Gardens, Windsor.

EARLY "MUSCAT" GRAPES.—It is not a difficult matter to keep Muscat of Alexandria Grapes until the end of January, but to have them ripe by the end of May or early in June the conditions under which they are grown must be very favourable. The roots of the vines should be restricted to inside borders to prevent any check to root action during the critical stage of flowering. The borders should be well drained and not too deep, conditions that necessitate frequent waterings at the roots. At this date the roots are growing actively, and an application of diluted liquid manure will be beneficial. An occasional sprinkling of some suitable fertiliser will encourage the roots to grow near to the surface. A night temperature of 65° should be maintained, with a rise of two or three degrees during the day. During sunny weather the thermometer may be allowed to register 80° or 85°. When this temperature is reached, admit a little fresh air through the top ventilators, closing them again about 2 p.m., after damping all the bare surfaces in the house, to create a moist atmosphere. When the vines are approaching the flowering stage, laterals which require "stopping" should be pinched, and all superfluous growths removed. The tying of the shoots to the wires should be deferred till the bunches have set, except where the shoots are touching the roof-glass. Such shoots may be pulled down a little towards the trellis and secured with a piece of raffia. When the flowers begin to shed their pollen, the atmosphere should be kept dry and the temperature maintained as equable as possible. The minimum temperature may range from 65° to 70°, according to the condition of the weather. The vinery at this stage should never be quite closed. The flowers should be pollinated during the middle of the day by passing a rabbit's tail gently over them. It is a good plan to have vines of Black Hamburgh flowering in another vinery at the same time as the Muscats, so that the pollen from this free-setting black Grape may be used for pollinating the Muscats. I have found this to be of great assistance in setting Muscat Grapes at this early date. See that the borders are sufficiently moist before the vines flower.

LATE "MUSCAT" GRAPES.—In southern districts the beginning of March will be soon enough to start late Muscat of Alexandria Grapes into growth, but in colder districts it may be necessary to start them earlier. A great deal depends upon the nature of the soil and the situation of the vineries. In any case it is necessary to have the bunches perfectly finished in order to keep them for as long a period as possible. If the vines were infested with either red spider or mealy bug last year, the house should be cleansed thoroughly with strong, soapy water. Afterwards remove the loose bark from the rods and scrub the vines two or three times with a solution of soft soap and sulphur. Before starting young vines into growth, dress the cut surfaces with styptic to prevent bleeding, remembering that young vines break into growth evenly if they are started very gradually.

PROPAGATION BY "EYES."—Choose moderately-strong, well-ripened shoots from which to select the buds. Leave half an inch of wood on either side of the buds, and insert them in 3-inch pots, in loam mixed with a small quantity of finely-crushed mortar rubble. Make the soil fairly firm, and leave the bud just level with the surface. Plunge the pots in a hotbed, and lightly spray the buds two or three times each day. A hotbed which has been prepared for Cucumbers is suitable. Avoid having the soil too wet, as much moisture is not required until the buds are bursting into growth.

THE KITCHEN GARDEN.

By EDWIN BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

PARSNIPS.—The Parsnip requires a long season of growth, and it is not too soon to sow the main batch. The weather has been very unfavourable for all ground operations, and no attempt should be made to sow seeds of any kind until the soil is in a fairly dry condition, but directly opportunity permits, make a good sowing of this vegetable. Avoid ground that has been recently manured, rather select a quarter of the garden that was liberally dressed with dung last season. Such land will only need digging and making ready for the seed sowing. Before forking the ground sprinkle it with wood-ashes and soot, and level the surface with a wooden rake. Make the drills about 1½ inch deep, allowing a distance of 18 inches between the rows. Sow the seed thinly, press it firmly into the ground, and then, with a rake, make the bed level again. In order to obtain extra fine roots for exhibition purposes, bore, with an iron bar, holes 4 feet in depth at 20 inches apart, allowing 2 feet between the rows. It is necessary that the ground be deeply dug or even trenched in order that the roots may grow without hindrance. Fill the holes with finely sifted soil, old potting loam being suitable, taking care that every particle of the hole is filled, using a thin stick for the purpose. A seed or two should be sown over each station and covered as advised for ordinary sowing.

SHALLOTS.—Shallots should be grown on ground that has been well worked and liberally enriched with farmyard manure. A border near to the kitchen garden path is a very suitable place to grow Shallots. When the ground is in a workable condition, lightly dig the surface and afterwards make a fine tilth by means of a wooden rake. Plant in straight lines 1 foot apart, simply pressing the bulbs into the soil at every 10 inches. For general purposes the common variety may be grown, but Large Red and Giant yield much larger bulbs suitable for exhibition. In their cases allow a few more inches between the individual plants.

CELERY.—Make a small sowing of Celery for the earliest supplies. The plants should be ready for consumption during August and September. It is our practice to sow the seeds thinly in small pans or 6-inch pots filled with finely sifted loam, leaf-mould, and manure from an old Mushroom bed, adding the necessary quantity of sand or road grit to keep the soil open. Use plenty of crocks in the pots for drainage purposes. Water the soil carefully through a fine rose, and then stand the pots in a forcing house, where a temperature of 55° is maintained at night time. Directly the seedlings appear, stand the pots near to the roof-glass, and transplant them as soon as they are large enough into shallow boxes filled with the same compost as before, but in a slightly coarser condition. The plants should be grown on in the same house.

PARSLEY.—There has been little difficulty this winter in obtaining a supply of Parsley. Plants in frames should be afforded an abundance of fresh air whenever the weather is favourable, the soil stirred occasionally, and decayed and decaying leaves removed. Make a sowing at the end of this month to furnish plants for setting out-of-doors in April. Sow the seeds evenly and thinly in shallow boxes, and germinate them in gentle warmth.

TOMATOS.—Young Tomato plants should be repotted as soon as they require larger receptacles, using clean pots with efficient drainage. Do not employ manure in the compost unless it be bone-meal, which is beneficial. The compost may consist of good fibrous loam. Keep the stems well down in the soil, and allow plenty of space for top-dressings later. Water should be afforded with great care until the roots have grown freely in the new soil. Place suitable supports to the plants, and stand them in a light position to favour a sturdy growth.

PLANTS UNDER GLASS.

By THOMAS STEVENSON, Gardener to E. MOCATTA, Esq., Woburn Place, Addlestone, Surrey.

CLARKIA ELEGANS.—Several annuals are suitable for greenhouse cultivation, and the varieties of Clarkia elegans may be especially recommended. Plants of Clarkia raised from seed sown in the autumn should be potted into 3-inch pots (60's). Specimens that have been grown in pots of this size during the winter may be placed five or six in each 8½-inch pot (24's). The single plants are best for conservatory or greenhouse decoration, and they make fine bushy specimens from 4 feet to 5 feet in 6-inch pots (32's). Afford the plants a cool treatment until they are well rooted in their flowering pots, when warmer conditions may be allowed them. But avoid too much warmth, as this would cause the shoots to become spindly and the plants to lose their best form. Seeds may be sown now to provide a successional batch, but the plants will not be so large as those raised in the autumn. Still, they will make beautiful decorative subjects, and, being easily cultivated, will afford a good return for the trouble. Most varieties are suitable for pot-culture, but for choice select Firefly, Carnation Flake, Double Salmon, and Carmine Queen.

SCHIZANTHUS.—The Schizanthus is another annual which is very valuable for greenhouse decoration. It is now time to place the plants in their flowering pots; if large specimens are required pots from 7 inches to 9 inches in diameter should be employed, choosing the larger growing kinds, such as pinnatus, roseus and its variety, also the larger flowered hybrids for the purpose. S. retusus and S. wisetoniensis may be cultivated in either 4½-inch or 6 inch pots, in which they will bloom satisfactorily. Like Clarkia, Schizanthus requires a cool treatment, and succeeds best in a light, airy house.

PELARGONIUM.—The Pelargoniums are all showy-flowering plants, and, although they are not cultivated so extensively as in former years, they are almost indispensable for conservatory and greenhouse decoration. Those of the Show and Fancy sections make useful pot-plants, whilst the regal varieties provide, in addition, a valuable supply of cut blooms. They may be had in flower at almost all seasons of the year, but it is

after the bulbous plants are over that they are especially valuable, their flowers continuing until blossoms out-of-doors are plentiful. Old plants that were started in September and October should be well rooted, and ready for planting in their flowering pots. As a rooting medium employ rich, friable loam mixed with a small amount of well-rotted manure, lime rubble and bonemeal. Pot firmly, as this favours a stocky growth. Plants raised from cuttings inserted last summer may also require potting, in which case the same compost may be used. Young plants last for a longer time in flower than older specimens. Plants of Zonal-leaved Pelargoniums that have been flowering throughout the winter should be afforded a little concentrated manure, after which, if growth is not too vigorous, they will probably provide a fine display for some considerable time. The atmospheric temperature should range from 50° to 55°. Maintain a rather dry atmosphere, and on no account open the side ventilators during damp, foggy weather.

THE FLOWER GARDEN.

By J. G. WESTON, Gardener to Lady NORTHCOTE, Eastwell Park, Kent.

PRUNING CLIMBING ROSES.—All the pruning necessary for climbing Roses is the removal of weak and superfluous shoots, together with dead and diseased branches. Plants growing in the wild garden, or in other places where their restraint is unnecessary, only need to be divested of dead or worn-out branches; but specimens growing on pergolas, chains, pillars, or walls need a more severe pruning. The best time for the work is immediately after the flowers are over, as the plants then have practically the whole of the season in which to develop their growth. If the old flowering shoots were removed entirely, and the new shoots that developed from the base of the plant thinned according to the amount of space to be furnished, all that is necessary now is to cut off the unripened ends of the branches and to make the plants tidy and secure before growth recommences. The thinning of the shoots of climbing Roses is often deferred until the plants are given a general overhauling in the winter, and where this is practised the pruning must be done very sparingly, cutting out only old and weak shoots, but retaining as much of the strong wood as possible. There is a wealth of beautiful varieties, and amongst novelties may be recommended Climbing Polyantha's "American Pillar," Lyon Rambler, and the newer Wichuraiana hybrids, Excelsa, Shower of Gold, and Milky Way.

WICHURAIANA ROSES. — These beautiful Roses are perfectly hardy, and therefore adapted for planting in exposed situations, where tender varieties would not thrive. Many are nearly evergreen, for they retain their dark-green, glossy foliage well into the winter. They are not particular as to soil, but some loam should be used when planting in order to give them a good start. Dorothy Perkins, Hiawatha, Gerbe Rose, Jersey Beauty, Paradise, White Dorothy, Minnehaha, Edmond Proust, and Gardenia are all desirable varieties.

CLIMBING POLYANTHA ROSES.—A few exceptionally good varieties of this type of Rose are Tausendschön, Electra, Philadelphia Rambler, Queen Alexandra, Rubin, Climbing White Pet, and Flower of Fairfield.

PENZANCE BRIARS.—These Roses are practically all vigorous growers, and may be recommended for forming hedges or screens. They are seen at their best when allowed to grow at will, very little pruning being necessary. Anne of Geierstein, Lady Penzance, Catherine Seyton, Lucy Bertram, Brenda, and Lucy Ashton are all sterling varieties.

AYRSHIRE AND EVERGREEN ROSES.—These older Roses are very hardy, having robust constitutions. Such varieties as Dundee Rambler, Queen of the Belgians, Félicité-Perpetué, and Rampant will thrive in almost any situation.

AUSTRIAN BRIARS.—The Austrian Briars are a quite small section of the Rose family, but the plants are very beautiful, and a good specimen in bloom always attracts attention. The plants are not strong growers, therefore little pruning is necessary, the principal requirement being the removal of weak and worn-out shoots. The flowers are produced on shoots of the previous year.

PLANTING ROSES. — Though the orthodox time for planting Roses is past, the work may still be done, with every prospect of success. Climbing Roses may be purchased from the nurserymen in pots. If strong pot plants are procured and planted carefully in good soil, a fair show of bloom may be expected the first season, but a little extra attention is needed when the planting is done very late in the season.

PUBLIC PARKS AND GARDENS.

By CHIEF OFFICER.

ADVERTISING PUBLIC PARKS.—At first sight it may appear somewhat absurd to suggest the necessity or even the advisability of advertising among its own residents the public parks of any town. One may be very readily excused for regarding such a proposal as unworthy of a moment's consideration. To most people a public park is, as it were, its own advertisement, and if it is not patronised or if its management is not quite understood by the public then they have only themselves to blame. This, however, is quite the wrong attitude for public authorities to take up, for, without the slightest doubt, the more widely the parks of a town are advertised among the residents, and the more the latter know regarding the management, the greater will the parks be appreciated, and the easier will the public be controlled when visiting them. It is always found that where parks are properly advertised the public are enabled to make the greater use of them, and as a consequence one is justified in concluding that the general health and happiness of the people are proportionately increased.

SUITABLE METHODS. — Ordinary advertising methods, although very useful in their way, are not, so far as parks are concerned, the most successful in attaining the end in view. Cheaper, and as a rule more efficacious, ways are always at hand provided the chief of the Parks Department sees fit to make use of them. One of the easiest modes is to enlist the help and sympathy of the journalists associated with the local papers. Interesting paragraphs relating to the parks and the doings therein always tend to keep the eyes of the public fastened on the Parks Department. In this connection it is always well when the meetings of the Parks Committee are open to the Press, for although this has its drawbacks in other ways, it helps in a very real manner to keep the residents in touch with the work carried on in the parks.

POPULAR LECTURES.—Another most useful method of advertising the parks is by making them the subject of popular lectures. If the chief officer or one of his assistants is able to give interesting lectures relating to the parks it is an admirable system of advertising them. Once it becomes known that a public official is able and willing to lecture—especially when he is in a position to illustrate his subject by the aid of lantern slides—his help is sought by all kinds of societies in the town. Church literary societies, naturalist societies, ratepayers associations, and numerous other public bodies are anxious to secure the assistance of a lecturer who gives his services free. Lectures on parks and park management, delivered before audiences such as are gathered at meetings of this varied character do an immense amount of good. On occasions of this kind it is possible not only to enlighten the public regarding what is actually being done in their interests in the parks, but also to educate them to appreciate the very restrictions which have to be enforced upon them when using the parks or other open spaces. Lectures of a similar character delivered to juveniles in the "Children's Halls" of public libraries—as they often are in large municipalities—tend very naturally to educate the younger generation to a right and proper regard for the parks and open spaces in their own and other towns. No one who has the slightest experience of such matters will deny that this is a condition of things greatly to be desired, therefore no opportunity should be lost in attempting to bring it about.

"WARDISM."—When dealing with the question of "wardism" in our last month's article, we took occasion to state that later on we would touch upon a very useful means of combating it. The means we alluded to was the judicious influencing of public opinion in a right direction, and there is no more powerful method of doing so than by the aid of the Press, as already indicated, and through public lectures. Where this is well and wisely done, there is but little fear of "wardism" becoming a real danger to the managing authority of a parks department.

A WARNING.—One note of warning, however, is needed in concluding this subject of park advertisement, or more harm than good may arise from it. It is this: let it be clearly understood that it is the parks and their work that have to be advertised, not the work of the officials. However much an official may have done in working out a successful policy of management, he must bear in mind that without the assistance of the committee in authority over him it could hardly have been carried out, and naturally it is their efforts which deserve commendation. A lecturer or a writer who never loses an opportunity of praising his own efforts soon ceases to carry any weight with his audience or his readers.

THE ORCHID HOUSES.

By J. COLLIER, Gardener to Sir JEREMIAH COLMAN, Bart., Gatton Park, Reigate.

ONCIDIUM. — Most of the winter-flowering Oncidiums, such as O. concolor, O. Forbesii, and those of the vericosum section, will soon have finished flowering, when the plants should be kept rather dry at the roots, but not so dry as to cause the growths to shrivel. The plants will soon commence to grow afresh, and any that require potting should be attended to as soon as roots develop from the young growths. These Orchids are best grown in pans suspended from the roof rafters, in a temperature ranging from 52° to 55°, allowing it to rise to 60° or 62° as the season advances. A suitable rooting medium is a mixture of good fibrous peat or A1 fibre, half-decayed Oak leaves, rubbed through a ½-inch sieve, and Sphagnum-moss, in equal quantities, adding plenty of crushed crocks to keep the compost porous. The pans should be only just large enough to accommodate the plants, as they need a restricted space for their roots. Pot moderately firmly, and place the base of the young shoot well down into the compost, so that the young roots may soon get well into it, thus minimising the danger of damage by slugs or woodlice. Both these pests are particularly fond of the young roots of Oncidiums. Plants of O. macranthum and O. lamelligerum are sending up their flower-spikes. These should be trained along the roof of the house, or around sticks, and when they have reached a reasonable length the tip may be pinched off, as this will cause the spikes to branch and the flowers to develop finer. O. Cavendishianum, O. flexuosum, O. Kramerianum, and O. papilio require a higher temperature than the others mentioned.

LÆLIA.—Lælias of the Anceps type, also L. autumnalis and L. Gouldiana, should be afforded but little water at the roots after the flowers are over, it being only necessary to keep the pseudo-bulbs from shrivelling. Grow the plants in a house having an intermediate temperature, standing them in a light position near to the roof-glass. Specimens that need repotting should be attended to just before young roots begin to push from the new pseudo-bulbs. The old roots should not be disturbed more than is necessary, as root disturbance may result in unsatisfactory blooming. The following season, plants that have overgrown their receptacles may, if there are numerous pseudo-bulbs behind the leading growth, be broken up and made into shapely specimens, retaining two or three pseudo-bulbs behind each lead. I prefer pans to grow them in, but I have seen these plants doing well in teakwood baskets. A suitable compost consists of good fibrous peat and Osmunda fibre in equal parts, and a quantity of Sphagnum-moss.

CATTLEYA.—Most Cattleyas are now at their season of rest, but plants of C. Trianæ and its varieties are pushing up their flower-buds, and will require an increased amount of water at the roots. As soon as the flowers have developed, the supply of moisture should be reduced again, affording but very little until new roots appear.

APPOINTMENTS FOR FEBRUARY.

SATURDAY, FEBRUARY 3—
Soc. Française d'Hort. de Londres meet.

MONDAY, FEBRUARY 5—
Nat. Chrys. Soc. Ann. Meet. at Carr's Restaurant, Strand, at 7 p.m.

TUESDAY, FEBRUARY 6 –
Roy. Hort. Soc. Coms. Meet. (Lecture at 3 p.m. by Sir Everard im Thurn on "Plants of Fiji and Other South Sea Islands.") Scottish Hort. Soc. meet.

THURSDAY, FEBRUARY 8—
Manchester & N. of England Orchid Soc. meet. British Gard. Assoc. (London Branch) meet. (Lecture by Mr. Edward Chitty on "Stove Plants.")

FRIDAY, FEBRUARY 9—
Roy. Gard. Orphan Fund Ann. Meet. and election of candidates at Simpson's Restaurant, Strand, at 3 p.m.
Roy. Scottish Arboricultural Soc. Ann. Meet.

MONDAY, FEBRUARY 12—
United Hort. Benefit and Prov. Soc. Com. meet.

TUESDAY, FEBRUARY 13—
Roy. Hort. Soc. Ann. Meet. (no exhibition.)

THURSDAY, FEBRUARY 15—
Linnean Soc. meet. Croydon and District Hort. Mutual Improvement Soc. Ann. Dinner.

MONDAY, FEBRUARY 19—
Nat. Chrys. Soc. Executive Com. meet.

TUESDAY, FEBRUARY 20 –
Roy. Hort. Soc. Coms. meet. (Lecture at 3 p.m. by Mr. W. Cuthbertson on "New Sweet Peas.") Horticultural Club Ann. Meet. 5.15 p.m., and Dinner 6 p.m.
N. of England Hort. Soc. meet. at Leeds. (Lecture by Mr. Pulham, Junr., on "The R.H.S. Rock Garden.")

WEDNESDAY, FEBRUARY 21 –
Roy. Meteorological Soc. meet.

THURSDAY, FEBRUARY 22—
Manchester & N. of England Orchid Soc. and N. of England Hort. Society's joint show at Manchester.

WEDNESDAY, FEBRUARY 28 –
Roy. Botanic Soc. meet.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—36·5°.

ACTUAL TEMPERATURES:—
LONDON.—*Wednesday, January 31* (6 P.M.): Max. 40°; Min. 33°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—*Thursday, February 1* (10 A.M.): Bar. 30·1°; Temp. 39°; *Weather*—Dull.

PROVINCES.—*Wednesday, January 31*: Max 42° Dorsetshire; Min. 31° Scotland, N.E.

SALES FOR THE ENSUING WEEK.

MONDAY AND WEDNESDAY—
Rose Trees, Fruit Trees, Perennials, &c., at 12.30, at Stevens's Auction Rooms, 38, King Street, Covent Garden.

MONDAY AND FRIDAY—
Herbaceous and Border Plants, Hardy Bulbs, &c., at 12; Roses, Fruit Trees, &c., at 1.30; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

WEDNESDAY—
Perennials, Rock and other Plants, Hardy Bulbs, &c., at 12; Roses and Fruit Trees, at 1.30; Palms and Plants, at 5. Trade Sale of Miscellaneous Plants and Bulbs, at 12; 1,066 cases Japanese Liliums, at 2.30; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

FRIDAY—
Orchids, at 12.45, at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

A National Institute of Horticulture.

A widespread feeling exists among men interested in horticulture that the present time is auspicious for the putting forth of an effort to consolidate and advance horticultural interests. Correspondents, representative of very varied branches of horticulture, are urging us constantly that the time is ripe for an attempt to provide for the organised advancement of horticultural science. It has been proposed again and again that a horticultural branch of the Board of Agriculture should be established. A vast sum of money is to be spent by this Board in the establishment of Farm Institutes. The Royal Horticultural Society is, as it has always been, in full and active sympathy with the desire to advance the interests of horticulture, and has appointed a committee, which is now engaged in considering the question of a National Diploma. The authorities of the International Horticultural Exhibition have provided for the publication of a report on horticultural education. There is a general desire for the methodisation and extension of horticultural research, and a strong feeling exists that horticulture must secure a liberal measure of financial help from the funds at the disposal of the development commissioners.

The omens, therefore, are propitious, and we cannot be charged with prematureness if we proceed to enquire how these desires and aspirations may be best achieved. Are we to acquiesce in the habit of our race of letting things take their course, or are we to profit by the example of other branches of art, science, and industry, and to endeavour to shape the course of our evolution? Are we, in short, to "go on as we are," or should we seek to establish some great National Institution of Horticulture by which the needs of horticulture and of horticulturists can be formulated and secured?

The simplest way in which we may present this problem to our minds is to consider what vital, useful purposes may be fulfilled by a National Institute of Horticulture. Let us assume that the institute is in existence, that it is adequately endowed, that its foundation was approved by the Departments of State concerned with horticulture, that the Royal Horticultural Society is lending the institute its powerful and whole-hearted assistance, and lastly—and most important of all—that the institute has the strenuous support of all sections of the horticultural community. Nor, let it be noted, are these assumptions extravagant, for the sole aim of the institute is the advancement of the art, science, and industry of British horticulture.

The National Institute in being, how does it proceed to justify its existence?

In the first place, it would concern itself with the great and increasingly important problem of horticultural education. To it would fall the duty of granting national diplomas of different degrees to the different groups of horticulturists. But the moment it began to consider the question of national diplomas it would be brought face to face with the more fundamental problem of horticultural education—that is, of horticultural training.

The institute would have the sad example of the old University of London before it. That University was guilty of the unforgivable sin of initiating degrees in arts and science and of letting educational training take care of itself. The constrained examinationed Israelites who served that Pharaoh were compelled to make bricks without straw. In the light of that sad example the institute would recognise that something more than diplomas is wanted, and would proceed to obtain the co-operation of provincial Universities, County Council Education Committees and the like, whereby its schemes of training could be put into operation and brought within the reach of gardeners in all parts of the country. In the train of such a system would come the provision of scholarships enabling capable young men to pursue their studies in the most suitable places at home or abroad. The schemes of training would have reference to gardeners primarily, but also secondarily to instructors and experts in special branches of horticultural art and science; whence it follows immediately that the National Institute would find itself concerned not only with education but also with research. It would thus appeal to every horticulturist, for there is none who does not recognise that the time has come when research should cease its infantile dilettantism and settle down to steady business. By no means should the researcher be worried by boards or institutes. He must retain his individual freedom; nevertheless such individual freedom is not inconsistent with a clear-headed and persistent effort in a definite direction. The extension of research would result in benefits not only to the science of horticulture, but also to the horticultural industry, and those engaged in that industry would have a two-fold reason for supporting the institute: first, because of their disinterested regard for horticulture, and second because they could lay their occasional difficulties before the institute and obtain help from its research department. The material for research thus provided would further be of the utmost value to the staff, for the problems which beset the grower are very practical problems, and would keep the investigators in constant touch with reality. The great firms might be found willing to do what their colleagues in America have done, namely, endow special fellowships for a term of years in order to secure the investigation of definite and important problems. It may appear to some that this programme is so vast as to be chimerical; but a knowledge of existing facilities will show that the function of the institute with respect to research would be at all events in large measure that of a coherer. It would link up existing institutions and persuade them to sketch in outline plans of campaign with respect to education and research, and provide for the carrying out of the operations decided upon. The country possesses in its existing institutions no inconsiderable materials for such a scheme. For example, Kew is, of all places in the world, best fitted for the indispensable work of systematic mycology. It is not the function of an institution such as Kew to undertake the work of devising remedies for diseases, but it would be the function of such an institution to do for fungi what its herbarium does for the higher plants. In addition to the systematical side of mycology, Kew might also undertake the recording of the space—and time—behaviour of parasitic fungi: tracing their marches and countermarches up and down the country.

It is not for us to do more than outline provisional suggestions enough to develop our thesis that the National

HALESIA TETRAPTERA (Snowdrop Tree).

From a photograph taken in Sir Edmund Loder's garden, Leonardslee, Horsham, by Mr. H. N. King.

Printed by Temple Press Ltd., London, E.C.

Institute of Horticulture has a great work before it.

Other institutions exist which would be willing to specialize in the working out of life histories of plant pests. The Imperial College of Science and Technology—to mention only one—has a Professor of Plant Pathology, and is already actively engaged in this branch of mycological work. Yet other institutions are in being which are dealing with and might, if financial aid were forthcoming, deal yet more effectively with remedial measures.

For experimental work in plant breeding the institute would look naturally, and not in vain, to the John Innes Institution. Rothamsted, no doubt, would co-operate with the institute by undertaking the elucidation of soil problems from the horticultural standpoint. The Wisley Gardens might become the School of Landscape Gardening of the country, beside carrying out the other duties placed upon them by the R.H.S. Similarly, the work of training instructors could be performed by one or several existing institutions, which it is safe to assume would gladly undertake such an important branch of education.

Thus the National Institute would be an institute of practical horticulture, and would be concerned with the furtherance of the interests of gardeners, of commercial men or growers, fruit growers, nurserymen, seedsmen, instructors, and experts. Endowment would be essential; but it is not to be doubted that the institute would receive a large measure of financial support. Would not the Royal Horticultural Society aid it, not only with counsel but with grants? Would not the Departments of State intent on the furtherance of agriculture welcome the foundation of such an institute and provide it liberally with funds? Might not the institute look with confidence to the Development Commissioners for similar and considerable help? Private munificence would, we feel sure, be forthcoming, for no more generous men exist than horticulturists. Lastly, were the proposal for the establishment of such an institute to meet with a warm and general welcome from the world of horticulture, it might be that the authorities of the International Exhibition of 1912 would consent to create the institute by making it its heir. We can imagine no more lasting or impressive way of recording the triumphs of the 1912 Exhibition than by contributing to the endowment of a National Institute of Horticulture.

OUR SUPPLEMENTARY ILLUSTRATION.—The Snowdrop Tree (Halesia tetraptera) is one of those old-fashioned plants which seem in some danger of being overlooked among the many new species now competing for notice. Yet a glance at the picture of a tree (see Supplement), in bloom in Sir EDMUND LODER'S garden at Leonardslee, makes one doubtful if any tree, of present-century introduction, from China or elsewhere, is capable of making a more charming display. Halesia tetraptera is a native of the south-eastern United States, and has been in English gardens since 1756, when it was introduced by Mr. J. E. ELLIS. It is a deciduous, small tree or shrub, reaching 20 to 30 feet in height in this country. Its leaves are oval to obovate, 2 to 5 inches long, ¾ to 2½ inches wide, with abrupt, slender points and minutely-toothed margins; they are covered beneath with thick, grey, stellate down, less so above. The flowers appear in May on the leafless shoots, in clusters usually of three or four blossoms, pendulous on slender, downy stalks, ½ to ⅔ inch long. The corolla is pure white, bell-shaped, ½ to ¾ inch long and wide, shallowly four-lobed. The tree derives its specific name from the fruit, which has a Pear-shaped body, traversed lengthwise by four wings, and terminated by an awl-shaped point; and its popular one from the likeness of its nodding, pure-white flower to that of a Snowdrop. It is also known by the pretty name of "Silver-bell Tree." In the south of England it is perfectly hardy, but does best in a sheltered spot, and likes a warm, deep, well-drained, loamy soil. It can be increased by cuttings, but plants raised from seed thrive better. Two forms are in cultivation, the better one of which has a larger corolla, more deeply lobed than the other. Halesia hispida, a Japanese species, was illustrated in *Gardeners' Chronicle*, August 7, 1909.

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the Committees of this Society will take place on Tuesday, the 6th inst. In the afternoon a lecture on "Plants of Fiji and Other South Sea Islands" will be delivered by Sir EVERARD IM THURN, K.C.M.G.

NATIONAL CHRYSANTHEMUM SOCIETY.—The annual general meeting of the members of this Society will be held at Carr's Restaurant, 264, Strand, London, on Monday next, the 5th inst., at 7 p.m. The President, Sir ALBERT ROLLIT, LL.D., D.C.L., will occupy the chair.

"GEORGE MONRO" CONCERT.—The 16th annual concert, promoted by Mr. GEO. MONRO, of Covent Garden, in aid of the gardening and other charities, will be held on the 15th inst. at Queen's Hall, Langham Place, London. The band of H.M. Coldstream Guards has been engaged, and the programme includes the names of many well-known artistes. The balance sheet of last year's concert shows that the sum of £43 1s. was distributed, including donations of £12 12s. to the Gardeners' Royal Benevolent Institution, £8 8s. to the Wholesale Fruit and Potato Trades Benevolent Society, and £2 2s. to the Royal Gardeners' Orphan Fund. Sums of money were also sent to hospitals, the Surgical Aid Society, the National Lifeboat Institute and other institutions. Tickets for the concert may be obtained from the secretary, Mr. H. BAKER, 42, King Street, Covent Garden, London.

SPRING EXHIBITION AT BRADFORD.—An exhibition of spring flowering plants, including bulbs and shrubs, will be held in the Central Baths, Bradford, on March 14. It will be under the auspices of the North of England Horticultural Society, in conjunction with the Saltaire, Shipley and District Rose Society, the Bradford Chrysanthemum Society, the Bradford and District Paxton Horticultural Society, the Lidget Green Horticultural Society, and the Thornton Mechanics' Institute Horticultural Society. The schedule includes classes for traders; amateurs employing a regular gardener or gardeners; amateurs not employing a regular gardener or gardeners: allotment holders, and school children. A lecture, illustrated by lantern slides, will be given by Mr. W. F. GILES, of Messrs. SUTTON & SONS, on "Salad Plants, British and Continental." The N.E.H.S. Medals will be awarded at the discretion of the judges.

NATIONAL INSURANCE ACT, 1911.—The National Insurance Advisory Council, of No. 3, Northampton Square, London, E.C., is prepared to advise enquirers, whether employers or employed, male or female, who are desirous of ascertaining their position under the National Insurance Act. Special attention will be given to enquiries from registered friendly societies of less than 5,000 members, and unregistered societies, slate clubs and yearly clubs, &c., as to the best manner in which to become approved: arrangements can be made for speakers to be sent if desired. Any person desirous of making an enquiry, whether on his own behalf or on the behalf of any other person of either sex, or any society or club, should forward a letter containing full particulars and a stamped, addressed envelope for reply, to the secretary, at the above address. No charge will be made for any information given in response to any enquiry.

SWEET PEA LECTURE AT THE NORTH OF ENGLAND HORTICULTURAL SOCIETY.—Owing to an unfortunate transposition Mr. CUTHBERTSON was made to say (p. 63) exactly the reverse of what he intended. It is the Spencer or Waved type of Sweet Pea that has open keels, whereas the older type has compressed or clamped keels, which have the effect of squeezing together the reproductive organs and assisting fertilisation. Hence it is that the older type seeds so much more freely than the Spencer type.

MEMORIAL TO STEPHEN HALES.—The grave of STEPHEN HALES, the father of the science of Vegetable Physiology, lies beneath the tower of the church at Teddington, of which parish HALES was for 51 years the faithful vicar. The gravestone, which is near the entrance of the church, had become so defaced by the hand of time and the feet of parishioners, that the inscription is no longer legible. Hence, in order to preserve HALES'S memory in the minds of those who attend the church, and to testify to his pious memory, the leading botanists, at the suggestion of FRANCIS DARWIN, than whom none is more able to appreciate HALES'S greatness, have erected an inscribed tablet on the wall near the grave. The inscription is: "Beneath is the grave of STEPHEN HALES. The epitaph, now partly obliterated, but recovered from a record of 1795, is herewith inscribed by the piety of certain botanists, A.D. 1911. 'Here is interr'd the body of STEPHEN HALES, D.D., Clerk of the Closet to the Princess of Wales, who was Minister of this Parish 51 years. He died the 4th of January, 1761, in the 84th year of his age.'"

LOUIS PASTEUR.—Horticulturists with a leaning to science well know the debt of gratitude which the world owes to LOUIS PASTEUR, and they will be glad to learn that, through the generosity of an American millionaire, the inhabitants of PASTEUR'S native town—Dôle—have been enabled to purchase the house in which that great man was born. Those who hold that the tanner's son of Dôle was the greatest man of science of his century will rejoice to know that the tannery, his birthplace, will serve for all time as a memorial both of the humble origin and immortal achievement of PASTEUR.

FLOWERING PLANTS AS PARASITES.—According to Dr. MACDOUGAL, of the Desert Laboratory, Tucson, Arizona, nearly one-half of the flowering plants of the world are parasites in the sense that they either live entirely on other organisms, or else depend upon partnerships struck up between themselves and the fungi of the soil. It is no wonder that the fungi revenge themselves by attacking in turn the flowering plants. The art of the horticulturist consists in turning the many phases of this struggle to his own advantage.

PROFESSOR BATESON ON GENETICS.—In his second lecture Professor BATESON dealt with the question of meristic phenomena, i.e., the division and repetition of parts, including also the formation of pattern. The repetition of parts, or reduplication, is one of the most characteristic features of living organisms. Yet we have no exact knowledge of the process. The division of a cell into two similar halves can be watched with the aid of a good microscope, but there is no clue as to what are the essential forces which come into play. It is by means of division that the phenomena of heredity are carried through, and the resemblance between two halves of a dividing cell is the simplest case we can imagine analogous to heredity. Photographs were shown of meristic variation in man and animals. They included a case of the reduplication of the nostrils of a woman, of the bones of a horse's foot, and also of homologous triplets, i.e., triplets that presumably arise from the division of a single egg cell. The members of the set exactly resembled one another. Such meristic variations point strongly to the view that we are concerned with a mechanical phenomenon. The resemblance between one tooth and another, one vertebra and another, should be considered as comparable with such repetitions as the ripples on sand caused by the wind, or any other simple mechanical repetition. In the same way that a ripple on the sand forks and reduplicates itself, so when a part divides in the living creature it can do it in such a way as to make a reduplication. But there is a striking difference between waves which can be produced mechanically and the reduplications of living organisms, because, in the former, we have not to take into account the chemical changes which accompany the latter. It is for the physicist to explain this repetition accompanied by chemical differentiation; it is to the geometrical structure of the organism that attention must now be turned. Such cases as that of the Flaked Carnations must be connected with the geometrical design of the plant. This Carnation has coloured flakes on a white ground, and almost certainly cannot breed true. It throws whites, self-coloured, and flaked plants. On the other hand, Picotee varieties, in which the red pigment forms a regularly arranged edging to the petals, probably can breed true. In the flaked form the pigment elements are not in order, not geometrically arranged, and the germ cells are in similar disorder.

THE BREAK-UP OF ESTATES.—In the course of their report on land ownership, summarised elsewhere (p. 69), the Departmental Committee of the Board of Agriculture states that, as is generally known, unusually large numbers of estates are being broken up and sold at the present time. The sales of agricultural land in 1910 realised 1½ million pounds, and in 1911 over 2 million pounds. The Committee believes that these sales are likely to continue. Among the reasons which were suggested by witnesses before the Committee were, first, a feeling of apprehension among landowners as to the course of legislation and land taxation, though the Committee points out that no evidence was put before it to show that purely agricultural land had been adversely affected by existing legislation, except in the case of the death duties. Second, there is evidence that at the present time a considerable amount of agricultural land is let at rents below its present value. Owing to a large measure of agricultural prosperity, and to a growing demand for agricultural land, the landlord often prefers to realise by sale rather than to increase his rents. Third, not a few estates are mortgaged, and either the owner prefers to sell and realise the difference between the mortgage and sale price, or in other cases the mortgagees are realising their securities.

BEQUEST TO LINNEAN SOCIETY.—By the will of Mr. FRANCIS TAGART, late of Stoke Bishop, Bristol, recently proved, a sum of £500 is bequeathed to the Linnean Society. The testator, who died on November 25 last, aged 92, was a director of the Surrey Commercial Dock Company.

BOARD OF AGRICULTURE AND FISHERIES.—The *Bulletin* of Agricultural Statistics for January has just been published by the International Institute of Agriculture. The final returns of the cereal harvest in 1911 are given for Norway, Sweden, and Canada. In the last-named country the Wheat harvest is given as 115,604,000 cwts., and Oats as 105,669,000 cwts., being 143.9 per cent. and 107.6 per cent. respectively of the previous year's crops. Figures for the production of wine in the whole of France have now been received, and show a total production of 987,482,000 gallons, as compared with 627,659,000 gallons in 1910. The production of wine in Spain, France, Hungary, Italy, Luxemburg, Roumania, Switzerland, Algeria, and Tunia is now given as 141.2 per cent. of last year's production, as compared with 136.4 per cent., as stated last month.

THE LATE PROFESSOR ZACHARIAS.—The many friends of the late Professor EDUARD ZACHARIAS have decided to perpetuate his memory by a likeness in relief, and are inviting those who share their esteem for the life and work of ZACHARIAS to subscribe to the memorial. Professor ZACHARIAS, who died last year, took a long and honourable part in the intellectual life of Hamburg, where he held the post of Director of the Botanical "State-Institute." His contributions to the advancement of botanical science were both numerous and important, and gained for the late professor a world-wide reputation. Subscriptions toward the cost of the memorial may be sent to the Deutsche Bank, Hamburg, or to Professor H. FITTING, Director der Botanischen Staats-Institute, of that city.

WEATHER GUIDES FOR FRENCH FARMERS.—*The Standard* reports that a French Commission is studying the question of establishing provincial meteorological stations to serve the interests of farmers and of agriculture generally. The proposed scheme suggests that there should be numerous advertising stations connected with the existent meteorological stations, and that these advertising stations should receive and post conspicuously every day a telegram showing the atmospheric conditions and giving the forecasts. The advertising stations would proceed to deduce the atmospheric effects on the crops in their various districts and to issue the requisite warnings and directions with regard to frost, hail, or the probable germination of an insect pest. The advertisements might consist of signals by sound, or by light at night, and so the most distant farms would be kept in touch with expected meteorological conditions.

PHOSPHATIC MANURES.—An article of particular interest to horticulturists, dealing with the use of phosphatic fertilisers in France, is published in *Nature*. It appears from soil surveys undertaken some years ago by M. RISLER that, out of the total agricultural area of 122,500,000 acres in France, no fewer than 90,000,000 acres are so deficient in phosphates as to be unable to yield profitable crops without the liberal addition of phosphatic fertilisers. Hence it is not surprising to learn that French cultivators use annually a quarter of a million tons of basic slag on grass land and about 1½ million tons on arable land—this in addition to the phosphate contained in guano, which manure is used freely. Even so, the quantities of phosphate employed are insufficient, and, unfortunately, the increase in price of phosphatic fertilisers tends to restrict their more general use. The French supplies of rock phosphate, from which superphosphate is prepared by treatment with sulphuric acid, are insufficient to meet the demand, and phosphates are imported into France from North America, Africa and elsewhere. When it is remembered that the world's consumption of phosphates has increased from 4½ million tons in 1898 to 10 million tons in 1908, it is easy to see that the price of the commodity is likely to increase considerably in the future. In illustration of the value of phosphates in increasing not only yield but quality, mention may be made of the observations of Müntz, which show that dairy produce—and particularly butter—is only obtained from pastures rich in phosphates. Again, as shown by M. PATUREL, the quality of wine appears to depend in the most intimate way on the supply of phosphates to the vines producing it. Analyses prove that it is possible to grade wines according to the quantity of phosphoric acid they contain. Wines of the first class are found to be richest and those of the other classes progressively poorer in phosphoric acid.

THE VACUUM CLEANER AS A DESTROYER OF PLANT PESTS.—It appears that the ingenious Americans have discovered a new use for the vacuum cleaner in sweeping up the larvæ of the Alfalfa beetle. According to the *Westminster Gazette*, the only successful means of getting rid of this pest, which does so much damage to Lucerne and Alfalfa, is to turn the vacuum cleaner on to the affected fields. Will some enterprising horticulturist take the hint and ascertain whether this new "insecticide" is capable of use in our plant houses?

COBÆA SCANDENS VAR. DEUTSCHER RUHM.—Mr. D. TINZMANN, writing in MÖLLER'S *Deutsche Gärtner-Zeitung* (No. 3, 1912), expresses a high opinion of this new variegated-leaved variety of Cobæa scandens. The grey-green leaves have a broad, irregular, white margin, the outer edges of which are of a delicate rose colour. The brightness of the foliage and young buds, the freedom of flowering, and the attractiveness of the lilac-red flowers make the Deutscher Ruhm variety of the utmost value as a climber. It grows freely in the open, and though it is necessary to bring it indoors into a cool house or frost-proof room during the winter, a well-established plant reaches during a season a length of from 6 yards to 12 yards. The new variety may be raised from cuttings. Established plants require to be cut back hard in autumn. Deutscher Ruhm does well in the open, and appears to be an excellent subject for pergolas or balconies.

PUBLICATIONS RECEIVED.—***The Uses of Potash in English Agriculture and Industry.*** (The Agricultural Offices of the Potash Syndicate, 117, Victoria Street, London.) Gratis.—***West Virginia University Agricultural Experiment Station, Morgantown. W. Va. Bulletin 135: West Virginia as a Poultry State,*** by Horace Atwood.—***Board of Agriculture and Fisheries, Agricultural Statistics, 1911. Acreage and Live-stock Returns of Great Britain.*** (London: Eyre & Spottiswoode, Ltd.) Price 5½d.—***Saturday in My Garden,*** by F. H. Farthing. (London: Grant Richards, Limited.) Price 3s. 6d. net.—***"Press" Directory 1912. Guernsey, Alderney and Sark.*** (Guernsey: Guernsey Press Company, Ltd.) Price 6d.—***Kew Bulletin: Additional Series IX. The Useful Plants of Nigeria. Part II.*** (London: Darling & Son.) Price 2s. 6d.—***Rural Development and Small Holdings.*** Report of the Proceedings of the National Congress held at the Festival of Empire, Crystal Palace. (London: P. S. King & Son.) Price 2s. net.—***Small Greenhouses,*** by T. W. Sanders. (London: Agricultural and Horticultural Association.) Price 1d.—***Garden Design: In Theory and Practice,*** by Madeline Agar. (London: Sidgwick & Jackson, Ltd.) Price 7s. 6d.

CATTLEYA MAGGIE RAPHAEL ALBA "ORCHIDHURST VARIETY."

THE fine white variety of Cattleya Maggie Raphael, shown in fig. 35, was exhibited by Messrs. Armstrong & Brown, Orchidhurst, Tunbridge Wells, at a meeting of the Royal Horticultural Society, on January 9, when it received an Award of Merit from the Orchid Committee. The illustration shows the flower reduced in size, but it well portrays the fine shape of the blossom. The delicate gold veining on the light magenta-crimson-tinted lip is one of the chief beauties of the variety. The sepals and petals are pure white and of fine substance, consequent on the cross being obtained between a specially-good form of C. Dowiana aurea and the best, pure-white variety of Cattleya Trianæ alba.

MOVEMENT IN PLANTS.

(Concluded from p. 50.)

FINALLY, another series of movements is due to hygroscopic changes in certain cells or cell-walls. These mechanisms are quite comparable with the wetted paper above mentioned. But the wonderful feature in them is this: the walls are so constructed that when water is soaked up by them expansion takes place differently on the two sides of the membrane or sheet of cellular tissue. A strip of celluloid coated with gelatine, like the films used in photography, illustrates in a general way how they are constructed. Such a film when dry commonly rolls tightly up with the gelatine inside, and unrolls when wet. This is because the gelatine soaks up much more water, and gives out correspondingly more, than the celluloid part of the film. Now, when a Rose of Jericho (Anastatica) plant is observed in its dry state the twigs are all bent inwards, but a brief immersion in water causes them to unroll and spread out. This is because there is a difference in the structure of the thick mechanical cells of the upper and lower side of the branches. The cells on the upper side are so constructed as to elongate by nearly 8 per cent. of their length when wet (contracting to a corresponding extent when dry), while those on the under side do not enlarge in this way. A mental picture of the finer structure of the walls may be formed if they are imagined to be built up of long, narrow bricks, which are placed one above another with the long axis running transversely on the upper side of the branch, and longitudinally on the lower side. It will be plain that there will be many more interstices in a given length of the upper than the lower surface between which water can penetrate and force the bricks further apart, and it is this circumstance that enables the hygroscopic movements to take place.

Some of these hygroscopic movements are very complex. The inrolling of the valves of a Campanula or Poppy capsule depends on this kind of structure, and so do the very beautiful movements of a Moss peristome. Indeed, the various species of Mosses afford some of the most wonderfully adapted mechanisms for ensuring the proper dispersion of the spores that can well be imagined.

It is of course quite impossible, within reasonable limits of space, to do more than merely touch upon the varied forms of the motile mechanisms of plants. They exhibit almost endless variety in detail, though they fall into the three chief types, protoplasmic, water-cohesion, and hygroscopic, which I have briefly indicated. But the purposefulness of the arrangements forms the really marvellous feature in all of them, and perhaps the hygroscopic type is the most baffling of the three, inasmuch as it has been prepared long before it can be of any use to the plant, and its operation is not, so to speak, due to contemporary response on the part of the living substance. Moreover, like the eye of an animal, every part has to be adjusted with due regard to all the others, or the mechanism would not work. Thus again we are confronted with the elemental mystery that always opposes us whenever we try to get really face to face with the fundamental secrets of Nature. *J. Bretland Farmer.*

FIG. 35.—CATTLEYA MAGGIE RAPHAEL ALBA "ORCHIDHURST VARIETY"; SEPALS AND PETALS WHITE, LIP VEINED WITH GOLD ON MAGENTA GROUND.

SCOTLAND.

EDINBURGH PUBLIC GOLF LINKS.

ALTHOUGH the charge to golfers for playing the whole round on the Braid Hills course was raised in March last from twopence to threepence, the fees for the year amounted to £932, against about £600 in 1910. The Saughton Park course, where there are only nine holes, for playing over which one penny is charged, has yielded a revenue of upwards of £260, nearly 63,000 rounds having been played. The Portobello courses have also increased in favour with players, upwards of 27,000 rounds at twopence and nearly 16,000 at one penny producing an income of close on £300.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

PROPOSED EXHIBITION OF SOUTH AFRICAN FRUITS.—The following cablegram was received on January 22 by the High Commissioner in London for the Union of South Africa from the Department of Agriculture, Pretoria:—"Owing to unforeseen circumstances, regret Government compelled to abandon exhibition." No further explanation has yet come to hand, but it is necessary to abandon the exhibition accordingly. All notices appearing in the Society's "Book of Arrangements," on Fellows' tickets, and elsewhere are cancelled. *W. Wilks, Secretary Royal Horticultural Society.*

THE PROMISE OF THE B.G.A.—I rejoice in being able to assure readers that all is well with the B.G.A. The *Chronicle* showed a lively interest in its birth; indeed, the then worthy editor, the late Dr. Masters, actually presided at that auspicious event. Rumour has been busy lately with respect to the health and character of the stripling, but she proves in this, what she so often is, a base slanderer. There was a difference over trifles between the worthy hon. secretary and the executive council, which had the very excellent result of leading the council to decide

that a paid secretary, an office, and other progressive steps were needed to enable the Association to push on. There are nearly 2,000 members, the funds are about £400, and, more important than either, a resolute earnest spirit appears to have taken possession of the members, which is of good omen. A special general meeting was held a few days ago, and whilst I am unable to give a report of the proceedings—the council having decided to do this in the next number of the B.G.A. *Journal*—I may express the delight I felt at the way the work was done. An earnest business council and about 80 members, some of them delegates from distant branches, sat down to consider ways and means, and it was soon evident that here was a body of men, most of them on the sunny side of 40, who were capable of doing things well. Of the original members, I mean the organising committee, only three of us were present, and it was very encouraging to discover that the present set of active promoters of the cause have at least as much fire as, and perhaps more wisdom than, the early set had. What a chance there is this year to increase the membership to 5,000 or even 10,000! For the great International Horticultural Exhibition will draw all good gardeners Londonwards, in heart if not in person (they will not all be able to afford it), and if the B.G.A. could arrange the right kind of camp or headquarters—but I am going too far; no doubt this band of stalwarts have an eye on what the year promises and will plan accordingly. My object now is to assure distant members of and sympathisers with the B.G.A. that it is stronger now than it ever was, and judging the present generation of gardeners by those that were present at the meeting mentioned above, I am convinced that the effort to form an association of professional gardeners to make the most of their calling and of themselves is going to succeed. *W. W.*

THE COLOURING OF APPLES.—The other day as I was rushing off to lecture, I stuffed Mr. W. Dyke's *Science and Practice of Manuring* in my pocket, and in the train looked up his remarks on "colour" in fruits. He says (p. 45): "A potash fertiliser, like muriate or sulphate of potash, will cause the growth to be of a thick, firm texture, and the fruit will be of a better flavour and colour." He also says (p. 104), on the colouring of Grapes: "Some growers have a difficulty in getting Grapes to properly colour. This is often due to an unbalanced condition of the soil food. A great improvement is found to follow the application of this mixture: One part sulphate of potash, one part sulphate of magnesia, 2 ounces to the square yard after the second swelling." At the lecture, which was on "Manures," two or three first-class gardeners confirmed this use of potash to obtain a deeper colour. *J. Bernard Hall.*

CARBON-DIOXIDE OR NITROGEN.—The old practice, carried out by many experienced gardeners, of "damping down" vineries with weak manure water before closing them for the night suggested to the writer that experiments might be undertaken to find out the reason for the practice. Vines treated in this way resist the ravages of red spider much longer than those which are not treated: the foliage is of a firmer texture and a better colour. Two theories can be advanced for this: the first, that the vapour from the manure-water contains carbon-dioxide; and the second, that the vapour contains nitrogen or some compound of nitrogen which is readily absorbed by the plant through the foliage. To test these theories, experiments were carried out during the summer of 1910. The first, a Cucumber house, 120 feet by 12 feet, planted with a row on each side at 2 feet 6 inches apart, in made-up borders, was top-dressed with manure, obtained from a "cattle court," to a depth of 2 inches; no ventilation was allowed, not even on the hottest day of summer. A temperature of 70° to 75° Fahr. was maintained by fire-heat, and sometimes on the hottest days a temperature of 110° Fahr. was reached. This was only made possible by keeping the atmosphere thoroughly saturated with moisture. Had this not been done, the foliage would have been scalded. It was realised when arranging this experiment that it would not give a certain result, and that it would only show that heat and moisture, combined with manure, would be beneficial or otherwise to the plants. The resulting crop was satisfactory in every way, the absence of misshapen Cucumbers being quite remarkable. To find out if it was the heat and moisture or the manure which was supplying the vitality, two more houses were observed at the same time as the first. One was treated in the same way as the first, except that no manure was used. This house did not give anything like such good results, neither as regards the health and vitality of the plants nor the resulting crop; not even with the top-dressings of soil which it frequently received. These two experiments alone would go to prove that it was the manure which was the stimulating cause. But this conclusion proved to be wrong by the third house of the series, which was top-dressed with manure the same as the first, the only difference being that it was wholly dependent on solar heat. Houses treated in this way require ventilation, as it is so much easier to keep the atmosphere at saturation point, and if ventilation is not practised, many of the embryo Cucumbers "damp" off. This house was not different from others which were being given exactly the same treatment, except that they were not dressed with manure. From the result of these experiments it would seem that a combination of heat, moisture, and manure would give a result which could not be obtained when these three essentials were used separately. In the second experiment it is proved that heat and moisture alone would not provide as good results; and in the third that manure alone makes little or no difference to the resulting crop, probably because it had not sufficient time in a cold house to be converted into plant-food. The question naturally arises: What is the vital force? Is it carbon-dioxide, or is it some product of nitrogen? Another form of culture which the writer uses seems to point to the latter theory. A great difficulty—in fact, the only difficulty—in forcing Tulips for the Christmas and New Year festivitives is the poor, badly-coloured foliage and the length, or want of it, in the stem. Or, to put it more plainly, a want of vitality. This, to a great extent, can be remedied by the application of sulphate of ammonia containing 20 per cent. nitrogen, at the rate of 1 ounce to 2 gallons of water. This sprayed on to the hot-water pipes every evening or late afternoon, will work wonders in Tulip-forcing, providing everything else is suitable. The foliage is of a much better colour, the stems longer, and there is an absence of yellow-tipped foliage when they are treated in this way. This naturally leaves the impression that it is the nitrogen which supplies the stimulant. I am not in a position to verify this. I might say it was nitrogen or some product of nitrogen from the results of the last method of culture, but the doubt arises: Does the sulphate of ammonia change its chemical composition by vaporisation? *H. E. N.*

APPLE TREES IN GRASS LAND (see p. 44).—No single set of experiments can render negatory the practice of generations carried out in many countries. My own experience is limited, in that only a few Apple trees are grown here in grass land, but, such as it is, it is altogether favourable to grass culture, the fruit produced being very large and highly coloured. Fruits of King of the Pippins are, in favourable seasons, quite as fine here as in many of the southern counties of England. Last year some of the Apple trees in grass were surface dressed with cow manure, as the trees were lacking in vigour. Now, had all the grass been dressed I should have believed that the manure had been the cause of giving us the largest and best-finished fruits of Warner's King ever produced here, but, since the fruit was just as good on trees not dressed, the excellence cannot be attributed to the manure. Besides, these little orchards, which have been under grass for a great number of years, three years ago the ground through which passes an Apple-covered walk 450 feet in length was laid down in grass. One reason for this was that the trees—Codlins—were badly affected with red spider, and I am hopeful that the grass over the roots will enable the trees, with sprayings, to gradually overcome the spider. All our Apricot trees are planted in grass land, also some Pears, and all the trees are in the best condition of health and fertility. With regard to trenching ground, it is not in all cases essential. Some 15 years ago we had a truck load of standard trees from Somersetshire to plant in a park for effect. Some of these, after a year in the garden to make fibrous roots, were pitted and have done splendidly, though no care was taken to keep the grass from growing near to the stems. At the same time, it must be explained that they were large trees, perhaps 8 years to 10 years old. Another experience with Apples in the past winter may be worth recording. A quarter of the kitchen garden, which had not been trenched for several years, say ten, was trenched in the end of 1911, and, though the rows of Apples on each side of the quarter were 75 feet apart, the whole of the under spit was permeated with roots. Now it is clear that Apples which have been established for a number of years, whether the ground was trenched or not, will have very few active feeding roots in the vicinity of the stems, unless they be those of other trees, so that, in applying manure, the whole surface would need to be covered and not merely a portion near the stem of each tree. I quite agree that, until the trees are well established, Grass has a retarding influence not only on Apples but on woody vegetation in general. Afterwards it seems to do no harm, and perhaps is beneficial. *R. P. Brotherston, Tyninghame Gardens, East Lothian.*

ACACIA BAILEYANA AND IRIS STYLOSA.—In reference to Mr. Morgan's inquiry in the last issue as to Acacia Baileyana flowering out-of-doors, I may state that a specimen has been in flower here for about three weeks. The flowers are very sweet, and form a lovely mass of yellow. When not in flower, the plant is distinct by reason of its glaucous foliage, but the leaves lose this tint a little at flowering time. There are a few flowers on a tree of A. longifolia floribunda in the open here, and Acacia dealbata is beautifully in bloom. The latter tree is about 12 feet high and covered with flowers which are not such a deep yellow as those of A. Baileyana. Later on, A. verticillata, A. juniperina, A. armata, A. Riceana, A. hybrida, and A. cultriformis, on walls and in the open garden, will contribute a share of the beauty which these beautiful and not very tender subjects give during spring and early summer. Plants of Iris stylosa on the rock-garden are flowering profusely, probably because of the hot summer of last year. *R. W. Norman, The Gardens, Heligan, St. Austell.*

THE VALUE OF LIMESTONE AS A FERTILISER.—The use of lime in the form of limestone is of the greatest importance in practical agriculture and horticulture. It has been employed in various forms in almost every country, and from the most remote period. Lime is found in plants, and in some it exists in large quantities. It occurs sometimes in the form of carbonate on the surface of plants. Thus many of the Characeæ have a calcareous encrustation. The crystals or raphides found in the cells of plants have lime in their composition. In the roots of Turkey and East India Rhubarb, the crystals of oxalate of lime have been estimated at about 25 per cent. of the dry weight. It has been ascertained that all vegetable life takes up lime, and more largely from the natural lime, viz., limestone in a properly-prepared form as plant-food than from burnt lime. In olden times and until the period of about 1850, there was no mechanical means of reducing limestone to a fine and bulky powder, therefore the benefits of burning were enormous, inasmuch as by slaking the burnt lime was and can be reduced to a much finer powder. Now that means are provided for the crushing of limestone and reducing it to the finest of powder, limestone can be applied to the land and the crops in a crude form, and is to be preferred to burnt lime. In the use of ground limestone, which are different forms of the same sub-tance, viz., carbonate of lime, carbonic acid gas is given off. One cwt. of ground limestone (carbonate of lime) is of more value than 2 cwt. of burnt lime (calcium oxide). Experiments made annually with the use of ground limestone and the addition of half the usual quantity of farmyard manure have produced better yields of crops than has burnt lime. Whereas burnt lime applied continually, has its exhausting effects, and has been noticeable from earlier times, limestone used naturally (unburnt), ground to the finest powder, and applied in this form, has great advantages: (a) in cleansing any land of nematodes, (b) sweetening the soil, (c) assisting in ventilation, (d) preventing club root, (e) keeping down fungous diseases. *John Smith, County Council Lecturer and Instructor, Durham.*

STREET TREES IN CANADA.—In his interesting note on this subject (see p. 3) *Pom* does not mention the kinds of trees which are planted in the streets of Canada; neither does he give the names of those in the Winnipeg street, which were said to have withstood such intense cold. The illustration (see fig. 2) shows a street of exceeding width, as compared with that of an English town, and the trees evidently have both head and root room far in excess of that which trees in our streets have. Also smoke and soot are evidently very much less in evidence in such open spaces, as the street shown in the illustration can scarcely be less than 100 feet wide. The illustration shows that the trees are not subjected to distressingly hard prunings such as our street trees receive in winter. They seem also as if they are allowed to grow naturally and not constrained into rigidly spiral or conical forms. *A. D.*

THE PRONUNCIATION OF PLANT-NAMES.—"A little learning is a dangerous thing." Of late years many people have learnt that in Latin words the vowel *a* is to be pronounced *ah*, as in *Ah* or *Bah*. Therefore, they speak of Clematis montana as Clematis montahnah. Why do they confine the "new pronunciation," as the schoolmasters term it, to the specific name only, when to be consistent they ought to speak of Claymahteece montahnah? In like manner Iris stylosa should be called Eereece steelosah and nothing else. Others having learnt that the German syllable heu is to be pronounced like the English syllable hoy, and not knowing that the German *ch* is to be pronounced as we pronounce it in *loch*, talk about their Hoykeras. And only the other day I heard one in a garden mention Iris Cockeye! Surely, sir, until we "reform" all our spelling and all our pronunciation, we ought to be content with speaking as our fathers spoke, and say Briza, not Breezah; Dahlia, not Daylia; Cakile, not Cahkeelay. *George Hyde Wollaston, Flax Bourton.*

LILIUM SULPHUREUM AND L. FORTUNEI (see p. 19).—The illustration of L. sulphureum in fig. 14 conveys a very fair impression of its form and the general poise of the blooms on the stems. The fine trumpet-like blooms have just that pleasing droop downward which relieve them of any stiffness, and enables one to see the beauty of the sulphur-coloured throat and the prominent stamens. In these gardens fine flowers of this beautiful Lily upon their tall, slender stems, towering above the plumed, massive heads of Hydrangea paniculata grandiflora, were a sight that gave pleasure to all who saw them. In the early morning and at eventime the blossoms diffused a pleasant fragrance that was not overpowering as in the case of some other Liliums. The bulbs were planted in a heavy loam with which was incorporated a good dressing of partly decayed leaf-mould before planting; and decayed leaves are also pricked into the soil in autumn every year. We place a collar of perforated zinc around the stems to guard the young growths against slugs. The plant produces bulbils freely, offering a ready means of increasing the stock. Lilium Fortunei appears to be unpalatable to the slugs. The plant grows strong, and the flowers are placed well apart in a more or less pyramidal head. In the autumn this Lily gives a pleasing colour effect above the dark green foliage of dwarf growing Rhododendrons. *R. W. Norman, Heligan Gardens, St. Austell.*

CATALOGUES RECEIVED.

SEEDS.

GEE & SONS, Biggleswade.
CHAS. W. BREADMORE, Winchester.
JOHN R. BOX, Croydon.
CHARLES TURNER, Slough.

MISCELLANEOUS.

THE LIVERPOOL ORCHID AND NURSERY CO., LTD., Gateacre, near Liverpool—Orchids.
A. LL. GWILLIM, Sidcup, Kent—Begonias.

FOREIGN.

A. DALLINGES, Chene-Bourg, Geneva—Seeds.
CONYERS B. FLEU, JUNR., Germantown, Philadelphia, U.S.A.—Seeds of American Trees and Shrubs.
HENRY A. DREER, 714, Chestnut Street, Philadelphia, U.S.A.—Seeds.
WILHELM PFITZER, Militärstrasse, 74, Stuttgart, Germany—Seeds.
YOKOHAMA NURSERY CO., LTD., 21-35, Nakamura, Yokohama, Japan. (London address: Craven House, Kingsway)—Japanese Lily Bulbs, Plants and Seeds.

SOCIETIES.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

JANUARY 12.—*Committee present:* Rev. J. Crombleholme (in the Chair); and Messrs. R. Ashworth, W. R. Lee, C. Parker, H. Thorp, Z. A. Ward, J. C. Cowan, J. Cypher, J. Evans, W. Holmes, A. J. Keeling, D. McLeod, and H. Arthur (secretary).

The following Medals were awarded for collections of Orchids:—

Silver-gilt Medals to Z. A. WARD, Esq., Northenden (gr. Mr. Weatherby), for a group consisting principally of Odontoglossums. *Silver Medals* to W. R. LEE, Esq., Heywood (gr. Mr. Branch), for a mixed group; Col. J. RUTHERFORD, Blackburn (gr. Mr. Lupton), for a miscellaneous group; W. J. HARGREAVES, Esq., Burnley, for a group of Cypripediums; J. MCCARTNEY, Esq., Bolton (gr. Mr. Holmes), for a collection of miscellaneous plants. *Bronze Medals* to Rev. J. CROMBLEHOLME, Clayton-le-Moors (gr. Mr. Marshall), for small but pretty Cypripediums; G. H. PEARCE, Esq., Monton Grange (gr. Mr. C. Mace), for Cypripediums. Other exhibitors were: O. O. WRIGLEY, Esq., Bury (gr. Mr. Rogers); S. GRATRIX, Esq., Whalley Range (gr. Mr. Brown); J. J. HOLDEN, Esq., Southport (gr. Mr. Johnson); H. J. BROMILOW, Esq., Rann Lea (gr. Mr. Morgan); J. H. CRAVEN, Esq., Keighley (gr. Mr. Corney); R. LE DOUX, Esq., West Derby (gr. Mr. Fletcher); H. THORP, Esq., Middleton; Messrs. J. CYPHER & SONS, Cheltenham; Messrs. SANDER & SONS, St. Albans; Messrs. STUART LOW & Co., Enfield; Messrs. A. J. KEELING & SONS, Bradford; Messrs. HASSALL & Co., Southgate; Messrs. CHARLESWORTH & Co., Haywards Heath; Mr. W. SHACKLETON, Great Horton, and Mr. D. MCLEOD, Chorlton-cum-Hardy.

AWARDS.

FIRST-CLASS CERTIFICATES.

Lælio-Cattleya Myrrha grandis (Gottoiana × Dowiana Rosita), *Cypripedium Actæus* variety "*Durbar*," *Odontoglossum crispum xanthotes* variety "*Perfecta*," all shown by W. R. LEE, Esq. *Odontoglossum Delhi* (augustum × eximium), a fine flower, from J. J. HOLDEN, Esq. *Odontoglossum crispum xanthotes Gratrixæ*, from S. GRATRIX, Esq.

AWARDS OF MERIT.

Cattleya Maggie Raphael variety "*pulcherrima*" and *Odontoglossum* "*Milky Way*," both from W. R. LEE, Esq. *Cypripedium Jasper* (Alcibiades × Hitchensæ), a fine large flower, and *Odontoglossum* × *Eric*, a variety with deep purple blotches; both from Z. A. WARD, Esq. *Cypripedium Seedling* (hirsutissimum × aureum Hyeanum), exhibited by S. GRATRIX, Esq. *C. Actæus Major* (Leeanum giganteum × Harefield Hall), a well-shaped flower, from Col. J. RUTHERFORD, M.P. *C. caudatum Sanderæ* and *C. Jucundum*, a noble flower, from Messrs. SANDER & SONS. *Sophro-Cattleya Saxa* "Low's" variety (Sophronitis grandiflora × Cattleya Trianæ): *Cypripedium Lion* (Mrs. Mostyn × Euryades), a fine and round flower, from Messrs. A. J. KEELING & SONS.

LEEDS PROFESSIONAL GARDENERS.

THE forty-fifth annual report and statement of accounts of the year shows that this benefit society had out of a total income of £226 10s. 1½d. a credit balance amounting to £108 3s. 1d., bringing the accumulated funds up to £1,874 2s. 2½d. Sickness has averaged about seven days per member, one member and one member's wife have died, and the sum of £17 has been paid in death allowances, which, with £53 7s. 6d. paid in sickness benefits, makes a total sum of £70 7s. 6d. paid out of the benefit fund. Several members in poor circumstances have been assisted in the payment of their contributions and by grants from the Distress Fund, the amount disbursed being £8 10s. 7d. Three new members have been admitted during the year, one member has died, and eight lapsed or resigned, most of them having gone abroad. The number of ordinary members is 155. The secretary is Mr. George Carver, The Grange Gardens, Scarcroft, near Leeds.

ROYAL METEOROLOGICAL.

JANUARY 17.—The annual general meeting of this Society was held on the above date at the Institution of Civil Engineers, Great George Street, Westminster, Dr. H. N. Dickson, President, in the chair.

The Council, in their report, stated that they had decided to discontinue the collection of observations and the publication of *The Meteorological Record* as from December 31, 1911; and that they proposed to prepare a series of normal values of climatological elements of the British Isles.

The President presented to Professor Cleveland Abbe, of the U.S. Weather Bureau, Washington, the Symons Gold Medal for 1912, which had been awarded to him in consideration of his distinguished work in connection with instrumental, statistical and dynamical meteorology and forecasting.

The President delivered an address on "Some Meteorological Observations." He said that meteorology has at the present time reached an important and critical phase in its history. This is due, in the main, to the operation of three principal factors: (1) By the efflux of time a mass of observational material has been accumulated which urgently requires examination and discussion, with the object of ascertaining the precise meaning and value of the records and of improving routine methods for the future; (2) the rapid increase of knowledge of the conditions obtaining in the upper atmosphere has modified and is modifying current views as to atmospheric phenomena generally, and new interpretations must be placed upon the distributions observed at the surface of the earth; (3) the importance of applied meteorology in relation to agriculture and other activities of everyday life is becoming more generally recognised. It follows that there is in many directions urgent need for the extended prosecution of research work. Increase of popular interest and public support is necessary, and the active assistance of research workers must be enlisted. It is to be noted that the investigations required are of many different qualifications; they include the criticism and improvement of methods of routine observation, participation in organized exploration of the upper air, investigation of statistical and analytical methods of dealing with data already collected, investigation of mathematical or physical problems stated as the result of observation, and the examination or restatement of geographical or other questions affecting the relation of meteorology to the problems of botany and other applied sciences.

SOUTHAMPTON ROYAL HORTICULTURAL.

(ANNUAL MEETING.)

JANUARY 22.—The 49th annual meeting of the Southampton Royal Horticultural Society was held on this date. Mr. A. J. Day, J.P., presided, in the absence of the Mayor.

The annual report showed that the financial position of the society had improved since the last account was issued. Although a small sum was due to the treasurer, the council had been able to meet all liabilities. Many new members had been added during the past year, but a large number of former subscribers had been lost.

The Rose show was a success financially, and the exhibits, although showing a falling off in some classes, were generally of the highest order of merit. The autumn show was the best of the season, but, unfortunately, the attendance was disappointing, being, indeed, the lowest since the Chrysanthemum shows were instituted.

A liberal and comprehensive schedule of prizes is being prepared for the great Jubilee Show, to be held in July.

Mr. E. Kemp Toogood, in proposing the adoption of the report, impressed upon the members and his fellow townsmen the necessity of giving the society increased support to enable the council to celebrate the society's 50th anniversary in a fitting manner.

Lord Swaythling was elected president, and the vice-presidents were re-elected. Mr. Toogood was enthusiastically re-elected chairman of the council, Mr. A. Doggrell vice-chairman, and Mr. A. G. Thompson hon. treasurer. Mr. C. S. Fuidge was re-elected secretary for the 40th year.

GLASGOW FRUIT TRADE BENEVOLENT.

JANUARY 17.—The annual general meeting of the Glasgow Fruit Trade Benevolent Society was held on this date, the president, Mr. Malcolm Campbell, occupying the chair. The treasurer's statement showed that the society had accumulated a capital fund of over £800, and that the membership was 112. In moving the adoption of the report, the Chairman said that the members were to be congratulated upon the result of the first year's working. The directors were glad to report that they had not been called upon to make any payments for the relief of members. The annual dinner took place on the same evening at the Grand Hotel, the president again presiding.

LINNEAN SOCIETY.

JANUARY 18.—Dr. A. Anstruther Lawson gave a lantern lecture entitled "Some Features of the Marine Flora at St. Andrews," showing the wealth of algal vegetation at that part of the coast, and its special characteristics, including the habit of the plants when growing in their natural position under water. Illustrations of the gigantic Brown Algæ of the Pacific Coast were also shown for comparison.

The general secretary read a letter from Dr. George Henderson, accompanying a quantity of seeds of Nannorrhops Ritchieana (see fig. 32) which the sender wished should be tried in cultivation in the south of England by as many persons as possible. He stated that these seeds were of last summer's growth, and came from the Khyber Pass, where snow sometimes covered these Palms in winter, whilst the summer is very hot. He further suggested that heat might be requisite to cause the seeds to germinate freely. The seeds were distributed amongst those present at the meeting.

BRIGHTON HORTICULTURAL.

JANUARY 18.—The annual meeting of the Brighton, Hove, and Sussex Horticultural and Mutual Improvement Society was held at the Pavilion on this date. Mr. William Balchin (treasurer) was in the chair.

The report showed that the net loss on the Rose and Sweet Pea show was £95 11s. 3d. To meet the desire for economy, expressed by members at the last annual meeting, this show was held in the Dome and Corn Exchange, the lawns and promenade being dispensed with, but the exceptional heat proved the futility of the experiment, and the committee acknowledged this to be unsuccessful. The Chrysanthemum show was held at a net loss of £51 9s. 1d. This show was acknowledged to be a successful achievement otherwise than financially. The loss on the year's working amounted to £43 2s. 4d., compared with £51 15s. 3d. in 1910, £76 19s. 11d. in 1909, and £64 18s. 3d. in 1908. The report continued: "With regard to the financial aspect of the society, your committee view it with feelings of extreme gravity, and at first they were prepared to advise the 'winding-up' of the affairs of the society. However, our president kindly consented to receive a deputation, which acquainted him with the serious state of affairs. As the committee could hold out no reasonable hopes of carrying on the business of the society with assured success, the president suggested the formation of a guarantee fund of about £50, as an experiment for next year, himself offering £10, and promising to appeal to his friends who were interested in horticulture. In addition, he suggested the election of a smaller committee willing to become guarantors for £2 individually."

The following motion was adopted:—

Rule 2.—"That the officers shall consist of a president and vice presidents, and the business of the society shall be conducted by a chairman, vice-chairman, treasurer and secretary, and a committee of nine, to be elected annually. The chairman, vice-chairman, treasurer and the committee to become guarantors for £2 individually."

The officers were then elected as follow:—President, Alderman Colman, J.P.; chairman, Mr. Balchin; treasurer, Mr. George Miles; vice-chairman, Mr. Frank Woollard; secretary, Mr. A. J. Gaston.

Mr. George Miles thanked the society for the honour they had conferred upon him by allowing him to hold the position of chairman for so long. It was his jubilee in connection with the society, and he had without exception had something to do with the shows for 50 years.

HORTICULTURAL CLUB.

"BIRDS' EGGS: SOME REMARKS ON THE EVOLUTION OF COLOUR."

JANUARY 23.—This club held its usual monthly dinner at the Hotel Windsor on the above date, Mr. Harry J. Veitch occupying the chair, and a good number of members and guests being present. After the dinner Mr. Chas. E. Pearson gave an interesting lecture on Birds' Eggs, illustrating his remarks with a large number of lantern slides, depicting the nests of many rare birds and also clutches of eggs which had been laid among stones and in conditions where their peculiar colours render them all but indistinguishable from their surroundings. Mr. Pearson advanced the theory that all birds' eggs were primarily white as are those of the lizard and other reptiles, from which undoubtedly the birds' have been evolved. In course of time, what may be termed accidental variation led to natural selection of types which happened to be protective, and eventually in this way a great variety of colouration was brought about. Cases of such examples were exhibited both by the lecturer and Mr. Percy Bunyard. These eggs, only relating to two species of marine birds, the guillemot and the herring gull, represented the best of many hundreds of eggs collected from many sources, every one differing in marking, and most of them so brilliantly and variedly pigmented as to fully justify the enthusiastic admiration of everyone. The question of the protective character of this colouration seems to be an open one, though the fact that the eggs of birds of prey, which lay their eggs in inaccessible places, usually have white eggs, appears to point to a protective value in colour, which is further indicated by the eggs laid amongst water-worn stones that they so closely imitated as to be discovered only with great difficulty. It was stated in the course of the discussion which followed the lecture, participated in by Messrs. Percy Bunyard, E. A Bunyard, H. R. Darlington and others, that old birds are prone to lay eggs less well coloured than younger birds, as with the age the birds lose the power of pigmentation to a greater or less degree. Apart from the variation in the eggs themselves, the different modes of construction and situation of the nests, as depicted on the screen, evoked considerable interest, as did numerous interpolated anecdotes of bird and egg-collecting, and photographing experiences at home and abroad.

The next meeting, on February 20, will be the annual meeting and social evening, this latter following on the dinner which will take place at 6 p.m. There will not be any lecture on that occasion.

HASLEMERE DISTRICT CHRYSANTHEMUM.

JANUARY 26.—The annual meeting of this society was held on the above date. Sir Robert Hunter, K.C.B., presided. The report stated that the annual show was not such a success financially as usual, owing to the unsuitable hall; but that a more commodious building was available for the exhibition this year. On the motion of the chairman, both the report and balance-sheet were adopted. In returning thanks for his election as president, Col. J. C. Humphreys said that, in the event of a suitable hall not being forthcoming, he would be pleased to place his gardens at Red Court, Haslemere, at the disposal of the society. The hon. secretary, Mr. F. A. Edwards, Lower Grayswood Gardens, Haslemere, and the hon. treasurer, N. K. Cherrill, Esq., were re-elected, as were the committee, with one alteration. November 7 was suggested as the date of the 12th annual show, but it was decided to leave this and all other details concerned with the exhibition to the committee.

LIVERPOOL HORTICULTURAL.

JANUARY 27.—The 23rd annual general meeting of the above association was held in the Common Hall, Hackins Hey, on this date; Mr. W. Mercer presided. The secretary in submitting the report stated that the shows throughout the year had been fully up to the average, and that the Rose and Sweet Pea Show was a distinct improvement. According to the balance-sheet, the amount received in subscriptions was £273 6s. 6d., being a decrease of about £20. There was a balance to the credit of the society of £152 9s. 9d. The committee announced that the Spring Rose and Sweet Pea Show and the Autumn Exhibition would be held in the Corn Exchange. The Earl of Derby, Lord Mayor of Liverpool, was elected President. The following officials were all re-elected:—Hon. treasurer, Mr. W. F. Rogers; assistant treasurer, Mr. G. Blackmore; and secretary, Mr. Harold Sadler, 31, North John Street, Liverpool.

BRITISH GARDENERS' ASSOCIATION.

JANUARY 25.—A special general meeting of the members of this association was held at Carr's Restaurant, Strand, on this date. The chair was occupied by Mr. R. J. Frogbrook, and amongst others present were Messrs. E. F. Hawes, T. Winter, W. Watson, George Gordon, T. Bevan, J. Collier, John Weathers, C. P. Raffill, R. Johnson, W. H. North, J. Wood, J. Harrison Dick, W. H. Jenkins (Altrincham), W. Auton (Penrith), R. Groundwell (Leeds), H. Eavis and T. Smith (Haslemere), Cyril Harding and J. Dyfri Jones (Birmingham), W. Hall (Sunderland), T. Knight (Carlisle), S. Andrews, W. H. Aggett, and A. E. Cresswell.

After the notice convening the meeting was read, the Chairman stated that the first business on the agenda was the proposed alteration of the rules. The sub-committee appointed by the executive council had considered very carefully the general administration of the association. They came to the conclusion that the time had arrived when alterations must take place in the interests of the association in any shape or form. All agree that Mr. Weathers has performed excellent work for the association, and he deserves the greatest credit and praise for his work in past years. But the executive council considers that the time has come when it is impossible for one man, unless he gives his whole time, to carry out the work of general secretary. The executive council have no one in view for the post of permanent secretary. In the event of the report being adopted, the advertisement for a secretary should be inserted not only in the society's *Journal*, but also in the horticultural Press. The executive council feel that there is no need to appoint a man to the post who is not a member.

It was decided to consider the report before the proposed alteration of rules.

It was suggested by members that the sum of £104 per annum was an insufficient salary for a permanent secretary.

Mr. Harding (Birmingham) said that, although £104 per annum is not an extravagant salary to pay a man for the work which he will have to undertake, there is nothing in the report which suggests that the sum should be a permanent salary. The work of editing the *Journal* will not devolve upon the Secretary at all, for the post of the Editor of the *Journal* is to be entirely distinct from that of secretary.

Mr. W. Watson referred to the valuable work done by Mr. Weathers in the interests of the association. The appointment of a permanent official in the capacity of secretary had his (Mr. Watson's) hearty support. He was not quite satisfied that the various proposals made by the sub-committee would meet the requirements of the situation, and proposed that the executive council should prepare a scheme which should be put in the *Journal*, say in March, so that every member of the association would have plenty of time to consider the scheme and to criticise and forward his criticisms to the Editor. Mr. Wm. Hall seconded.

Mr. Watson's proposition was put, after the Chairman had spoken, but it was lost, and the report as printed was adopted. Both the proposed alterations in the rules were adopted unanimously.

The resignation of the hon. secretary, Mr. Weathers, was accepted, after Mr. Watson and the Chairman had paid tributes to his work on behalf of the association, and, on the proposition of the Chairman, the Gold Medal of the association was voted to Mr. Weathers amidst hearty applause.

In returning thanks, Mr. Weathers stated that he would be happy, as in the past, to do all in his power to further the interests of the B.G.A.

The Chairman announced that the executive council, acting on the rules and the powers granted to them, had asked Mr. A. E. Cresswell to undertake the duties of secretary pro tem, and Mr. Cresswell had accepted.

DEBATING SOCIETIES.

BATH GARDENERS'.—At the meeting of this association, held on Thursday evening, 11th ult., a paper was read by Mr. H. Chandler (of Messrs. Blackmore & Langdon, Twerton Hill Nurseries). Mr. Chandler had previously lectured to this society, the last paper which he prepared being also on the Carnation. On this occasion Mr. Chandler discussed the culture of perpetual-flowering Carnations. Mr. Chandler stated that the best method of propagation was by cuttings, which should be taken for general purposes from January to March. The best shoots for the purpose were found at the base of the flowering stems. They should be inserted in small pots, three or four being arranged around the edge of each pot. The compost employed should be composed of equal parts of loam and sand. After watering the plants they should be plunged in a gentle bottom heat, which should not exceed 60°. After a few days, ventilation may be given and the amount of fresh air gradually increased, until after two weeks, the lights may be dispensed with altogether. When rooted, the cuttings should be transferred to 3-inch pots. The second pottings should be in 4½-inch or 5-inch pots. By the end of April the plants may be placed in cold frames. Care should at first be exercised in the amount of air allowed. When the young plants are about 6 inches or 8 inches high they should be cut back to about the fourth joint, and all shoots should be pinched back to the fourth or fifth joint until the end of June. The plants should be housed about the first week in September. The night temperature should range from 45° to 50°, rising to 60° by day. Air may be admitted to the house, except when very severe frosts prevail. As soon as the pots become full of roots, weak liquid manure should be given, and occasionally some artificial fertiliser.

——— The usual fortnightly meeting of this society was held on the 22nd ult, Mr. T. Parrott presiding. Mr. Robb read a paper on "Chrysanthemum Culture," dealing with the cultivation of the Chrysanthemum. At the conclusion of the paper an interesting discussion followed. Four new members were elected. The annual outing will take the form of a visit to the Royal International Horticultural Exhibition to be held at Chelsea in May.

WARGRAVE AND DISTRICT GARDENERS'.—At the meeting of this association held on January 24, a lecture on "Roses" was delivered by the Rev. F. Page-Roberts, ex-president of the National Rose Society. After the lecturer had given a short account of the Mendelian theory and hybridising Roses he dealt with soils, and gave advice as to what Roses to plant in different soils. The way to form a Rose bed or Rose garden was next described, and the principles of manuring, watering, pruning and budding were explained in detail. The many enemies of the Rose, with the best remedies for dealing with them, were next brought under review, and the lecturer showed 50 fine lantern views of Roses, Rose gardens and specimen exhibition flowers.

READING GARDENERS'.—The opening meeting of the 1912 session was held on Monday the 22nd ult., the president, Mr. F. B. Parfitt, occupying the chair. Mr. W. Marshall, Henley-on-Thames, showing lantern views of direct colour photography. A large audience was augmented by members of the Reading Natural History Society, about twenty members with their president (Mr. W. E. Butler) being present. Several of the horticultural students from the University College were also among the company.

BAUGHURST AND TADLEY GARDENERS'.—The annual meeting of this society was held on January 11. Mr. F. Stokes, of Inhurst House, presided. The balance-sheet was approved. The re-election of officers and committee took place, with one exception, Mr. Wells, of Tadley, taking the place of Mr. A. Stacey, who had left the neighbourhood. The seventh exhibition was fixed for July 25.

WEYBRIDGE AND DISTRICT HORTICULTURAL.—This society commenced the new year with great success, there being more than 50 members present at the opening meeting, Mr. Rowe presided. Mr. Mills, the Gardens, Combe House, Croydon, delivered a lecture on "Spring-flowering Plants for Spring Bedding and Rock Gardens," illustrated by over 100 lantern slides.

BRISTOL AND DISTRICT GARDENERS'.—A well-attended meeting of this association was held on the 25th ult., A. Perryn, Esq., presiding. Mr. Strugnell, gardener to Walter Long, Esq., delivered a lecture on "Hardy Fruits." Speaking of the colouration of fruit, Mr. Strugnell said it was chiefly influenced by sunshine and vapour.

OXFORD AND DISTRICT GARDENERS'.—The members of the Oxford and District Gardeners' Mutual Improvement Association held their first meeting of the spring session on Wednesday, January 17, when Mr. H. E. Heaton of Cremingham Park, read a paper on "Gardeners and Gardening."

CROYDON & DISTRICT HORTICULTURAL.—The 12th annual dinner of this society will be held at the Greyhound Hotel, Croydon, on the 15th inst. The secretary is Mr. H. Boshier, 62, High Street, Croydon.

MARKETS.

COVENT GARDEN, January 31.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—EDS.]

Cut Flowers, &c.: Average Wholesale Prices.

	s.d.	s.d.
Arums (Richardias)	5 0	6 0
Azalea, per dozen bunches ...	3 0	4 0
Camellias, per box of 18's and 24's	1 6	2 0
Carnations, p. doz. blooms, best American var.	1 6	2 0
— smaller, per doz. bunches	18 0	21 0
— Carola, crimson, extra large	6 0	—
Eucharis, per doz.	2 0	2 6
Freesia refracta alba, p.dz. bun.	1 6	2 0
Gardenia, per doz.	6 0	9 0
Helleborus (Christmas Roses), p. dozen	1 6	2 0
Hyacinth (Roman), pr. doz. bnchs.	6 0	8 0
Lilac, per bunch white	2 6	3 0
— mauve	3 0	3 6
Lilium auratum per bunch ...	4 0	5 0
— longiflorum, long, per doz.	4 0	5 0
— short, per doz.	4 0	4 6
— lancifolium alba, long ...	2 0	2 6
— — short ...	1 6	2 0
— speciosum rubrum, dz. blooms:		
— long	2 0	—
— short	0 9	1 0
Lily of the Valley, p. dz.bunches:		
— extra special ...	15 0	18 0
— special... ...	10 0	12 0
— ordinary ...	8 0	—
Marguerite, per doz. bunches:		
— Yellow... ...	2 0	2 6
Narcissus, per doz. bunches:		
— Double Van Sion	4 0	6 0
— Golden Spur...	4 0	5 0
— Henry Irving	2 6	3 0
— Paper white ...	2 6	3 0
— Poeticus ...	3 0	4 0
— Princeps ...	3 6	5 0
— Sir Watkin ...	4 0	6 0
— Soleil d'Or ...	1 0	1 6
Orchids, Cattleya, per doz. ...	12 0	—
— Odontoglossum crispum ...	3 0	4 0
Pelargoniums, p. dz. bunches:		
— Double Scarlet	8 0	12 0
Roses, 12 blooms,		
— Bridesmaid,	4 0	5 0
— C. Mermet ...	4 0	5 0
— Liberty ...	5 0	6 0
— Mme. Abel Chatenay ...	5 0	8 0
— Niphetos ...	2 6	3 6
— Richmond ...	5 0	6 0
Tuberose, gross ...	9 0	10 0
— long, p. bunch	2 0	—
Tulips, per bunch:		
— double pink ...	1 0	1 6
— — yellow ...	1 0	1 6
— — scarlet ...	1 3	1 6
— pr. doz. bnchs:		
— white	7 0	8 0
— yellow	7 0	9 0
— scarlet ...	8 0	10 0
— bronze... ..	8 0	9 0
— pink	9 0	15 0
Violets, per dozen bunches ...	1 3	2 0
— Princess of Wales, per doz. bunches ...	3 0	4 0
— Parma	2 0	2 6

Cut Foliage, &c.: Average Wholesale Prices.

	s.d.	s.d.
Adiantum Fern (Maidenhair), best, per doz. bunches ...	6 0	8 0
Agrostis (Fairy Grass), per dz bunches ...	2 0	4 0
Asparagus plumosus, long trails, pr. ½doz.	1 6	2 0
— medium, doz. bunches ...	12 0	18 0
— Sprengeri ...	10 0	12 0
Carnation foliage, doz. bunches...	4 0	—
Croton foliage, various, per dozen bunches ...	12 0	15 0
Cycas leaves, artificial, per doz.	3 0	12 0
Eulalia japonica, per bunch ...	1 0	1 6
Moss, per gross ...	6 0	—
Myrtle, dz. bchs. (English), small-leaved ...	6 0	—
— French ...	1 0	—
Smilax, per bunch of 6 trails ...	1 0	1 3

Plants in Pots, &c.: Average Wholesale Prices.

	s.d.	s.d.
Aralia Sieboldii, p. dozen	6 0	7 0
Araucaria excelsa, per dozen ...	18 0	21 0
Asparagus plumosus nanus, per dozen	10 0	12 0
— Sprengeri ...	8 0	9 0
Aspidistra, p. dz., green	21 0	30 0
— variegated ...	30 0	60 0
Azaleas, per dozen	36 0	42 0
Cocos Weddeliana, per dozen:		
— 60's	6 0	12 0
— larger, each ...	2 6	10 6
Croton, per dozen	18 0	30 0
Cyperus alternifolius, per doz.	5 0	6 0
— laxus, per doz.	4 0	5 0
Daffodils, per dozen	6 0	8 0
Dracæna, green, per dozen ...	10 0	12 0
Ericas, per dozen:		
— hyemalis ...	10 0	12 0
— alba	10 0	12 0
Ferns, in thumbs, per 100... ...	8 0	12
— in small and large 60's ...	12 0	20 0
Ferns, in 48's, per dozen	6 0	—
— choicer sorts per dozen ...	8 0	12 0
— in 32's, pr. doz.	10 0	18 0
Ficus elastica, per dozen	9 0	12 0
Geonoma gracilis, 60's, per dozen	6 0	8 0
— larger, each ...	2 6	7 6
Hyacinths white & clrd., p. dz. pots	10 0	12 0
Kentia Belmoreana, per dozen	5 0	42 0
— Fosteriana, 60's, per dozen	4 0	6 0
— larger, per doz.	18 0	60 0
Latania borbonica, per dozen ...	12 0	30 0
Lilium longiflorum, per dozen	20 0	24 0
— lancifolium rubrum in pots, per dozen ..	15 0	18 0
— lancifolium alba	15 0	18 0
Marguerites, white, per dozen ...	8 0	10 0
Pandanus Veitchii, per dozen ...	36 0	48 0
Phœnix rupicola, each	2 6	21 0

Fruit: Average Wholesale Prices.

	s.d.	s.d.
Apples (English cookers) per bushel	4 0	7 6
— Nova Scotian, per barrel ...	13 0	20 0
— Californian Newtowns, pr. case	9 0	12 6
Apples (Canadian), per barrel ...	20 0	—
— Oregon (Hood River), p. case	16 0	18 6
— American, per barrel	20 0	32 0
Apricots (Cape), p. case	6 0	7 0
Bananas, bunch:		
— Doubles ...	10 0	12 0
— No. 1 „ ...	8 0	10 0
— Extra	10 0	12 0
— Giant „ ...	14 0	18 0
— Loose, per dz.	0 6	1 0
— Red coloured...	5 6	6 6
— Jamaica Giants, per ton ...	£10	£12
— Jamaica Ordinary, per box (9 doz.) ...	4 0	5 0
Cranberries, per case (30 qts.)...	10 0	11 0
— Cape Cod, per case (30 quarts)	9 6	—
Dates (Tunis) doz. boxes	4 6	5 6
Grape Fruit, case: — 96's ... ... — 80's ... ... — 64's ... ... — 54's	18 0	24 0
Grapes (English), per lb.:		
— Muscat of Alexandria	3 0	8 0
— Cannon Hall Muscat ...	4 0	10 0
— Black Alicante	1 4	2 6
— Gros Colman...	1 0	2 6
— (Belgian), Gros Colman, p. lb.	0 9	1 3
— Almeria, p. brl.	11 6	15 6
Per dozen lbs.	3 0	4 6
Lemons:		
— (Naples), case	26 0	30 0
— Messina, per case	6 0	15 0
Limes, per case ...	4 0	—
Mangoes, per doz.	4 0	6 0
Nuts, Almonds, per bag	52 6	—
— Brazils, new, per cwt.	85 0	100 0
Nuts, Spanish, per sack	40 0	42 0
— Barcelona, per bag	35 6	36 6
— Chestnuts, per bag	3 6	19 0
— Cocoanuts (100)	18 0	23 0
— English Cobs per lb.... ...	0 5	0 6
— Walnuts (Naples) kiln dried, cwt. cases	54 0	—
— French Grenobles, per bag	6 6	7 0
— Boeris, per bag	6 0	7 0
Nectarines (Cape) per box ...	15 0	19 0
Oranges, Jamaica per case ...	9 0	11 0
— Californian ...	18 0	20 0
— Denia, case ...	14 0	33 6
— Valencia ...	10 0	12 0
— Jaffa, per case	9 6	—
— Mandarins, per box ...	0 6	3 6
— Bitter, per ½ chest	16 0	18 6
— Seville Sour ½ chest ...	15 0	18 0
Peaches (Cape), pr. case	4 0	8 0
Pears (Californian), per case ...	10 6	16 6
— Glou Morceau	11 6	12 6
— Easter Beurré	8 6	—
— Winter Nelis	12 6	13 6
— (American) per barrel, 180 lbs.	25 0	26 0
— cases	7 0	—
Pineapples, St. Michael ...	2 6	4 0
Plums (Cape), per case	2 6	6 0
— Apple, per box	10 0	12 0

Vegetables: Average Wholesale Prices.

	s.d.	s.d.
Artichokes (Globe), per dozen ...	3 0	4 0
— Ground, per ½ bushel ...	1 0	1 3
Asparagus, Sprue..	0 9	—
— Cavaillon ...	3 0	—
— Paris Green ...	4 6	5 0
Beans, Madeira, per basket	4 0	6 0
— Guernsey, Dwarf, per lb.	3 6	4 0
Beetroot, p. bshl.:		
— Long	2 6	3 0
Brussel Sprouts, per ½ bushel ...	1 6	2 0
— half bags ...	3 6	4 0
Celeriac, per doz.	2 6	3 0
Cabbages (English), per tally ...	4 0	8 0
Cauliflowers, p. dz.	2 6	3 6
— (Italian), p. pad	1 6	2 0
— (Cornish), per crate	9 0	11 0
Celery, per. dozen bundles ...	10 0	14 0
— (washed), per dozen bundles	12 0	18 0
Carrots (English), pr. doz. bun....	1 6	2 0
— per cwt. ...	3 0	4 0
— (washed) p. bag	4 0	5 0
Chicory, per lb. ...	0 4	—
Cucumbers, p. doz.	9 0	15 0
Endive, per dozen	2 0	—
Greens, per bag ...	1 6	2 0
Herbs (sweet), pkts., p. gross	7 0	—
Horseradish, 12 bundles ...	11 0	12 0
Leeks, per doz. ...	2 6	3 0
Lettuce (French), per doz. ...	1 0	1 3
Mint, per dozen bunches ...	6 0	7 0
Mushrooms, cultivated, p. lb. ...	0 10	1 3
Mustard and Cress, pr. dz. punnets	1 0	1 6
Onions (Dutch) per bag	8 0	8 6
— English ...	9 0	9 6
— (Spanish), per case	7 6	8 0
Parsley, ½ sieve ...	2 0	2 6
— per doz. bun.	3 0	3 6
Parsnips, per bag	5 0	5 6
Radishes (English), per dozen ...	0 10	1 0
Rhubarb, forced, per 12 bundles	0 10	1 0
Savoys, per tally .	7 0	10 0
Spinach, per bushel... ...	4 0	5 0
Seakale, p. punnet	0 9	1 0
Tomatos (Canary Islands), per bundle... ...	12 0	15 0
Turnips (English), per dz. bunches	2 0	2 6
— bags (washed)	4 0	4 6
— (unwashed) ...	3 6	4 0
Turnip Tops, per bag	2 6	3 0
Watercress, p. dz. bunches ...	0 6	0 6½

REMARKS.—Supplies of hot-house Grapes are scarcer, and a general rise in their prices is anticipated. Consignments of Cape fruits received this week per ss. "Edinburgh Castle" amounted to 8,483 boxes, consisting of Pears, Peaches, Apricots, Plums and Nectarines. Shipments of fruits from other countries amounted to 10,000 packages, consisting principally of Apples. Only Bramley's Seedling and Dumelow's Seedling (Wellington's) are available from home sources. Teneriffe Tomatos are available in fairly large quantities, some of the samples being quite equal to home-grown produce. Supplies of vegetables have decreased during the past week, consequently their prices have increased. A continuance of the present wintry weather will no doubt bring about an improvement in trade. *E. H. R., Covent Garden, January 31, 1912.*

Potatos.

	per cwt. s.d.	s.d.		per cwt s.d.	s.d.
Kents—			**Lincolns—**		
Queen's	4 0	4 6	Maincrops ...	4 0	4 3
Up-to-Date ...	4 0	4 6	Blacklands ...	2 6	3 3
Lincolns—			**Bedfords—**		
Up-to-Date ...	4 0	4 6	Up-to-Date ...	3 9	4 0
British Queen ...	3 9	4 6	Puritan	4 0	4 3
King Edward ...	3 6	4 3	**Dunbars—**		
Epicure	3 0	3 6	Up-to-Date ...	4 9	5 3
Northern Star ...	2 9	3 6	Maincrop ...	5 3	5 6
Evergoods ...	2 9	3 6			

REMARKS.—Trade has improved a little. Supplies are not quite so large and prices for best quality tubers are slightly firmer. *Edward J. Newborn, Covent Garden and St. Pancras, January 31, 1912.*

THE WEATHER.

THE FOLLOWING SUMMARY RECORD of the weather throughout the British Islands, for the week ending January 27, is furnished from the Meteorological Office:—

GENERAL OBSERVATIONS.

The *weather*.—During the greater part of the period the conditions continued very unsettled over all the southern, eastern, and south-western parts of England, with much cloud and frequent falls of rain, while slight precipitation also occurred in the east of Scotland. In Ireland and the extreme north and north-west of Great Britain the weather was mostly fair, and late in the week a marked improvement took place over the whole Kingdom. Much mist and fog was experienced from time to time in England.

The *temperature* was below the average except in the English Channel, the deficit ranging from a small fraction of a degree in England S.E. to more than 5° in Scotland N. and W. The highest of the maxima, recorded in most places early in the week, varied from 55° in England N.W. and 53° in Ireland S. to 44° in Scotland E., and to 42° in Scotland N. On Saturday the thermometer in many parts of England failed to exceed 34° or 35°. The lowest of the minima occurred on the 23rd in various Scottish localities, but more generally on the 27th, ranged from 18° in Scotland E. and 21° in Scotland W. to 28° in England S.E., and to 39° in the English Channel. The lowest grass readings were 15° at Balmoral and Hillington, and 17° at Newton Rigg, Llangammarch Wells, and Markree Castle.

The *rainfall* exceeded the average in the eastern and central parts of England and also in the English Channel, but was below it elsewhere. In Scotland N. and W., Ireland N. and England N.W., the fall was very slight; in many localities in the north the precipitation was in the form of snow.

The *bright sunshine* was above the normal in Scotland and also in Ireland N. and the western districts of England, below it elsewhere. The percentage of the possible duration ranged from 28 in Ireland N. to 17 in England E. and N.E., and to 7 in England S.E.

THE WEATHER IN WEST HERTS.

Week ending January 31.

The sharpest frost for two years.—The past week was very cold, and more particularly so during the four days and nights ending the 30th. During that cold period the highest day temperatures at no time exceeded 39°, and on the four nights the exposed thermometer registered from 16° to 23° of frost. In order to find as low a reading as the temperature last named we have to go back to January 27, 1910, or for two years. The ground, which had been above the average in temperature both at 1 and 2 feet deep during the previous six weeks, is now 1° colder at 2 feet deep and 4° colder at 1 foot deep, than is seasonable. Rain fell on the first day of the week to the depth of a quarter of an inch, but since then there has been no measurable fall. So that those six days formed the driest period experienced here since the beginning of September last, or for nearly five months. There was a little percolation through both the soil gauges in the early part of the week, but since then, owing to the frost, none at all has come through either gauge. The sun shone on an average for 3 hours 35 minutes a day, or for nearly twice the average duration for the end of January. On two days the sun was shining brightly for five hours a day. Calms and light airs alone prevailed during the week, the direction of the light airs being mostly some point between north and east. The mean amount of moisture in the air at 3 p.m. fell short of a seasonable quantity for that hour by as much as 13 per cent. The last Rose of the season flowering in the open ground in my garden was destroyed by 20° of frost on the night of the 27th inst., which is 45 days later than the average date of its destruction in the previous 26 years, and 11 days later than the latest date previously recorded. *E. M., Berkhamsted, January 31, 1912.*

GARDENING APPOINTMENTS.

[*Correspondents are requested to write the names of persons and places as legibly as possible. No charge is made for these announcements, but if a small contribution is sent, to be placed in our collecting Box for the Gardeners' Orphan Fund, it will be thankfully received, and an acknowledgment made in these columns.*]

Mr. A. T. GOODALL, for 2½ years Gardener to Sir OSMOND WILLIAMS, Bart., Deudraeth Castle, Penrhyndeudraeth, N. Wales, and previously Foreman at Quenby Hall, Leicester, as Gardener to Miss RATLIFF, The Cottage, Coundon, Coventry. (Thanks for 1s. which has been placed in the R.G.O.F. box.)

Mr. JOHN KYDD, from Mr. JOHN DOWNIE'S Nurseries, Edinburgh, and previously 4 years Gardener to Lord RATHDONNELL, Drumcar, Dunleer, Ireland, as Gardener to WILLIAM D. JAMES, Esq., Greywalls, Gullane, Scotland.

Mr. F. CLAYTON, for the past 2 years Gardener at Anthony House Gardens, Torpoint, and previously at Wynyard Park, Aston Clinton, and Westonbirt, as Gardener to the Earl of ST. GERMANS, Port Eliot, St. Germans, Cornwall.

Mr. C. W. ABBOTT, recently Gardener to C. N. WATNEY, Esq., "Ivy Hatch Court," and previously Gardener at Bedwell Park, as Gardener to Mrs. N. Watney, "Valence," Westerham, Kent. (Thanks for 2s. which has been placed in the R.G.O.F. box.)

Mr. J. BROWN, previously Gardener to H. L. KINGSFORD, Esq., Wood, Okehampton, Devonshire, as Gardener to W. L. LETHBRIDGE, Esq., at the same place.

SCHEDULE RECEIVED.

Southampton Royal Horticultural Society's Rose Show to be held at the Royal Pier on Wednesday, June 26; Jubilee Show on Tuesday and Wednesday, July 16 and 17; and Autumn Show on Tuesday and Wednesday, November 5 and 6. Secretary, Mr. C. S. Fuidge, 7, Silverdale Road, Archer's Road, Southampton.

Obituary.

THADDEUS CLARKE.—The American horticultural papers record the death of Mr. Thaddeus Clarke, landscape gardener at Woonsocket, Rhodes Island, U.S.A. Mr. Clarke, who was 76 years of age, was a native of Co. Cavan, Ireland.

ENQUIRY.

DRACÆNA VICTORIA FLOWERING.—We have a plant of Dracæna Victoria in flower. Can any reader inform me if this is unusual? *H. T.*

Answers to Correspondents

*** *The Editors will be glad to receive, for consideration, large photographs of horticultural subjects, suitable for reproduction in this Journal.*

APPLE MÈRE DE MÉNAGE: *Erin.* The swellings on the branches are caused by the woolly aphis (American blight). Spray the tree thoroughly with paraffin emulsion.

APPLE TREES DISEASED: *Mac, Colchester.* The Apple tree—Peasgood's Nonesuch—is attacked by canker (Nectria ditissima). This is a well-known disease, the fungus entering into the living tissue by means of ruptures in the bark, such as are caused by wounds, the woolly aphis, or by "gummosis." The fungus generally attacks trees that are in a bad condition of health, due to neglect or from having been planted in badly-drained or unsuitable soils. All badly-diseased branches should be cut out and burnt, but in slight attacks the disease may be checked by removing the affected parts and coating the wounds with tar. Trees that are badly diseased should not be allowed to remain as a source of infection for others, but should be rooted out and burnt.

CARNATIONS DYING: *Z. Y.* and *X. Y. Z.* There is no disease present on the plants. The soil has been kept too wet.

EMPLOYMENT IN ONTARIO: *G. G.* Your letter has been shown to the Ontario Government Agent, and he informs us that his Government would have no difficulty in providing a situation for a competent gardener in the province at the wages stated (37s. 6d. per week), and that the chances of promotion are good. If you have not secured a position, you are asked to communicate with the Ontario Government Agent, when he will, if everything is satisfactory, give you an introduction to the Director of Colonization, who has been appointed by the Government to look after the interests of new settlers, and who will provide you with a situation such as you require. The address is 163, Strand, London, W.C.

GARDENIA AND BEGONIA UNHEALTHY: *F. R. C.* The plants are not affected with disease. The trouble must be looked for in some wrong cultural treatment.

LOAM: *H. H. B. & Co.* We cannot undertake to analyse your samples of soil, but, from a superficial examination, we should say that No. 3 is the most suitable for the potting of plants. No. 1 and No. 2 are without much fibre, but they both contain a considerable amount of decayed vegetable matter, especially No. 1, which, apparently, consists largely of manure.

NAMES OF FRUITS: *Acker.* 1, Minchull Crab; 2, Newton Wonder.—*T. Clarke.* Your Apple resembles a well-kept fruit of Wyken Pippin.—*Hortus.* 1, Joséphine de Malines; 2, Baronne de Mello.

NAMES OF PLANTS: *W. & S.* Spartina alterniflora.—*Foreman.* 1, Eleagnus macrophylla; 2, E. glabra.—*W. E.* 1, Ilex crenata; 2, Sequoia sempervirens.—*Ignoramus*: Lælia anceps Sanderiana.—*W. J. F., Cobham.* Maxillaria porphyrostele.—*H. P.* 1, Catasetum Darwinianum; 2, Oncidium ansiferum.—*F. A. L.* Erica melanthera.—*T. E., Harpenden.* Croton discolor.—*G. B., Reading.* Ruellia macrantha.—*P. H. D.* Justicia chrysostephana.—*D. H., Sussex.* Eupatorium Purpusii var. monticola.—*W. & S.* Appears to be near Pennisetum Ruppellii; grasses are difficult to determine from portions of the spike only.—*G. W.* 1, Angræcum caudatum; 2, Lælia anceps Hilliana; 3, Begonia Gloire de Lorraine; 4, Begonia var. Mrs. Leopold Rothschild.—*T. H.* 1, Epidendrum polybulbon; 2, Oncidium barbatum; 3, O. flexuosum; 4, Cœlogyne flaccida.—*A. J. W.* Odontoglossum Lindleyanum. Leaves next week.

PEACHES AND CYCLAMEN: *Cyc Peach.* There is no fungus disease present on the Peach shoots; their unhealthy appearance is due to unsuitable root conditions. The Cyclamen corms are infested with eelworm, for which no cure is known. The plants should be destroyed, and the soil sterilised by heating it.

PEAT BOG: *Bogbean.* If it were practicable, you would find it a great advantage to drain off some of the water from your land in order to make the ground more stable. We would also advise you to endeavour to place a series of boulders, in the form of stepping-stones, across the bog, as this would facilitate planting, and would also add to the enjoyment of the bog after the initial work has been done. If you have a supply of soil available, it would be well to make a few mounds here and there to relieve the flatness; planting on them such trees as Taxodium distichum, Sciadopitys verticillata and Abies balsamea. Other trees which you would find useful are Alnus glutinosa, A. cordifolia and Dirca palustris. Amongst the shrubs to be recommended for the purpose are Ledum palustre, Oxycoccus palustris, O. macrocarpus, Cornus florida, Andromeda Polifolia, Gordonia pubescens, Arctostaphylos alpina, Calluna vulgaris, the Tamarix, and the aromatic Myrica cerifera and M. Gale; the two species last-named should be planted near to the stepping-stones so that their fragrance may be enjoyed.

PLANTS FOR A NORTH WALL: *K.* Cydonia japonica may be the red-flowered plant you have noticed. Although not a creeper, it is frequently employed as a wall-coverer. Eccremocarpus scaber, a free-growing, deciduous creeper, bears red flowers, but it would not be a success in a north aspect in the London district. The evergreen Berberidopsis corallina also bears red flowers, but only in a warm situation. Lonicera sempervirens and its variety minor are scarlet-flowered, free-growing, sun-loving climbers. The evergreen Firethorn (Cratægus Pyracantha) makes a good wall plant. It bears white flowers in spring and scarlet berries in autumn. Other suitable evergreens would be Berberis Darwinii, Cotoneaster microphylla, Garrya élliptica and Euonymus japonica. Such free-growing, self-clinging climbers as Ampelopsis Veitchii, A. muralis, Hedera Helix atropurpurea, Bridgesia spicata, or non-clinging shrubs like Ampelopsis hederacea, Aristolochia Sipho, Wistaria sinensis, Clematis Jackmanii, Cotoneaster horizontalis, Forsythia suspensa, Lycium europæum would soon mask the wall. Magnolias would make very little growth and produce but few flowers on a north wall.

POTATOS WITH BLACK CENTRES: *A. C. W.* The black centres in the tubers, commonly known as "sprain," are not caused by a fungus. The cause of the injury is unknown; it may possibly be due to the manure. "Sprain" is not contagious, and the Potatos can be used as "sets" if necessary.

VINE: *E. D.* Your best plan is to inarch the vine. You will find the method of inarching vines described in the issue for January 20, p. 48.

YEW UNHEALTHY: *X. C., G. G.* The cause of the browning and eruptions present on the leaves is due to imperfect root action. There is no disease present.

Communications Received.—W. A. M.—W. P. H.—J. R. J.—J. B. M., Portobello—Traveller—J. B. H.—J. R. C.—J. M., Falkirk—G. S.—R. J. W.—W. D. A.—R. R., Salisbury—T. M., Denmark—R. T. S.—Reader—E. A. B.—S. & Sons—A. & B.—J. A. T.—T. P. Ltd.—E. W., Harrogate—R. L. C.—F. J.—F. C. S.—N. R. S.—G. L. J.—S. E. N.—H. C. B.—T. E.—A. C. W.—Valley—J. R. G.—S. A., Battersea—L. C.

THE GARDENERS' CHRONICLE

ESTABLISHED 1841 — No. 3711

No. 1,311.—Vol. LI. {THIRD SERIES.} SATURDAY, FEBRUARY 10, 1912. {Registered as a Newspaper. WITH SUPPLEMENT} {PRICE 3d. POST-FREE, 3½d.

SUBSCRIPTION—Inland, 15/-; Foreign, 17/6 [22fr. 10c.] [$4 26c.] per annum. Entered at the New York Post Office as second-class matter.

Postal Address—41, Wellington Street, Covent Garden, W.C. Telegraphic Address—"Gardchron, London." Telephone—Gerrard, 1543.

☞ **For CONTENTS see page 81.**

Sow Now Under Glass.

WEBBS' CHAMPION PRIZE LEEK, 1s. 6d. and 2s. 6d. per packet, post free.
Mr. W. WATERTON, Head Gardener to R. H. Comyns, Esq., writes:—"I am pleased to inform you of my success in winning First Prize at the National Vegetable Show, London, 1911, with your New Champion Prize Leek. It is the best I can find either for exhibition or table use, being very fine grained and of splendid habit."

WEBB & SONS, The King's Seedsmen, WORDSLEY, STOURBRIDGE.

BARR'S VEGETABLE AND FLOWER SEEDS of finest selected strains and tested growth. Descriptive Catalogue, with Cultural Notes, free.

BARR'S BEAUTIFUL LILIES, GLADIOLI, MONTBRETIAS, CANNAS, TIGRIDIAS, etc. for Spring planting. Special Catalogue free. BARR & SONS, 11, 12 & 13, King St., Covent Garden, London.

BARR'S REMOVAL SALE OF HARDY PLANTS.—Clearance List of surplus plants at greatly reduced prices (prior to removal of nurseries from Surbiton to Taplow), post free.
BARR & SONS, 11, 12 & 13, King St., Covent Garden, London.

TO NURSERYMEN.—THE NEW PATENT MULTI-DIBBER. Indispensable to all who raise seedlings in boxes, frames, or in the open ground. Send for special list with prices.
BOULTON & PAUL, Ltd., Norwich.

GISHURST COMPOUND is harmless in use; its soluble Sulphur, &c., has for 40 years cured Blights and Fungus on Plants, and is good for washing unhealthy dogs. Gishurstine keeps boots dry in all weathers; they will polish. Good for Harness.
Wholesale from—
PRICE'S PATENT CANDLE CO. LTD., London.

CLARK'S GARDEN SHEARS (Patent).—The most ingenious garden invention. Holds in position the object to be cut, and stops it slipping away. Marvellous value at 5s. per pair. Send P.O. to-day to W. CLARK, Limited, 2, Stourcliffe Street, London, W.

THE Popularity of "XL ALL" Specialities increases every year. All gardeners proclaim that nothing equals these celebrated preparations. "XL ALL" NICOTINE VAPORISING COMPOUND, the gardeners' favourite Fumigant, both Liquid and Cake. "XL ALL" NICOTINE INSECTICIDE WASH for Syringing, Dipping and Dressing Fruit Trees and Plants; Mealy Bug, Scale, etc., cannot exist where this is used. "XL ALL" INSECTICIDE WASH B (*sine* Nicotine), best non-poisonous Wash on the Market. No licence required to sell this. Other preparations of great renown, both poisonous and non-poisonous, are:—"XL ALL" WEED KILLER, "XL ALL" FERTILISER, "XL ALL" WINTER WASH for Fruit Trees, RICHARDS' BANDING GREASE, etc. Don't forget to ask your Nurseryman, Seedsman or Florist for Richards' small pink list.—G. H. RICHARDS, Manufacturer, 234, Borough High Street, London, S.E.

BUNYARD'S CATALOGUES, free on application.
FRUIT TREES AND VINES.
SHRUBS AND CONIFERS.
ROSES AND OTHER CLIMBERS, in Pots.
HERBACEOUS & AQUATIC PLANTS for present planting.
GEORGE BUNYARD & CO., LTD., Royal Nurseries, Maidstone. Established 1796.

SUTTON'S DISCOVERY PEA. Per pint, 2s.; quart, 3s. 6d., post free.
Mr. M. NICHOLLS, Gardener to Sir Mark Collet, Bart., writes: "Here on the chalk soil and in a dry season Sutton's Discovery Pea gave grand results. Pods long, mostly in pairs, and plenty of them. Flavour everything one could desire, and when growing among other sorts it was a very easy first. Haulm stout and conspicuous."

SUTTON & SONS, The King's Seedsmen, READING.

OSMUNDA for Orchids.—Consignments arrive fortnightly. 2s. 6d. per bushel; per bag, 8s. 6d.
SANDER & SONS, St. Albans.

AUTO SHREDS FUMIGANT kills Leaf-mining maggot, insects in greenhouses, frames. For 1,000 cubic feet, 6d.; 10,000, 3s. 6d. No apparatus.
WM. DARLINGTON & SONS, Patentees, Hackney, N.E.

WALTERS & CO., Morland Rd., Croydon, Makers of Lath Roller Greenhouse Blinds; Trellis Screens and Fences, Arches, Arbours, Rose Pillars. Established over 20 years. Catalogues free.

New Phloxes.

GUNN & SONS were Awarded a Silver Cup at the Great Show at Olympia. New Lists now ready. Address: Olton, Warwickshire.

ALPINES & HERBACEOUS PLANTS,—Himalayan and other rare Rhododendrons, rare Shrubs, Construction of Rockeries. Catalogues ready.
G. REUTHE, Keston, Kent.

LISSADELL ALPINE & HERBACEOUS PLANTS.—Write for our new illustrated and enlarged List, containing many beautiful novelties at moderate prices. Also List of Seeds collected from above in 1911.
J. A. COOPER, Lissadell (No. 2), Sligo, Ireland.

GARDEN PESTS.—Cross's "Clubicide" is the Gardeners' Insurance against damage by Eelworm, Wireworm, Slugs, Maggot, and all Disease Germs and Insect Pests. Kills all harmful Bacteria, reinvigorates the soil, stimulates plant life. In 1s. flasks and ½-gall. and 1 gall. drums. From all Seedsmen.
Sole Manufrs.: A. CROSS & SONS, Ltd., Glasgow.

ORDER TRELLIS-WORK NOW.—Get our book on Trellis-work, showing Screens, Wall Panels, Window Surrounds, Arches, Arbours, &c., post free.
BOULTON & PAUL, Ltd., Norwich.

FIDLER'S NEW ILLUSTRATED CATALOGUE of CHOICE GARDEN SEEDS will be sent post free to any address on receipt of postcard. Write at once for a copy; it may help you to save 50 per cent. on your seed bill this season.
FIDLER & SONS, Royal Berkshire Seed Stores, Reading.

BATH'S SELECT SEEDS.—New Illustrated Catalogue of Choice Vegetable and Flower Seeds, with full cultural notes, is now ready, and will be sent post free on application.
(Dept. A), R. H. BATH, Ltd., The Floral Farms, Wisbech.

MACKENZIE AND MONCUR, Limited, Hothouse Builders and Heating Engineers, London, Edinburgh, and Glasgow. By Special Appointment to H.M. The King.
London Office: 8, CAMDEN ROAD, N.W.

AVENUE TREES, large girth, 10 by 12, 12 by 14 feet. Chestnuts, Sycamore, Limes, Birch, &c. Enquiries solicited.
HARGREAVES, Sunnyside, Lancaster.

WM. DUNCAN TUCKER & SONS, Ltd., 27, Cannon Street, London, E.C.; Works, Tottenham. Conservatories, Winter Gardens, Vineries, Peach-houses, Portable Buildings, etc. Catalogue gratis.

For Advertisement Charges see page viii.

KELWAY'S "Manual of Horticulture" is the best of all Garden Books, 2s., post free. From ——, Esq., Northwood, Middlesex, September 28th, 1911: "I find that I have never forwarded 2s. for your lovely Catalogue you sent me some weeks since. It would be cheap at five times the price, and I sincerely regret the oversight."—KELWAY & SON, Langport, Somerset.

THE MODERN HERBACEOUS BORDER.—Full particulars and prices of Kelway Borders packed, arranged for planting, to flower in tasteful schemes of colour, from—KELWAY & SON, The Royal Horticulturists, Langport, Somerset. "—— Palace, W., December 28th, 1911 (the year of great drought). The new herbaceous border has done *extremely well*—much better than Her Royal Highness anticipated."

NOW is the time to plant Kelway's Delphiniums—fine, bold upstanding plants with a wealth of bloom in all shades of blue and purple. They are from strong country-grown stocks, and flourish under almost all conditions. From ——, Morristown, N.J., U.S.A.: "We have had clumps of your Larkspurs, enduring frost down to 40° (below zero) F., for ten successive winters. It is true that they have had sometimes a covering of several feet of snow, and sometimes none at all." Choice named collections, 15s., 24s., 34s., 56s. a dozen.—KELWAY & SON, The Royal Horticulturists, Langport, Somerset.

FRUITING VINES IN POTS.—Muscat of Alexandria, and leading Market varieties. We make Vines a speciality.
G. COLEMAN, The Vineries, Burgess Hill, Sussex.

HUTS FOR THE GARDEN.—Fruit Rooms, Potting Sheds, Workshops, Cycle Houses, Boot Rooms, Servants' Mess Rooms, Children's Playrooms, &c. Send for Illustrated Catalogue, free.
BOULTON & PAUL, Ltd., Norwich.

THE BEST OF ALPINES, and new and old-fashioned Perennials, Rock Gardens, Borders, Water Gardens, and Wild Gardens designed and planted. Illustrated Catalogues (free).—THE GUILDFORD HARDY PLANT NURSERY, Guildford.

Roses and Herbaceous Plants.

GUNN & SONS were awarded the 25 Guinea Challenge Cup in each collection at the Leamington Show. Up-to-date List for each now ready.
Address: Olton, Warwickshire.

CHRYSANTHEMUMS.—Descriptive Catalogue of choice up-to-date varieties and novelty list for 1912, sent free. Apply
H. W. THORP, Durrington, Worthing.

GREENHOUSE PAINTING & GLAZING "Vitrolite" superior to White Lead Paint, 9/- per gall. "Plastine" supersedes Putty, 16/- per cwt. Full particulars from W. CARSON & SONS, Grove Works, Battersea. Agents throughout the country.

LANDSCAPE GARDENING.—W. INNES STUCKEY, Landscape Gardener, Piccadilly Mansions, Piccadilly Circus, W. (With the late Mr. H. E. Milner).

DICKSONS Horticultural Manure & other high-class Fertilizers; also Dicksons Improved Mushroom Spawn. Priced Circulars free on application to DICKSONS, Royal Seed Warehouses & Nurseries, Chester

RITCHIE'S SWEET PEAS.—Universally acknowledged to be the best procurable; Exhibition collection, containing the best 12 Spencers, viz., Asta Ohn, Clara Curtis, Edna Unwin, Elsie Herbert, Gladys Burt, Jno. Ingman, Marj. Linzee, Maud Holmes, Mrs. Sykes, Mrs. Breadmore, Prince Asturias, Tennant Spencer, 30 seeds each, 2s. 6d., post free; Sweet Pea list free on request.—
A. S. RITCHIE & CO., Seedsmen, Belfast.

SALES BY AUCTION.

Monday, Wednesday and Friday next.

MONDAY and FRIDAY NEXT, FEBRUARY 12th and 16th, at 12 o'Clock.—A choice assortment of Hardy Perennials and Herbaceous Plants, Lily of Valley, Spiræas, Iris, Pæonies, &c., Japanese Liliums, Gladiolus, Begonias, and other Hardy Bulbs.

At 1.30 o'Clock.—1,500 ROSES, Standard, Dwarf, Climbing, &c., also Fruit Trees in variety, Azaleas and Rhododendrons.

WEDNESDAY NEXT, FEBRUARY 14th, at 12 o'Clock.—Japanese Liliums in large variety, Begonias, Gloxinias, Gladiolus, Lily of Valley, Iris, Carnations, Pinks, &c., Herbaceous and Rock Plants, and Perennials.

At 1.30 o'Clock.—3,000 ROSES, English, French, and Dutch grown, Standards, Dwarfs, Climbers, &c., Standard, Pyramidal, and other Fruit Trees.

At 5 o'Clock.—100 lots of Ornamental and Decorative Palms and Plants, Azaleas indica and mollis, Rhododendrons, Aspidistras, Standard Bays, &c., from Belgium, also Stove and Greenhouse Plants.

MESSRS. PROTHEROE & MORRIS will SELL the above by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, E.C. On view mornings of Sale and Catalogues had.

Rose Trees, Shrubs, Fruit Trees, Lilies, Perennials.

MR. J. C. STEVENS begs to announce that his Sales by Auction are held every **MONDAY and WEDNESDAY, at 12.30**
Catalogues post free.
Lots purchased, packed and forwarded to all parts.
STEVENS' AUCTION ROOMS,
(Established 150 years),
38, King Street, Covent Garden, London, W.C.

ROSE TREES.—Sales every Tuesday, Wednesday, and Friday of Roses, Shrubs, Lilies, Gladioli, &c., at Moorgate Auction Rooms, 23 and 25, Moorfields, E.C. (near Moorgate Street Station). Catalogues post free.

BUSINESSES FOR SALE, &c.

FOR IMMEDIATE SALE, through death of proprietor, LEASEHOLD MARKET NURSERY, of about 2½ acres; 1,150 feet run of well-heated glasshouses in full working order, stocked with a grand lot of Strawberries in pots ready for forcing and stock Chrysanthemums; one minute from station; 10 miles from Covent Garden.—For full particulars, app'y TUBBS, "Avondale," Southwood Road, New Eltham, Kent.

NURSERY FOR SALE; 1,450 feet run of glass; practically new; well heated; good house, packing shed, stable, &c.—Particulars, apply, J.W. C., 12, Five Wents Cottage, Swanley, Kent.

PENRITH (Main line, London and North-Western Railway).—For Sale, owing to ill-health of proprietor, a genuine NURSERY, MARKET GARDEN, and FLORIST'S BUSINESS, with or without shop in town; established 60 years; grounds of about seven acres; one mile from town; five glasshouses, practically new, modern heating apparatus; quantity of frames; varied and general stock of growing plants, florists' requisites, &c.; shop in central position; total valuation, £1,500; offers invited for quick sale; splendid opportunity for energetic man with moderate capital.—Full particulars from THORNBORROW & CO., St. Andrew's Churchyard, Penrith.

SEED, FLORAL, BULB, SUNDRIES BUSINESS for Sale; stock at valuation; rent £45; Salop; price about £160.—J. J., Box 13, 41, Wellington Street, Covent Garden, W.C.

FLORIST'S BUSINESS (Midland resort); splendid central situation; main thoroughfare; stock at cost; low figure; genuine; every investigation.—N. A., Box 19, 41, Wellington Street, Covent Garden, W.C.

FLORIST, SEEDSMAN, &c., market town; South of England; old established; low rent; giving up owing to family bereavement; stock, fixtures, &c., £110; furniture could also be taken over, cheap, if desired.—"BUSINESS," Box 17, 41, Wellington Street, Covent Garden, W.C.

FOR SALE.—A practically newly-erected NURSERY of about 1,000 feet run of glass; all produce can be sold locally; within six miles Covent Garden; low price for quick sale.—NURSERY, Box 16, 41, Wellington Street, Covent Garden, W.C.

FREEHOLD NURSERY in rising residential district Middlesex, comprising 4½ acres land and 15 large glasshouses (well-heated); price, including freehold land, glasshouses, outbuildings, &c., together with Fruit trees, £3,400; part can remain.—Apply, WILLIAM AUBREY & CO., Nurserymen's Agents, 10, Duke Street, Charing Cross, London.

GLOUCESTERSHIRE.—For immediate sale, owner going abroad, capital little business of a NURSERYMAN and FRUIT DEALER; rental £26 a year, including house and stabling; ingoing about £60; good opportunity for a man willing to work and increase business; established about 14 years.—Apply, CORNELIUS & BOULTER, Auctioneers, Cheltenham.

PUBLISHERS' NOTICES.

KYNOCH'S "Wild Flowers of Barmouth," fourth edition, including Salwey's Scarce List, Habitats and Notes, published 1863, pp. 50, price 6d.—J. KYNOCH, 8, College Road, Brighton.

"IRISH GARDENING," monthly; illustrated; 3s. per annum, post free; SIR F. W. MOORE'S account of his recent visit to the United States, dealing with Parks, Gardens, and Orchards, commenced in the January No. Published at 53, Upper Sackville Street, Dublin.

THE
HORTICULTURAL DIRECTORY
for 1912. (53rd year).
1/3 post free. ∴ ∴ ∴ Cloth Bound, **2/6.**

AN UP-TO-DATE WORK OF REFERENCE.
A complete Register of the
Principal Nurserymen, Seedsmen, &c.
,, Mansions, their Occupiers and Head Gardeners.
,, Horticultural Builders, Engineers, Sundriesmen, &c.

Offices: JOURNAL OF HORTICULTURE, 4, Mitre Court, Fleet Street, London, E.C.

NOTICES.

Minehead Urban District Council.

TO LANDSCAPE GARDENERS.

THE Minehead Urban District Council invite COMPETITIVE DESIGNS for LAYING OUT the BLENHEIM MEADOWS at MINEHEAD as a PUBLIC PARK and PLEASURE GROUND.

Plan of the site and conditions may be obtained from the undersigned on deposit of five shillings, which sum will be returned on receipt of bona-fide designs in accordance with the conditions.

A Premium of £10 10s. (subject as stated in the conditions) is offered by the Council for the best design, and the design in respect of which such premium may be awarded shall become the property of the Council.

Designs, &c., enclosed in a sealed package, as directed in the conditions, and endorsed "Blenheim Meadows," are to be sent to the undersigned on or before the 26th day of February, 1912.

Dated this 17th day of January, 1912.

By order,
L. C. WEBBER-INCLEDON, Clerk.
16, Park Street, Minehead.

PLANTS, &c., WANTED.

WANTED, large KENTIA PALMS, from 5 feet to 25 feet in height; large, well-coloured Dracænas and Crotons, also Aspidistras; for cash or exchange.—ROBERT GREEN (1911), LTD., 28, Crawford Street, London, W.

WANTED, BOX EDGING; good stuff.—Sample and price per running yard to WM. HADDOW, Parkwood Cottage, Englefield Green, Surrey.

WANTED, IRIS.—A large quantity of good varieties of either Germanica, Beardless, or Oncocylus.—A. COBB, Duffryn Gardens, near Cardiff.

WANTED, a quantity of rough boards about 1 foot wide, any length, cheap.—PERRYS Hardy Plant Farm, Enfield.

PLANTS, &c., FOR SALE.

PERPETUAL CARNATIONS.—Our 1911 Illustrated Catalogue free. Read our "Cultural Treatise," 1s.—YOUNG & CO., Carnation Specialists, Hatherley, Cheltenham.

CUTHBERT'S SPECIALITE MUSHROOM SPAWN.—NEW SPAWN NOW READY. We continue to receive the most gratifying testimonials as to the productiveness and good quality of our Spawn. Per bushel, 5s.—R. AND G. CUTHBERT, Seed and Bulb Merchants, Southgate, Middlesex.

PERPETUAL-FLOWERING or American Tree Carnations; strong, healthy Guernsey plants from pots, 4s. per doz., carriage paid; 20s. per 100, carriage forward; ask for catalogue, 75 varieties, with full directions.—VAN DER SLUYS, F.R.H.S., Ramee, Guernsey, C.I.

VERBENAS.—The best sorts are Miss Willmott (pink), Princess of Wales (deep blue), Queen of Whites, King of Scarlets, and Lovely Blue (light blue); clean, healthy, strong young plants; carriage paid; 10s. per 100, cash.—H. DUDDERIDGE, The Dorset Nurseries, Blandford.

PERPETUAL TREE CARNATIONS, best varieties, strong, young plants out of small pots, 20s. 100; good flowering plants in 5-inch pots, 10s. 6d. doz.—G. S. EVANS, F.R.H.S., Carnation Specialist, Bexley Heath.

BEGONIAS, choice Liliums, named Achimenes, Cannas, Iris, Montbretias, Arums, Gladioli, Gloxinias, Spiræas, Tritomas, Hippeastrums, Kerr's strain, 15s. doz.; choice named ditto, 5s.; catalogue free.—ELLISON, 45, West Bromwich.

AURATUM LILY, special shipment, large bulbs, 11 inches to 13 inches round, 1s. 3d. each, 6s. for six, 10s. doz., £4 100; Lily Valleys, fine crowns, 2s. 6d. 100, 21s. 1,000; Tuberoses, 1s. 6d., 2s. doz., 10s., 12s. 6d. 100.—ELLISON, 45, West Bromwich.

PEDIGREE VEGETABLE SEEDS, choice flower seeds, English grown Sweet Peas recommended by N.S.P. Soc., all at reasonable prices. I give you the value in seeds, not in elaborate catalogues and large adverts.—ELLISON, 45, West Bromwich.

FERNS! FERNS!!—Tree, Climbing, Basket, Stove, Greenhouse, and Garden Ferns; catalogues free.—SMITH, London Fern Nurseries, Loughboro' Junction, London, S.W.

LETTUCE FOR FORCING.—Cos, Paris Grey, Cabbage, Little Gott; twice transplanted; 2s. 4d. per 100; carriage paid.—Miss MOORE, Tiptree, Essex.

CUT FLOWERS AND FOLIAGE.—A. W. REDFORD, Wholesale Bulb Grower, Stevenage, offers choice Daffodils, Narcissus, and Tulips in variety daily; boxes free; price lists forwarded on application.

GORDON PEARS; well-spurred fruiting trees, 6 to 8 feet; varieties and prices on application.—WILL TAYLOR, Hampton, Middlesex.

GARDEN FERNS, 20s. 100.—Cyclamen, Genistas, Acacias, Ericas, Palms, Begonias, Crotons, Dracænas; catalogues free.—SMITH, London Fern Nurseries, Loughboro' Junction, London, S.W.

MISCELLANEOUS.

TURF, suitable for Lawns, Bowling Greens, &c.; a quantity of splendid old turf for sale; cheap on rail.—Sample and price, HOLMES, Station Road, Letchworth.

FOR Garden BIRCH BROOMS, selected Hazel, Sweet Pea sticks, and thatching Heather for summer houses, &c.—Apply to JOHN APPLETON & SONS, Birches, Baughurst, Hants.

PROTECT FRUIT BLOSSOM from frost. Our Scrim will do this well, and repay its modest cost in one frosty night. Later on, it will come in for shading exhibition sweet peas, greenhouses, etc., and also make excellent soft catching net in the peach house. Price, 2½d. per sq. yd. 36 in. and 72 in. widths stocked.

GREENTWIST.—The neatest and handiest tying material for the garden, 3 balls (about 600 feet each), 1s. 1d., post pd. Special quality for greenhouse use, in patent pocket tubes, 2 tubes (about 550 feet each), 1s. 1d., post pd. Descriptive Lists post free.
ROBERTSON IRELAND & CO., Dundee.

EXCELLENT ROCKERY STONE.—Yellowish, weathers to light grey, delivered on rail (Bitton, M.R.), 11s. per ton.—Apply, J. S. PARKER, Upton House, Bitton.

SPHAGNUM-MOSS.—Head Gardener, Grange, Honiton, can supply any quantity; good and clean; 2s. per bushel.

SEVEN BLANCHARD'S LAMPS for sale; good order; cost £7 each.—Apply at 245, Hoxton Street, Hoxton, N.

GARDENERS' strong blue Serge Aprons, with or without bibs, 1s. 11d., post free; best quality, 2s. 6d., post free; satisfaction guaranteed or money refunded.—R. E. DAVIES, Clothier, The Square, Bishops Castle, Salop.

OFFERS wanted for Wright's "Fruit Growers' Guide" in three volumes; cost £3 3s.; good as new; also Chrysanthemum outfit, including five dozen spring Thorpe tubes, 24 long tubes for setting up, good brush and tweezers in case.—G. WADESON, Doveridge, Derby.

THOMPSON'S "Gardeners' Assistant," six vols., cost 48s.; Cassell's "Popular Gardening," four vols., cost 24s.; accept half price or offer; urgent.—TED. CONWAY, Barnham, Bognor.

TREE CARNATIONS.
Strong Plants in small pots now ready.
E. J. WOOTTEN, Fairoak, EASTLEIGH.

CHRYSANTHEMUMS.
70,000 Rooted Plants in Feb., 600 up-to-date vars. for Exhibition, Decoration, Single and Early Flowering.
Are finest vars. in Commerce. Purchaser's selection from **2/-** per dozen. Descriptive Catalogue post free.
H. WOOLMAN, F.N.C.S., Shirley, nr. Birmingham

CHARLESWORTH & CO.,
HAYWARDS HEATH, SUSSEX.
ORCHID SPECIALISTS,
IMPORTERS, EXPORTERS, RAISERS & GROWERS.

THE
Gardeners' Chronicle
No. 1,311.—SATURDAY, February 10, 1912.

CONTENTS.

Alpine house, the	81	Land under cultivation, the area of, in Great Britain	88
American notes	85	Liverpool Horticultural Association	89
Antirrhinum	91	Market fruit garden, the	83
Apple-packing, demonstrations in	89	National Institute of Horticulture	90
Apples, colour in	90	Obituary—	
Books, notices of—		Galvin, Thomas	96
A Botanical Expedition to Newfoundland and Southern Labrador	88	Inglefield, G. A.	96
The Orchid Review	89	Robson, J. M.	96
The Orchid World	89	Plants, the exportation of	89
Canvas as a substitute for glass	96	Plants, the protection of, in cold frames	90
Channel Islands, the	89	Potato-growing in Western Australia	89
Cinerarias from seed	96	Saussurea gossypiphora and S. leucoma	85
Electricity and plant culture	90	Societies—	
Genetics, Professor Bateson on the subject of	89	Bury Horticultural	95
Habenaria conopsea alba	90	National Chrysanthemum	94
India, notes from—		Royal Horticultural	91
Gardening in the Indian Empire	82	(Scientific Committee)	92
International Horticultural Exhibition	88	Sandy Horticultural	95
Ireland, notes from—		Sweet Pea disease	84
Apple growing in Ireland	90	Sweet Peas for the garden	90
Lambert, Mr. John, presentation to	89	Week's work, the	86, 87
		Zygopetalum Mackayi Charlesworthii	83

ILLUSTRATIONS.

Cup to be presented by the Yokohama Nursery Co., Ltd., at the International Exhibition ... 89
India, view in the Sajjan Niwas Gardens in ... 82
Inglefield, Mr. G. A., portrait of the late ... 96
Odontoglossum "Merlin" ... 92
Saussurea gossypiphora in its Chinese habitat ... 85
Saussurea leucoma (Supplementary Illustration)
Zygopetalum Mackayi Charlesworthii ... 83

THE ALPINE HOUSE.

THERE is seldom much pleasure to be found in the outside garden in January. Perhaps the snow is lying in melting patches and the sun is shining so fitfully that it is easy to see that he is barely awakened for the year's work lying before him. Crocuses and Narcissi may push adventurous heads above the surface of the ground, but one is rather sorry for their temerity, thinking of what they have to go through before they can bloom. Mild weather may have pushed the Rose shoots on, but one knows too well they will be blackened before long. So one turns with relief into a little span-roofed house, the cheerful look of which is in marked contrast with the outside gloom. It is the Alpine house, and it is because this little house has given me so much pleasure in the past and has such possibilities of pleasure in it for all who care to take up a most satisfying branch of gardening—one, too, involving a minimum of expenditure—that I am tempted to write this article, for I think the subject has not received the attention it deserves. Many cannot afford expensive heated structures, with their endless bills for repairs and repainting, but the Alpine house needs no heat but that which the sun will supply, and paint lasts twice as long as in a hothouse, while, as I shall presently show, this house can give, if well managed, a display of bloom the whole year round: a display always interesting and at times unique in its beauty.

Let me now justify my praise of the Alpine house, but I must premise that one condition is necessary for its realization, that is, an ample accommodation in the way of frames for the plants not yet in bloom or foliage, for the whole point of the Alpine house is that it should, so far as possible, contain only blooming plants and plants decorative in foliage.

I am writing especially in the interest of those with moderate or even small-sized gardens; those with large gardens can simply double or quadruple the quantities of plants grown.

The house then need not be more than, say, 20 feet long by 10 feet broad, span-roofed, with staging on each side. The staging should be on tressels, a double set being provided, one of ordinary height and one low, so that the full value of the house for the whole year round may be obtained. If, however, it is not of importance to get the use of the house after the Alpines proper go out, say in June, then slightly better conditions for the Alpines may be obtained with permanent staging. My own house is 20 feet long, and though I have not frames enough to keep both sides of this house in the best condition of display, it has compensating advantages, as the quieter side holds the plants advancing into bloom, and especially is useful to keep safe from slugs those plants, such as the bulbous Irises or Adonis, whose tender and succulent heads would be surely taken off as they push through the soil if left in the frames; at any rate, in this garden that frequently takes place.

Success in any branch of gardening is only obtained by constant forethought. How often have visitors to my garden said, "Oh, why have I not got those beautiful flowers?" And I have had to suggest, as politely as possible that it was because they had not taken the trouble to think beforehand, to provide in October for the beauty of May, or because they had left the preparation of their Rose-beds until a few months before the time they wanted their blooms: all this applies to the Alpine house, and no success will be achieved without constant thought, but to the real lover of a garden that is only an enhancement of the pleasure.

Broadly, this is the way I work my Alpine house: Alpines from the end of December to June, then Carnations, then Chrysanthemums; but if there is plenty of other glass, the Carnations and Chrysanthemums may be left out. It is of the Alpines only that I wish to write. And at once I must admit that the term "Alpine" is not quite accurate: although Alpine plants form a large proportion of the plants grown, yet the full beauty of the house would not be obtained unless other plants suitable for pot culture and hardy enough to stand such cold as they are liable to in an unheated house were also utilised.

Now let us look into the house and see what there is generally to be found there at that cheerless time, the middle of January.

Note, first of all there are no pots of bare soil or even of pushing heads. All the occupants consist either of plants in bloom and coming into bloom or of plants with pleasing foliage. Consequently, the whole bank, even now, looks cheerful and growing. The following plants are in bloom: Christmas Roses, which, of course, have been flowering since December, and which, with me, are invariably ruined out-of-doors by black spots caused by slugs. Some pots of Iris Danfordiæ give a bright bit of yellow. Many of the bulbous Irises, after blooming in the pots and being planted out in summer, increase nicely and do well—my soil is a sandy loam—but so far Danfordiæ dies out. Here is the first flower of I. histrioides, which always, in its early days, looks as if it would be a fortnight after I. reticulata, but manages to bloom a fortnight sooner. Histrioides and reticulata increase rapidly out-of-doors in this garden. Here are pots of Snowdrops; they go on many years without repotting. Galanthus Elwesii is capital in pots. Here are pots of Cyclamen Coum—the colour is not first-rate, but the flowers are bright and dainty. Here are some pots of Adonis amurensis, a good and early bloomer. Here are some Lenten Roses. These are generally in bloom by Christmas. On a hard, frosty morning, when frost has got into the house, they droop their heads, but soon hold them up again as the house thaws, and are not a bit the worse. Erica carnea alba is in bloom, and one can examine carefully the charming flowers of Crocus Imperati, with their delicate black-purple feathering on a buff ground outside and gay purple inside. I have a patch or two out-of-doors; they are just as advanced in bloom as those inside, but snow, rain and sparrows have more or less ruined them. Here is a bright spot in Eranthis cilicica, which seems to do better each year in its pot. Generally by this time some Hepaticas are in bloom, but for some unknown reason they are late this year.

If such a pleasant picture can be realised by the middle of January, I must leave to the imagination of my readers the conception of the increasing beauties of each advancing month until April and May bring the culmination. To enumerate the plants grown would be too like a catalogue. Among many others, the following have proved very satisfactory: Ordinary Crocuses (for these, fresh bulbs should be obtained each year, but they cost next to nothing), Narcissus cyclamineus and minimus, and, of course, all Narcissi, but cyclamineus will go on improving in the same pot for years. All the Saxifrages—though the mossy section is the least suitable. All the Scillas. Chionodoxa sardensis is very useful. Scilla messeniaca is good for this work. Iberis Little Gem comes early. Various Tulip species, such as Kaufmanniana, Ostrowskiana, præstans, linifolia, &c. Anemones, such as Pulsatilla, magellanica and especially A. blanda. All the large, hardy Primrose family, including Auriculas. Fully to describe all the Primulas

would want an article to itself, but P. viscosa, P. nivalis, P. Sieboldii, and P. japonica must not be omitted. I think the charming biennial Primula malacoides will go through most winters with the shelter of a cold house. Arabis aubrietioides is an effective pot plant—cuttings strike easily and make good little flowering plants, but slugs are very partial to them. Ramondias and Shortias must not be omitted, especially the charming Shortia uniflora, which can be easily propagated. Many members of the Dianthus family are suitable. Soldanellas, Oxalis enneaphylla, Moltkia petræa, Gentians, several of the Corydalis species. C. angustifolia is very early, and C. cheilanthifolia and alba are satisfactory. Androsaces and countless others will combine to give a fresh and changing color picture every week. A few dwarf shrubs should be included to make a background. The Japanese Maples are excellent for the purpose,

FIG. 36.—VIEW IN THE GARDENS AT SAJJAN NIWAS GARDENS, UDAIPUR, INDIA.

and Tree Pæonies, some hardy Azaleas and Sun Roses may be worked in with advantage.

Just a word on the proper use of the frames. The lights should be off in all but severe weather and heavy rain. Alpine plants need no coddling, but the warm rain we so often get in winter is liable to excite them into early growth at the expense of flowers. Soldanellas will seldom bloom if they are exposed to such weather—they are better kept pretty dry in winter. It is well to have the pots lifted and examined for slugs several times in the autumn and winter.

Of course, all dwellers near London should make constant pilgrimages to the Alpine house in the herbaceous quarters at Kew and get an object lesson.

I have run on too long, and yet I have not said half enough. The question may be asked, "When should a start be made?" and the answer, on any day of the year, is "to-day." It takes time to make up a good collection, and if expense is an object the stock must be worked up by propagation, to which many plants are very amenable. Therefore, a commencement may be made any day; but, again I repeat, there will be no success without endless forethought and care. *T. Raffles Bulley, Brackley, Liscard.*

INDIA.

GARDENING IN THE INDIAN EMPIRE.

GARDENING, after English methods, is now "booming" throughout India, and the requisites have to be imported, the largest seller being Britain. The trade advertisements in the gardening papers keep the local gardener and cultivator in existence. He selects from the advertisement, sends the order to the London agent, who buys and pays for the goods and ships them out to India. Consequently, the supplier in Britain runs no risk of bad debt, as the orders are cash transactions in England. But it is the man in India who selects, and to him price lists should be posted.

Roughly, the area of India is over 555,000,000 acres, of which 68,000,000 acres are under forest, 135,000,000 acres not available for cultivation, 207,000,000 acres sown with crops, &c. The area under food grains, Rice, Wheat, Barley, &c., is 183,000,000 acres, under oil seeds 12,000,000 acres, whilst other crops include Sugar, Coffee, Tea, Jute, Cotton, Indigo, Opium, Tobacco, fodder plants, &c.

Over 14,000,000 ploughs and 3,000,000 carts are in use on the land; these are being gradually brought up-to-date by enterprising factories in Britain.

Farm servants number over 4,000,000, field labourers 29,000,000, fruit and vegetable growers 600,000, general labourers 17,000,000, agricultural implement dealers 216,000, cow-dung and charcoal sellers 725,000, water-carriers 1.000,000, &c. Sixty-five per cent. of the population is supported by agriculture and gardening, and the actual workers number 60,000,000 men and 27,000,000 females engaged in agricultural and gardening pursuits. The total population of India is 315,000,000. Compare these huge areas and numbers with those of Great Britain!

Owing to the variety of climates in India, the produce of gardens varies, and what will prosper in one part may be a failure in another. Small pamphlets on plants, trees, seeds, &c., are preferable to huge, bulky catalogues, and the former do not cost so much to produce or to post. The same applies to catalogues relating to gardening tools, insecticides, fertilisers, appliances, garden requisites, &c. Information on these heads should be printed in separate pamphlet form rather than included in a large general catalogue. The necessaries for the gardener should be kept separate from those of the builder or engineer.

In addition to public, municipal and Government gardens, a great deal of money is now spent on the gardens of clubs, hotels, Army depôts, railway companies, native princes, private gentry, &c., and all the necessary articles have to be imported. Garden sundriesmen in Britain should be busy with Indian orders during the next few years if they will bestir themselves.

At spring time the Peshawur Valley, the peerless garden of the frontier, is seen at its very best. Hedges of Roses, banks of Honeysuckle, groves of Oranges and Persian Lilac bask in the balmiest of air, whilst green English-looking turf gladdens and rests the eye at every step.

Cricket grounds, polo grounds and golf links abound throughout India, and the greens and turf usually give an immense amount of trouble to keep in condition. Dust storms often make things unpleasant.

Al-fresco entertainments are fashionable. Thus, at a dinner party given on a glorious moonlight night in the grounds of an official, the winding drive to the house was illuminated by rows of tiny lamps, the lawn was tastefully arranged with tables for two with Palms and lamps intermixed, and the shrubbery around was hung with Chinese lanterns.

The rain lore of the Hindus is made up to a great extent of the most extravagant superstitions. One is the rain-making ceremony in Bellary; when the rains fail, the women of the agricultural class obtain a frog and tie it alive to a new winnowing fan made of bamboo. On the fan is placed a few Margosa leaves, and the women walk round the village singing a prayer, the purport of which is that the rain-god may send rain that the frog may have a bath. Each villager sprinkles the frog with water and gives alms to the singers.

The Bengal Cinchona plantation does not appear to be in a very flourishing condition. An additional hundred acres has been planted with Cinchona, but the supply of bark will continue to be small.

It has been noted that the influence of Indian forests on rainfall is probably small. The denudation of the soil, owing to the destruction of forests, may be regarded as an established fact.

For want of rain flowers in gardens droop and die, while the leaves shrivel up, and vegetables when sown, particularly Potatos, wither.

The Kumaon planters are establishing a fruit and vegetable stall in the open market under the supervision of a lady. Clean, well-grown fruit and vegetables will be for sale in place of withered-up goods.

The experimental farm in Jeolekote is making headway in fruit culture. Saffron is to be introduced to the hills.

Fruit-growing in Mysore is receiving attention, and an estate of 112 acres at Bikashipur has recently been floated as a company. The crops show, this year, Grapes three tons and Apples 500 dozens; whilst for 1913 crops are expected to show, Grapes 80 tons and Apples 4,000 dozens. It is anticipated that fresh fruit from Bangalore can be placed on the markets of all the large towns in India.

The Poona Agricultural College is turning out men who desire to take up agriculture as a profession.

Government has sanctioned the proposal for

fruit culture in Baluchistan on a large scale. Cherries, Raspberries, Strawberries, and the highest grade of Peaches will receive attention. Cold-storage vans will be supplied by the railways for transport.

Agricultural colleges have been established in Bengal, Bombay, Madras, the Central Provinces, the Punjab, and the United Provinces, which turn out scientific agriculturalists that add the degree "L.Ag." to their other qualifications. A step further in the future may be to establish agricultural schools to feed these colleges.

The native gardener or cultivator is often guided by a sort of agricultural instinct, handed down to him from remote antiquity, and it is difficult to put new ideas into his head.

There has been a progressive decrease in Coffee cultivation since 1896. The great Coffee-growing centres are Mysore, Coorg, Malabar, and the Nilgiris. These claim 89 per cent. of the total area under Coffee. Even here Coffee is being replaced by the fashionable Rubber and Tea. Many people in India have a haughty contempt for Indian Coffee; they prefer Mocha. Consignments of Indian Coffee are sent to Arabia yearly and re-shipped to India as pure Mocha, to the delight of connoisseurs in Army messes and clubs, who protest that India is unable to produce such excellent coffee!

The Government Farm at Pusa is experimenting with tobacco, in order to obtain, by hybridisation or otherwise, leaf of a quality suitable for making cigarettes.

Last July, botanical gardens were retailing their produce at the following prices: Mangoes from Rs. 2 per dozen; red Plantain, R. 1 per dozen; Lacoate, R. 1 per seer; seedless white Grapes, R. 1.8 per seer; white Grapes with seeds, R. 1 per seer; English Peaches, Rs. 3 per 100; Leachies, R. 1.8 per seer; Oranges, Rs. 2.8 for 25; garden honey, R. 1.9 per 2 lb. tin, &c. (Note.—A rupee equals 1s. 4d., and the anna a penny; thus R. 1.8 equals 2s.).

The gardener in India has to be a good all-round man, and be able to fit himself to the requirements of the locality in which he may find himself. His knowledge must be general and his mind elastic.

Fig. 36 affords a view in the Sajjan Niwas Gardens, at Udaipur, India, which are under the care of Mr. T. H. Storey. The fountain includes 105 jets, and is surrounded by a carriage drive 24 feet in width. The trees in the background include Ficus indica, F. religiosa, Tamarindus indica, Mangifera indica, and Eugenia Jambolana. The basin, which is 40 feet in diameter and 5 feet in depth, is planted with Papyrus, Pontederia, Nelumbiums, Euryale ferox and Nymphæas of sorts. The ornamental work around the fountain is of native workmanship, the marble used in its construction being obtained from quarries situated at Rajitagar. *J. K.*

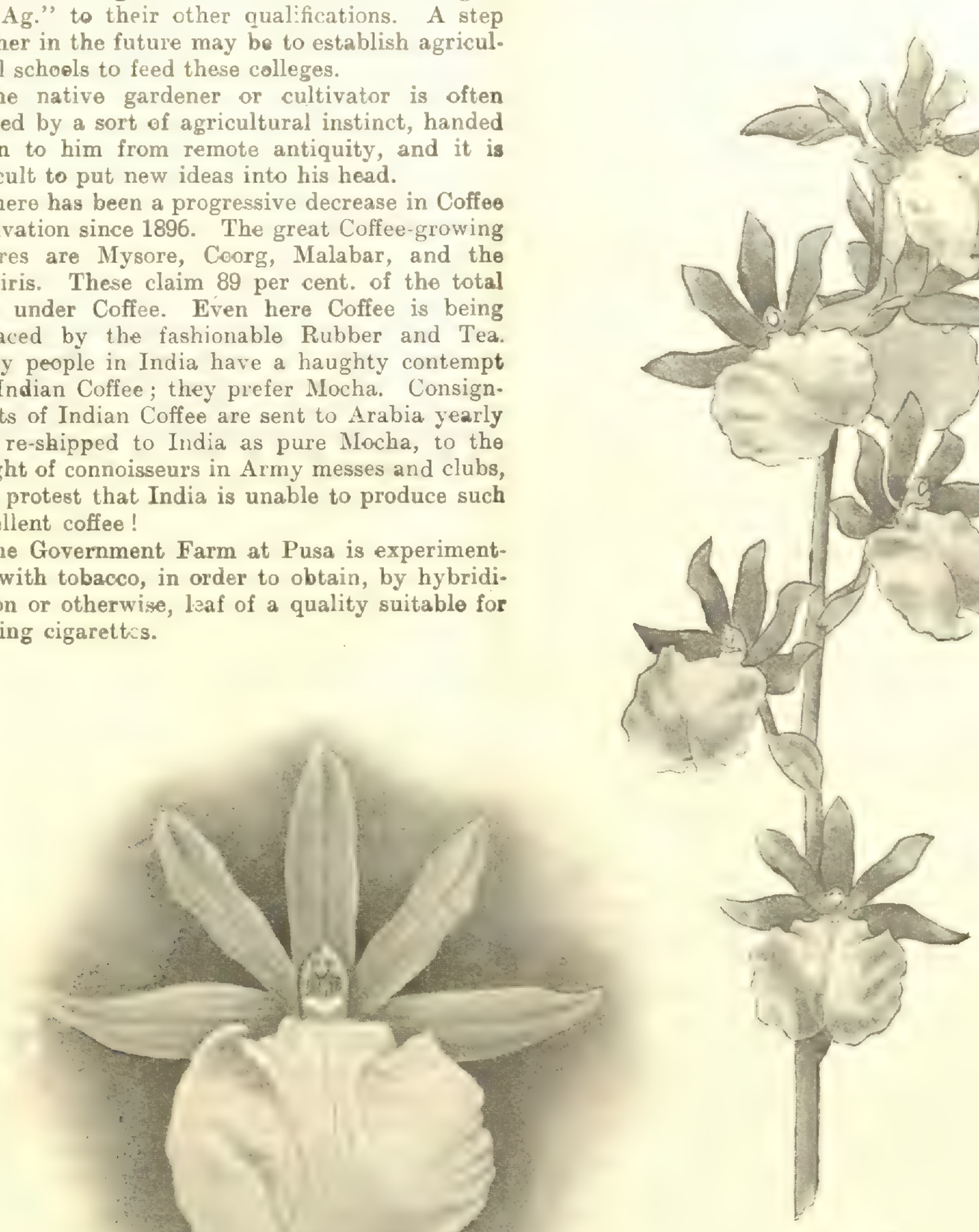


Fig. 37.—Zygopetalum Mackayi Charlesworthii; sepals and petals green, lip white.

ZYGOPETALUM MACKAYI CHARLESWORTHII.

Our illustrations in fig. 37 represent the very remarkable albino Zygopetalum for which Messrs. Charlesworth & Co. received an Award of Merit at the meeting of the Royal Horticultural Society on January 23. Zygopetalum Mackayi is a favourite garden plant, and the old type is by far the best. Specimens of more recent importations are generally known as Z. intermedium; indeed, Messrs. Charlesworth obtained their plant under this name in 1910. Plants of a portion of the stock, which flowered last October, were the true Z. Mackayi, and amongst these the white variety appeared. The flowers have sepals and petals of a pale emerald green, but without any trace of the purple-brown marking of the type; the labellum is pure white, there being not the slightest trace of the blue veining of the ordinary forms.

THE MARKET FRUIT GARDEN.

January has not given us weather much better than that of December. It is true that the total rainfall has been much smaller; but it has been frequent, and, whereas there was a good deal of sunshine between the falls of rain in the earlier month, there was hardly any in January before the 27th, when frost set in. Indeed, in my own district, although in the "sunny south," the sun was not so much as seen more than about eight times during the month up to the 26th, and there were only three sunny days. A gloomy mist under an overcast sky was common. Under such circumstances the land has not dried at all, and all work in the orchards has been done under unpleasant and disadvantageous circumstances. Here we had none of the snow which fell heavily in some parts of the country on the 8th and 18th of January, and we had less rain than fell in many places. This is only by way of reasonable compensation, as we had a good deal more than our fair share in the last three months of 1911. [Since the preceding remarks were written, one of the most severe visitations of frost ever experienced here has come and gone.]

Digging in a Wet Season.

Should fruit plantations be forked over in such a wet winter as the present one? In my opinion they should not be "dug," as the operation is described. If they are so foul with weeds that they must have the soil turned over, it will be better to wait on the chance of the land being sufficiently dry in February or even in March. According to a good authority, the operation has been discontinued in recent years by many Kent fruit growers, who trust to hoeing alone to keep the land clean, or to horse cultivation and hoeing. My own plan, where the trees have not branched out too much to allow of the horse cultivator being used, is to dispense with what is called digging. The horse work is done many times during the spring, summer, and autumn, and as late in the autumn as possible for the last time if the land is dry. Then a double-breasted plough is run between every two rows of trees and bushes, making shallow furrows, across which water furrows are made. These furrows afford surface drainage to the soil, which would be mud as left by the horse cultivator in the event of the winter being a wet one.

A word of warning is necessary to anyone who is disposed to try this plan. It is a fatal mistake to use the horse cultivator too late in the autumn when the soil is wet. The machine leaves the soil in so fine a mechanical condition that if it is not dry at the time or if rain falls soon afterwards, the condition of the orchard will be very bad, and only a hard frost succeeded by some fine weather will dry the soil before the spring. But when land is in a dry state at the time of cultivation and rain holds off for a day or two afterwards, it will withstand a good deal of rain later on without becoming waterlogged. Corn farmers are perfectly familiar with these facts.

Now, if the digging, or rather forking, is done in the autumn when the land is dry, it must be admitted that the land lies in better form for the winter than it does after horse cultivation or hand hoeing; but more often than not, if all the orchard land is forked over, half of it is dealt with when it is wet, and then I believe the operation does more harm than good. Besides, the saving of the expense of that work is a consideration of no slight importance.

The Colouring of Apples.

Nearly all the letters which have appeared on this subject in these columns support in effect my impression that the colouring of Apples is partly induced by anything which tends to check growth in wood and fruit. Even the letter of Mr. W. H. Johns (see p. 60) I submit does this, although he thinks that "all factors which tend

to induce sturdy, short-jointed growths also tend to accentuate colour." Checking action upon a strong growing tree is likely to induce such growth as is described, whereas stimulating action promotes long-jointed and sappy growth. As to colouring having been helped by allowing only one or two strong roots to go down into a chalk subsoil, mentioned by Mr. Johns, the experiment involved root-pruning, which, of course, checked growth.

The Fruit Grower's Tribulation.

This is only another name for the most detestable and yet most necessary operation carried out on a fruit farm, that of spraying, which entomologists and mycologists prescribe for us in frequent doses with light hearts. Unfortunately I found it necessary to incur the dreaded penalty before the middle of January, as bullfinches and probably other birds had begun to attack the buds of Greengages, which they appear to prefer to those of any other Plums. Monarch buds stand next in favour with them, and these they began to attack when the Greengage buds had been rendered distasteful to them by spray stuff I wished to defer spraying until the buds had begun to swell on the chance of killing some mother queen aphides, but the birds would not allow me to wait so long, and therefore the tedious work has been going on as regularly as the weather allowed since January 23.

The spray stuff used is factory-made lime-sulphur, with a little sulphate of iron added, partly because I think it adds to the adhesive power of the other ingredients of the wash, and partly because it may be expected to strengthen their fungicidal action, brown rot being prevalent in my oldest Plum orchard. The lime-sulphur tests 31° on the Baumé scale, equivalent to 1.2719 on the ordinary hydrometer scale, and 1 gallon of it is diluted with 12 gallons of water, while sulphate of iron to the extent of 3 lb. to a 40 gallon tub is added after being dissolved in hot water.

Birds attack the fruit-buds first, and later on, when the leaf-buds begin to start ever so slightly, these are eaten also. Chaffinches and tits help the bullfinches in their destructive work, and probably sparrows also.

The Cost of Spraying.

The labour of spraying trees of full size cost about 12s. an acre, as the trees were thoroughly drenched. The quantity of spray stuff used was accordingly large, quite as much being wasted on the ground as was placed on the trees, and the cost of this was fully 10s. an acre, making 22s. altogether. As rain followed the spraying on three or four days before the stuff had time to dry hard upon the trees, it is to be feared that much of the work will have to be done over again.

Efficacy of Spraying.

Birds have attacked a few trees slightly since they were sprayed, possibly where buds were not covered with the spray-fluid. The damage done when bird attack is not checked is very serious, particularly on the outsides of Plum orchards, close to the hedges. Probably the reason why Greengages are poorer fruiters than other Plums is that birds are particularly fond of their fruit-buds. Monarchs, as a rule, fruit less thickly than most other Plums, and this may possibly be explained in like manner.

To a great extent the injury done by birds is permanent, many of the portions of shoots stripped of buds being rendered permanently bald. I am not certain that fruit-buds never form again where they have been picked off. Dormant leaf-buds do develop at the bases of lost fruit-buds in some cases; but whether these ever develop into fruit-buds is uncertain to me.

After a bad bird attack on Gooseberry bushes, branches may be seen in the spring bare of leaves except at the tips, or there may be a few also near the bases of the shoots. No damage has yet been done to Gooseberries, so far as I can see; but it may be expected when the buds begin to swell, as birds are very short of food this winter.

Spraying for Big Buds.

The experiments of the Board of Agriculture in spraying Black Currant bushes for the bud mite, referred to on p. 58 of the issue for January 27, like all other similar trials, failed to give a substantial amount of benefit. The reduction of the proportion of swollen to normal buds from 66.7 to 45.5 per cent. is very much less than can be attained by picking off the affected buds where they are few every year, and cutting off badly infested branches, cutting also bushes covered to the ground level or replacing them with fresh bushes. I have pursued this plan for years, and have kept the pest within quite moderate bounds. It seems to me unreasonable to suppose that spraying three times in six weeks can kill any considerable proportion of the mites which are migrating daily for about three months. Then there are the great expense of spraying and the scorching of foliage to take into account.

Keeping Apples.

The storing of Apples has not been a very profitable business this season. Some very fine fruits of Lane's Prince Albert and Bramley's Seedling kept till the middle of January, made only 5s. 6d. a bushel, with 6d. for commission and a trifle for rail carriage for a short distance to come off. Some selected Apples, very large and perfect, made up to 2s. per peck in chips, tastefully packed. But the expense of the chips, wood wool, extra time in packing, and extra rail carriage to a distance take off nearly all the advantage, besides which the firsts were rendered less valuable than they would have been if no selected fruit had been taken out. If left in, the whole, it may be assumed, would not have made more than 6s. per bushel, or 5s. 6d. after paying commission. The markets were full of American and Canadian Apples. There was a good deal of waste from rotting, specks of rot showing on some of the finest Apples, so that these could not be marketed except at a low price. *A Southern Grower.*

SWEET PEA DISEASE.

(Concluded from page 53.)

Our knowledge of the life history of Macrosporangium solani, the fungus which Mr. Dyke has shown to be responsible for Sweet Pea streak, is by no means complete. A certain expert has even gone so far as to say that the conidia could not be seen with a 1-inch objective lens! In point of fact, when once the spores are developed they may be seen with the naked eye in a general way.

The Sweet Pea Macrosporium conidia are practically identical with those of M. Tomato, which latter is also recognised as being allied to M. solani. The conidia are club-shaped, and in this respect are not unlike those of Thielavia. In the first plant I sent to Mr. Dyke, he could find no trace of Thielavia, Fusarium, or Botrytis; but swarms of Macrosporium conidia were present, varying in size and form, differing in this respect from those of M. solani. Mr. Dyke is inclined to think that the "streak" variety of Macrosporium is M. sarcinæforme, which is found in Clover; however, to all intents and purposes, it is identical with M. solani.

Mr. Dyke points out that not all Sweet Peas which show symptoms of yellowing foliage are attacked by Macrosporium. Plants which die suddenly without showing the brown streaks are found to contain Fusarium, though this occurrence is not common.

Having thus ascertained the nature and cause of the disease which forms the subject of our investigations, the next problem is to find a cure; or, if this is too ambitious, at least we may discover a preventive.

The cause of the attacks of Macrosporium in Tomatos is over-feeding with nitrogenous manure, and it has been proved that the disease can be transmitted through the seed. We may therefore safely conclude that both these conditions also apply to Sweet Pea disease. Sweet Pea growers, knowing the forcing qualities of nitrates, have used them freely, in conjunction with heavy manuring, thus laying the plants open to frequent attacks of disease. Potash manures have been left severely alone by most growers, and yet the Rothamsted experiments plainly show that, in the case of legumes, potash is essential, tests on grass land having proved that a complete fertiliser produced about 55 per cent. of legumes amongst the herbage. When potash was omitted, the percentage of legumes was 22, and when *only* nitrogen was applied, legumes totally disappeared.

Here, then, at any rate, is a basis on which to work. Modern Sweet Pea growers will not, I admit, be content to go back to the old style of culture, omitting altogether the heavy manuring without which giant stems and monster flowers are impossible. The supply of nitrates can, however, be stopped, the manure alone containing quite sufficient of this fertilising agent.

There is another important item in the prevention of disease, and that is firm soil. When the trench system is adopted, and carried out late in the year, the soil is apt not to sink back quite tightly enough. When a Sweet Pea plot is to be prepared, the whole ground should be trenched (not merely the plant stations), and the soil should be trodden down as tightly as possible. That this method is good is borne out by the fact that "streak" is almost unknown on the Essex farms, where the ordinary ploughing method is adopted.

I come now to the third and last preventive measure, which is that of spraying. In this connection, the very greatest care must be taken, and it will be necessary to experiment. Tomatos and Potatos are sprayed with Bordeaux mixture in order to prevent the attacks of Macrosporium solani; but this would not do for Sweet Peas, partly because it would disfigure the plants, and partly because the foliage is so constructed that it throws off moisture, instead of allowing it to spread over the surface. A quick-spreading, non-staining fluid is therefore necessary; the only one I know of which answers to this description is Evans' Aseptic Fluid.

The above notes were written before the conference reported in vol. 1, p. 445, when many contradictory statements were made. Mr. Chittenden thought that Thielavia basicola was the actual cause of streak, the disease securing a hold after the plants have received a check. His tests with plants growing on soil inoculated with Thielavia and on soil not inoculated, resulted in the former showing the disease after the plants had been repeatedly overwatered. As, however, the non-inoculated soil was also over-watered, it follows that the plants received the same amount of check as the others, yet they remained healthy and flowered themselves to death. If a check can be caused by over-watering, the disease should have stricken all the plants. The over-watering theory is not proven, however, for many growers at the conference stated that they gave no water at all, yet the disease was rife. One grower, after sterilising many tons of soil, had disease in his plants as bad as ever.

We are, therefore, compelled to accept the Thielavia argument with some reserve, more so because this fungus is usually considered to be a saprophyte not a parasite. However, one man's word is as good as another's until it is disproved, and it behoves us to test the Macrosporium theory to the full. Personally, I shall soak all seed in a strong solution of permanganate of potash—one ounce to the quart. As the plants grow they will receive occasional waterings of permanganate—¼ ounce to the gallon. A fortnight or so before planting out, the soil will

be dressed with sulphate of potash, 1 lb. to every 4 yards run, and well forked in, doing this when the soil will allow firm treading. Between May and July, one ounce of permanganate of potash to the yard run will be given every two weeks, reserving one lot of plants as a control. Manure and watering will be as usual, but very little nitrate will be given. *W.*

AMERICAN NOTES.

THE LONDON INTERNATIONAL EXHIBITION.

CONSIDERABLE interest is being taken in your forthcoming big show. The Massachusetts Horticultural Society decided to offer a gold medal for American-raised Roses at the exhibition, and appointed Mr. J. K. M. L. Farquhar, of Boston, a delegate. Several other delegates will probably be appointed, and there will be one, if not more, exhibitors from Massachusetts. I might mention that the Society of American Florists will hold a National Show in New York, opening on April 5, 1913, and remaining open for eight or ten days. This show, it is expected, will surpass in magnitude even the one held in Boston in March, 1911.

AMERICAN FORCING ROSES.

WITH one or two exceptions the varieties of Roses quoted in your Covent Garden price lists are now little grown in America. The Rose industry here is, of course, an immense one, millions of feet of glass being devoted to their culture. Fortunately, we have clear skies in winter as well as summer, which makes the production of high-grade flowers comparatively easy. The tendency is more and more towards larger and wider houses, these costing less to build and heat than a number of small ones of equal area; furthermore, the temperature is very much more even in the large houses. Few Rose houses are now built less than 200 feet in length, while 500-feet houses are common; not a few are 700 feet and 800 feet and some even longer. William H. Elliott, at Reading, N.H., has one 1,340 feet by 60 feet, which is the largest of its kind to date. In regard to width, 40-feet, 50-feet, and 60-feet houses are in use; one in Pennsylvania is 150 feet wide. With trussed roofs it is now possible to use very wide houses without any supporting posts. The tendency towards larger houses is equally strong amongst growers of Carnations, Violets and Sweet Peas.

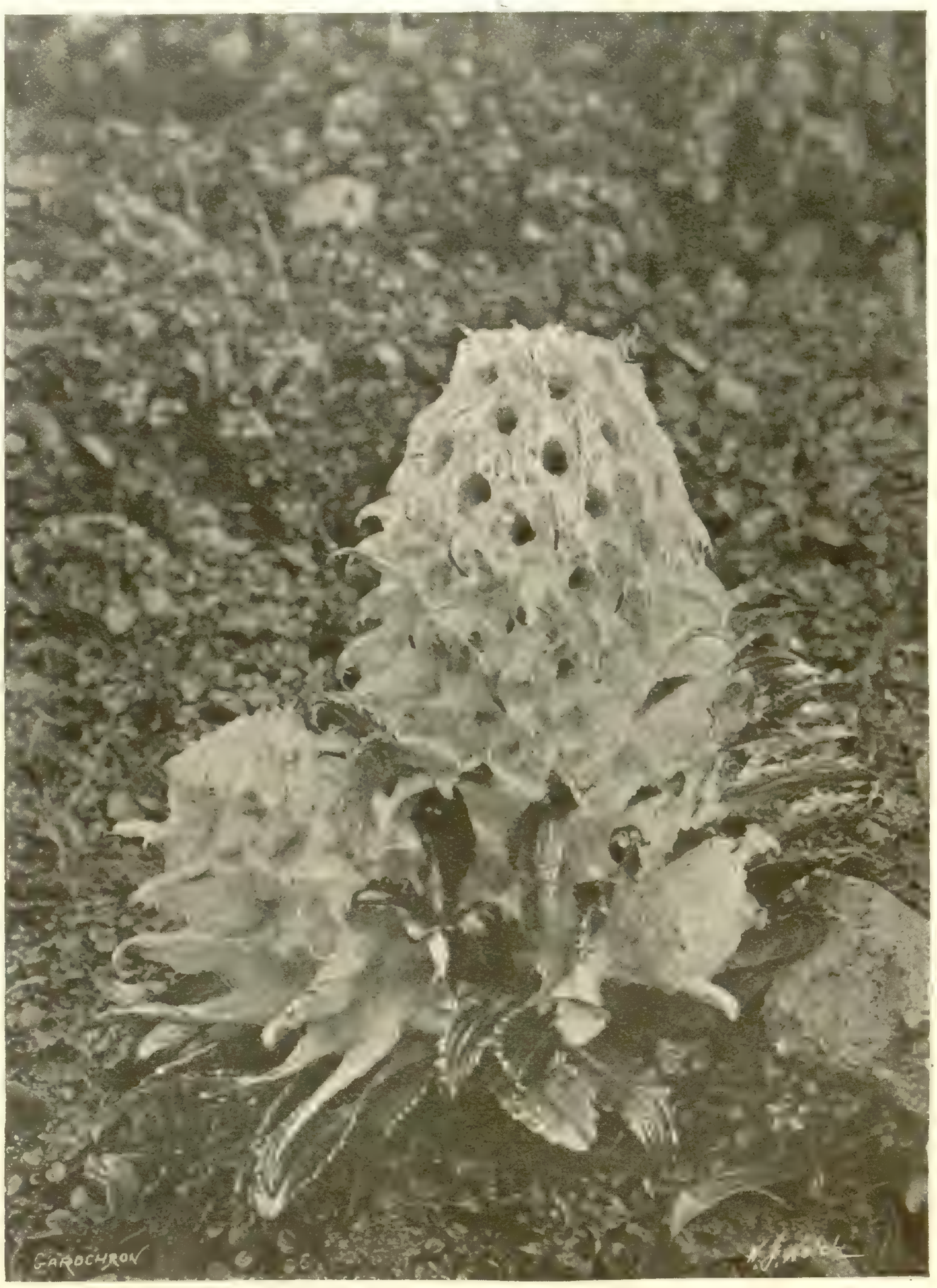
American Beauty continues to hold the leading place as a forcing Rose, especially in the west, and as much as $12 per dozen for long-stemmed flowers are readily secured for this variety at Christmas; it is less grown in the east than formerly, owing in large mea ure to the increased culture of Richmond, which has now entirely displaced Liberty for forcing purposes. Flowers of Richmond with 4-feet, 5-feet, and 6-feet stems are not at all uncommon in the markets in winter and early spring. The most popular Roses in America to-day, however, are Killarney and White Killarney; these have almost entirely displaced Bride, Bridesmaid, and Mermet, which are now rarely seen in the markets. It is surprising that these varieties have not been more grown in England. Antoine Rivoire, re-christened Mrs. Taft, and also called Prince de Bulgarie, is becoming very popular. American growers, to popularise a new European introduction, are very prone to change names; the American Beauty is merely Mme. F. Jamain; under the latter name it did not sell well, hence the change. Mrs. Aaron Ward has become immensely popular as a forcing Rose; Lady Hillingdon is also rapidly coming to the front, also Mrs. A. R. Waddell. Some growers still cultivate Mme. Abel Chatenay; very few now grow Perle des Jardins; one or two specialists have of late years grown limited numbers of the old Safrano and Bon Silène. *William N. Craig, North Easton, Mass., U.S.A.*

SAUSSUREA GOSSYPIPHORA AND S. LEUCOMA.

(See fig. 38 and Supplementary Illustration.)

THE genus Saussurea is one of the largest and most widely distributed, with great variation in form and also in stature, specimens ranging from the minutest Alpines of an inch, or even less, to plants of fully 4 feet. The altitudinal range is likewise extraordinary; on the Himalayas and the lofty mountain chains of N.W. China they are almost the last plants found at the limit of vegetation.

Amongst the most interesting of the Alpine forms are those composing the sub-genus Eriocoryne, all the species contained in it being more or less densely clothed with long, shining, cottony hairs, which vary in colour from the purest white or dull yellow to pale pink.



[*Photograph by George Forrest.*

FIG. 38.—SAUSSUREA GOSSYPIPHORA IN ITS CHINESE HABITAT.

The most extreme type of this group is Saussurea gossypiphora, Don., a Himalayan species, but plentiful in places on the Lichiang and other ranges in N.W. Yunnan. Viewed at a short distance, in situ, the plant resembles nothing more closely than a teased-out pyramid of glistening pinkish or yellowish-tinged cotton. The only foliage visible consists of a few of the lower cauline leaves; the whole inflorescence is embedded in the dense tomentum, the presence and situation of the flower-heads being indicated by cavities.

The plants are from 6 inches to as much as 18 inches in height, and grow in the most exposed and bleak situations on the ledges of limestone cliffs at an altitude of 16,000 to 17,000 feet.

The species is biennial; a curious point in connection with the foliage of the first year's growth is that the long, cottony hairs are entirely absent, the upper surface of the leaves being glabrous, the under-surface coated with a short, dense, ash-coloured tomentum. During the flowering season the plants are exposed to chilling rains and an extremely foggy atmosphere, thus most probably the heavy coating has been evolved as a protection from those conditions.

The Supplementary Illustration portrays a new species belonging to the same section, which I discovered in the same region. It has been named Saussurea leucoma, Diels. It does not attain such an altitude as S. gossypiphora, but its range is more extensive, from 13,500 to 16,000 feet. The plants are from 4 inches to 9 inches in height and form small colonies on the huge limestone screes which are a striking feature of the Lichiang Range. The foliage, which at the base is narrowly pinnate, varies in form upwards, until those leaves nearest the inflorescence are almost linear, the lamina being entirely sacrificed to the development of the abundant cottony tomentum in which practically the whole of the plant is smothered. The flower-heads alone are free of it, and form a compact mass 2 inches to 3 inches in breadth. The florets are deep bluish-crimson and fragrant. The stems in both species are stout, fleshy and hollow. *George Forrest.*

The Week's Work.

THE ORCHID HOUSES.

By J. COLLIER, Gardener to Sir JEREMIAH COLMAN, Bart., Gatton Park, Surrey.

CŒLOGYNE.—Plants of Cœlogyne cristata and its varieties are pushing up their flower-spikes, and should be afforded sufficient water at the roots to keep the pseudo-bulbs plump, or the flowers will be weak, and not last long after they are cut.

PLEIONE.—Any plants of Pleione that have finished flowering and have commenced to make new growth will require repotting. A suitable compost consists of good fibrous loam and peat in equal parts, mixed with a little powdered cow manure, crushed crocks, charcoal, and silver sand. Care should be taken not to break the new roots on the young growth. Place the plants in a position near to the roof-glass, and grow them in an intermediate temperature. Afford water sparingly until the roots have grown well into the compost. Syringe the plants on all favourable occasions, as they are very subject to attacks of red spider.

SHADING.—If the outside blinds were removed from the glasshouses at the end of last summer, they should be fixed in position again without delay, for on bright days shading will be necessary for a short time during the middle of the day. The weather has been exceptionally dull this winter, and the growths of many Orchids are not well matured. There will also be greater danger of the leaves becoming scorched by the sun's rays than if the plants had enjoyed brighter weather conditions. This applies especially to such plants as Odontoglossum crispum, O. Pescatorei, and the many hybrids of these Orchids, also Masdevallias and Phalænopsis. Plants of Dendrobium, Lælia, Cattleya and their hybrids will be safe without shading until a later period.

ODONTOGLOSSUMS.—Many plants of Odontoglossums are developing their flower-spikes. When the inflorescences are of sufficient length, they should be tied to neat sticks and placed facing the light in such a position that they will grow in a pleasing arching shape, that adds greatly to the beauty of these lovely flowers. This also applies to Odontiodas, which should be given the very lightest position in the Odontoglossum-house near to the roof glass. Search night and morning for slugs, which are very destructive to the young succulent flower-spikes. As soon as the inflorescence is about 6 inches long a piece of wadding should be wrapped around the base of the leaf that shields the spike. This, whilst moderately dry, will prevent slugs from creeping up from the stems. Plants of Odontoglossum citrosmum have commenced to push young growths from the bases of the pseudo-bulbs, but they should still be kept dry at the roots until the flower-spikes appear from the centres of the shoots, when they should be thoroughly watered and afforded more atmospheric moisture. O. grande and O. Insleayi leopardinum should still be resting in the warm end of the Odontoglossum house, and will require little or no water till growth becomes active. If these plants are not allowed a long season of rest, they will not flower in a satisfactory manner.

HOT-WATER SYSTEM.—Great caution should be exercised in stoking the fires. Do not have too much fire in the furnaces in the mornings in case the weather should turn bright, as sunshine would cause the temperatures to rise unduly in the houses.

CYMBIDIUM.—Cymbidium Traceyanum will now have passed out of bloom. This Orchid resents root disturbance; therefore, if there is sufficient room in the pot for the plant to complete its growth, it will be better to defer repotting until the operation is absolutely necessary. Specimens that are very pot-bound may, while making their growth, be given occasional applications of liquid manure. Any plants that are to be repotted should receive attention at once. Use a compost consisting of two-thirds good fibrous loam, one third rich, fibrous peat or Osmunda fibre mixed with a quantity of crushed crocks. Place a double row of pot-sherds over the bottom of the pot for drainage and pot rather firmly. Avoid damaging the roots. Use small pots, as these plants flower much more freely when the receptacles are filled with roots. Plants of C. insigne, C. grandiflorum, C. Lowianum, C. eburneum, and their hybrids are now developing their flower-spikes, and will require a liberal supply of water at the roots. Take care when watering these plants to thoroughly soak the compost through, as nothing is more harmful to them than to only wet the surface of the compost. These Cymbidiums should not be subjected to too much heat. At Gatton we devote a house to them, where they grow and flower in a satisfactory manner. The night temperature of the house during winter ranges from 45° to 50°, but on very cold nights the temperature frequently falls as low as 40°.

THE FLOWER GARDEN.

By J. G. WESTON, Gardener to Lady NORTHCOTE, Eastwell Park, Kent.

HERBACEOUS BORDER.—Take advantage of every favourable opportunity to complete the work of manuring and digging or trenching herbaceous borders to enable planting to be done as soon as possible. In all these operations remember that Pæonies, Alstrœmerias, Spiræas, Liliums, Aconitums, Anemone japonica and its varieties, also Delphiniums, all resent severe root disturbance, requiring usually a season afterwards to become thoroughly established again. If the plants are deteriorating, there is no other course open than to transplant them. Strong, healthy clumps should have the soil about them carefully worked with the fork and incorporated with well-decayed manure and leaf-mould. These plants are all gross feeders, and amply repay a generous treatment. Certain other perennials derive much benefit from being lifted, divided, and replanted in trenched ground. Solidagos, the perennial Asters and Phloxes, Heleniums, Monardas and Achilleas are examples of plants that require attention in these respects annually. When a plant is divided for stock purposes, only healthy outside portions of the original clumps should be selected.

PERENNIAL ASTERS.—Michaelmas Daisies have been greatly improved during recent years, and no garden should be entirely without them, even though, through limitations of space, a large number cannot be included. There is a wealth of good varieties suitable for all purposes, and if a careful selection is made they may be had in flower through the summer months into November. They are seen to the best advantage in large beds or a border devoted entirely to them. A border with a background of shrubs or dwarf trees is suitable, but the roots of trees should not be allowed to encroach on the soil wherein the Asters are planted. The stronger-growing varieties should be planted very thinly at the back, placing the dwarf sorts in the front. The plants should be lifted each year, the ground trenched and manured, and quite small pieces of healthy crowns planted afresh. The following tall varieties are all good:—Climax, Aldeboran, Maidenhood, Robert Parker, Enchantress, Feltham Blue, Mrs. Rayner, Mrs. S. T. Wright, Top Sawyer, and Lilian Fardell. Of those of intermediate growth, Beauty of Colwall, Coombe Fishacre Finchley White, Acris, Mrs. Huson Morris, Peggy Ballard, St. Egwin, with the best of the A. cordifolius varieties make a pleasing selection, whilst of the dwarfer sorts good forms of Aster amellus, such as Bessarabicus, Beauté Parfait, Framfieldii, H. J. Cutbush, Perry's Favourite, and Aldenham, with A. Acris Nanus, Norah Peters, A. horizontalis White Bedder and Thompsonii may be selected.

LILY-OF-THE-VALLEY.—Established beds of Lily-of-the-Valley should be made tidy and the plants afforded a top-dressing of discarded potting soil or spent manure from an old mushroom-bed mixed with leaf-mould and sand. If new beds are to be planted, they should be prepared at once. Lily-of-the-Valley will grow like a weed in some districts and fail altogether in others. Where a difficulty is experienced in getting the plant to flourish, it should be planted under trial in various situations. In most instances a cool soil and shady position will be found suitable.

PLANTS UNDER GLASS.

By THOMAS STEVENSON, Gardener to E. MOCATTA, Esq., Woburn Place, Addlestone, Surrey.

ADIANTUM CUNEATUM.—Maidenhair Ferns that have been grown for furnishing greenery or for decorating conservatories should be afforded a short period of rest by keeping the plants on the dry side, and placing them in a cool house for two or three weeks. At the end of this time they may be introduced into a warm house to make fresh growth. The best time for potting these plants is after they have been rested, and it is a good plan to pot only a portion of the batch each season. Large plants may be divided for purposes of increasing the stock, and plantlets grown on to take the place of specimens that are worn out.

HERBACEOUS CALCEOLARIAS.—Since perpetual-flowering Carnations and forced Roses have become so popular for furnishing conservatories and greenhouses in winter, the herbaceous Calceolarias have been somewhat neglected. But these Calceolarias make a pleasing display either in the cool conservatory or the show-house, and should be included in the general collection of flowering plants. Their cultivation is not easy, for they need very careful treatment. They succeed best in a house having a minimum temperature of from 42° to 45° at night, with a proportionate increase during the day: avoid fluctuations of temperatures. At the present time the atmosphere should be kept moderately dry, but later in the season a light spraying between the pots will be beneficial. If plants in 4½-inch pots are growing satisfactorily, and have plenty of roots, they may be shifted into 8½-inch pots; they should make good specimens by May. As a potting medium employ good yellow loam with a quantity of flaked leaf-mould and sand. Pot moderately firmly, and afford water with care, for although the roots must not be allowed to become dry, an excess of water is frequently the cause of the plants becoming unhealthy. Calceolarias are very subject to attacks of aphis; therefore, it will be necessary to fumigate the house lightly about every third week.

HYDRANGEA HORTENSIS.—Well-rooted young plants of Hydrangea hortensis should be placed in an intermediate temperature to ensure an early display of the flowers. They may be accommodated on a shelf of a forcing house, where such subjects as Azaleas, Spiræas, and Prunus are being gradually forced. The plants were potted early in the autumn, and they should have made a considerable number of roots, and be in a good condition generally for gentle forcing. Plants that were rooted later, and are still in 3-inch (60's) pots should be shifted into 4½-inch (48's) pots without delay. For potting soil use a compost composed mainly of a rich loam. Pot moderately firmly, and stand the plants in a cool house after the work is completed. If it is desired to have the flowers of a blue tint, use a little powdered alum in the water twice weekly during the plant's season of growth; it is sometimes recommended to use iron filings, but although I have tried these on two or three occasions, they have had no effect on the colour of the flowers. Older plants of Hydrangea, which may be expected to develop five or six trusses of bloom, should not be forced for the present, as there will be more room for them in the plant-house later

LACHENALIA.—Lachenalias are now showing their flower-spikes, and should be assisted with a small quantity of liquid cow manure each time the plants are watered. A collection of the various kinds provides an interesting display, but the best variety for garden purposes is L. Nelsonii. The golden-amber-coloured flowers show to great advantage when intermingled with other decorative plants.

THE FORCING HOUSE.—Keep up the complement of plants in the forcing house by withdrawing from the cold frames, according to requirements, batches of Narcissi, Tulips, Lily-of-the-Valley, and other subjects that are forced into flower. It should be remembered that all plants develop their blossoms quickly as their natural season of flowering draws near.

SOOT AND FOG.—The recent damp, foggy weather has left a sooty deposit on the exterior of the roof-glass, especially in the neighbourhood of towns, and this should be washed off as often as may be necessary.

THE HARDY FRUIT GARDEN.

By F. JORDAN, Gardener to Lady NUNBURNHOLME, Warter Priory, Yorkshire.

RASPBERRIES.—Few small fruits are easier to cultivate or more profitable when well grown than Raspberries. They require a rich, deep, and moist, but not stagnant, soil. The ground should be well prepared before planting, as the plants usually occupy the same ground for many years. The Raspberry will thrive in almost any position, but it does best in an open situation in ground that has either been trenched or deeply dug and heavily manured. Plant in rows 4 feet to 5 feet apart, allowing from 3 feet to 4 feet between the stools in the rows. Select canes for planting of a medium size in preference to large or gross ones, cutting them down in March to about 8 inches from the ground level. Established plantations where the canes were properly thinned last autumn will require little attention now beyond tying and topping of the shoots to the required height in March, leaving five or six canes to a stool. Supply fresh stakes where necessary, and examine the framework from which the nets are suspended to see if it is in need of repair. Cut the shoots of autumn-fruiting Raspberries down to the ground, and give all kinds a liberal dressing of manure. Prick up the surface of the soil lightly if the ground is heavy, before applying the mulching.

STRAWBERRIES.—Examine the beds, with a view to removing any runners that were overlooked in the autumn. Afterwards lightly fork over the soil just sufficiently to break the surface, to get any weeds out that may be present, then dress the beds with manure. There is a great difference of opinion as to the value of mulching or manuring Strawberries either in autumn or spring. As a general rule, autumn manuring is best, but in the case of heavy and wet soils, care must be exercised, as autumn manuring has a tendency to encourage growth that is more susceptible to winter frosts. Old mulchings from vine and Peach borders, cast loosely and roughly amongst old beds in the autumn, encourage the formation of surface roots, whilst a dressing of this kind protects the plants and suits them better than heavy manure. Rake and clear the beds of weeds and mulch with manure or stable litter, the straw of which will be washed clean before the fruits ripen. If slugs or snails are troublesome, give a dressing of soot; if soot is not available, lime or charred refuse may be used instead. Young plantations of Strawberries should be cleared of weeds in dry weather, and the soil made firm by treading around each plant. Any plants that have died may be made good from runners reserved for the purpose in another part of the garden. Afterwards give a good dressing of stable manure or manure from an old mushroom bed. If spring planting is contemplated, prepare the ground thoroughly as recommended for Raspberries, but defer planting till the middle or end of March.

THE KITCHEN GARDEN.

By EDWIN BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

SPINACH.—Complaints reach me from various parts of the country of the unsatisfactory condition of the Spinach crop out-of-doors. At Aldenham we have suffered in common, and no doubt the trouble is attributable to the excessively wet winter. Spinach is such a necessary winter vegetable that no pains should be spared to maintain an efficient supply. Where cold frames are available, these, set upon a mild hot-bed, will furnish a supply over a good period. Draw drills 1 foot apart, and sow the seed thinly. Small sowings should be made at intervals for a succession. Where the soil is not too heavy, in a warm spot under a south wall, make a sowing at once, or as soon as the soil can be properly worked and raked level. The Carter is the best variety for spring cropping or for sowing on mild hot-beds. The plants have a strong constitution, and develop large foliage. Victoria is also a splendid variety and suitable for all seasons.

CAPSICUMS AND CHILLIES.—Though Capsicums and Chillies are not generally grown, they should be more extensively cultivated, for not only are the plants when in fruit very decorative subjects, but valuable also from a utilitarian point of view. In such a hot summer as the past, their growth may be finished out-of-doors in a warm position, but generally the plants are better grown in 5-inch pots and afforded the protection of a cold frame against adverse weather. The seed should be sown now in pots or pans containing a finely-sifted compost, and germinated in a gentle heat. Immediately the seedlings are large enough to handle put them singly into thumb pots, and place them near to the roof-glass. Select such varieties as Mammoth Long Red, Red Giant, Prince of Wales, and Golden Dawn (the two last-named are the best yellow sorts). Pigmy Black Prince and East India Cayenne are the best varieties of Chillies.

SOLANUM MELONGENA.—Both the Egg plant and Aubergine are also attractive plants when grown in pots, whilst in some establishments these fruits are in demand for culinary purposes. They provide a pleasing and uncommon dish for exhibition purposes. To grow them successfully the plants require a warm, almost a stove, temperature, and liberal feeding. They should never be subjected to a check. The seed should be sown in pans and germinated in heat. Pot the seedlings singly, as soon as they are large enough for transplanting, and keep them growing actively in a brisk temperature. Syringe the foliage frequently whenever the weather permits, to keep down red spider. For general purposes the Purple Fruited variety of Aubergine will be found the best, being a prolific cropper and good grower.

ASPARAGUS.—The forcing of Asparagus may be done with comparative ease. Various methods may be adopted, but whichever is selected, it is preferable to lift strong crowns rather than force them on the permanent beds. Whether the roots are placed on mild hot-beds or under the stages of a greenhouse, heat and moisture are the chief requirements, and especially bottom heat. Excellent results may be obtained by placing the crowns in shallow frames on a mild hot-bed; a succession may be obtained by having two hot-beds, replenishing with fresh crowns at intervals. Place the roots on a very thin layer of soil, covering them with the same small quantity of compost. Well water the roots after they are set in the beds. Keep the frames close, and syringe with clear water, according to the weather conditions; if considered necessary, a little fresh air may be admitted on the leeward side of the frame, closing the lights again early in the afternoon. As growth commences, diluted liquid manure may be given with beneficial results. Place some protective material over the glass when the weather is cold, but remove it whenever the weather turns warmer. Add fresh linings of long, strawy litter and leaves to the frames as the heat declines in the bed, to promote a quick growth.

FRUITS UNDER GLASS.

By E. HARRISS, Fruit Foreman, The Royal Gardens, Windsor.

THE ORCHARD HOUSE.—All fruit trees in pots or tubs should, if not already under glass, be placed indoors without delay. Owing to the mild winter the buds are developing very quickly, those of Peaches and Nectarines being on the point of bursting into flower. Before the flowers open, place the plants on their sides and syringe them with an insecticide. Apples, Pears, and Plums should also be treated in the same manner. The Apple trees should be examined carefully for woolly aphis. The most effective way to deal with this pest on small trees is to touch the insects lightly with a small brush saturated with methylated spirit. Trees affected with scale should be thoroughly cleansed now, as this pest spreads rapidly during the growing season, and does considerable damage. It is a good plan to fumigate the house before the trees flower and again when the fruits are all set. This treatment should keep the plants free from aphis all through the season. Any trees requiring pruning should be attended to at once.

QUEEN PINEAPPLES.—Preparations must now be made for repotting and starting the suckers which were rooted last summer. A hot-bed should be prepared in which to plunge them when potted in a shallow house or pit, taking care that the plants are quite near to the glass when plunged. A hot-bed about 4 feet deep, consisting chiefly of Oak or Beech leaves, will, if well made, retain sufficient heat to keep the roots active all through the growing season. Build up the bed in layers, and make each layer firm by treading. Be careful to make the bed of an uniform firmness throughout. The compost for potting should be prepared several days before it is needed, and must be warmed through before being used. It should consist chiefly of rich, friable loam, with the fine particles shaken out. To each barrow-load of the loam add one 8-inch potful of ¼-inch bones and a 6-inch potful of soot. A little charcoal should be added to loam which is heavy and deficient in fibre. Before moving the plants, remove two or three of the lower leaves, then tie the remainder together till the plants are plunged in the new hot-bed. Make sure the roots are thoroughly moistened before potting, and carefully "tease" out some of the roots on the outside of the ball with a pointed stick. The strongest plants may be potted into 12-inch pots, and each pot should be carefully and amply drained. The soil should be rammed quite firmly. Special care should be taken not to shake the plants more than can be avoided, as the roots are easily damaged. The plants will not require water for two or three weeks, when the roots should be growing freely in the new soil. They must, however, be frequently syringed, and the atmosphere kept moist by damping the bare surfaces in the house at frequent intervals. Except on very cold nights, the minimum temperature may be kept at 70°. Take full advantage of the sun's rays during the day, admitting fresh air only on the most favourable occasions. On very cold nights the roof of the house should be covered with mats or tiffany.

CHARLOTTE ROTHSCHILD AND SMOOTH CAYENNE PINES.—The method of cultivating these two varieties of Pineapple practised at Frogmore for many years, was to plant them out in a pit. This system involves less trouble and expense than when pots are employed. The plants develop much more rapidly and the fruits also grow to a larger size than those grown in pots. To obtain fruits all the year round, a pit should be planted in March and another in September. Preparations should be made for putting out the plants several days before planting time, so that the soil may become thoroughly warmed. A hot-bed should be made as advised for Queen Pines. On this place a bed of soil about 1 foot deep. Put the plants out about 2 feet apart and keep the pit close and moist till the roots are active. Shade the plants during bright sunshine till they have become established, after which shading should be discontinued. The plants enjoy a high temperature, provided the atmosphere is moist.

THE APIARY.

By CHLORIS.

DISEASES.—Beekeepers should continue to bring pressure to bear upon the Legislature to pass an Act to assist in ridding this country of bee diseases. I believe there is no country of first or second-rate importance, with the exception of Great Britain, that is without a law compelling the lazy and indifferent beekeeper to keep his hives in a hygienic condition. It has been noted by those who have made close enquiries into the working of such legislation that bee diseases may be reduced to a negligible quantity. Any Act would first, naturally, abolish all hives that could not be easily overhauled; thus we should see an end of the old straw skeps. These may add beauty to the old-world garden, but we must sacrifice something, and as such hives cannot be properly inspected for the detection of disease in its earliest stages, they should be abolished. Compulsory inspection should be one of the provisions of any Bill on the subject, and the notification of disease should be made compulsory. Materials, such as wax, in the form of foundation should be inspected for disease, whilst the importation of foreign queens would also require to be dealt with. If such an Act were passed, there is scarcely any doubt but that the number of beekeepers would greatly increase in this country, for wherever such legislation has been adopted beekeeping has increased by leaps and bounds. Thrifty and industrious beekeepers have nothing to lose, but everything to gain by the passing of such a law. There is considerable scope for beekeepers in this country, as large quantities of honey are imported yearly into Great Britain and to the value of from £1,000 to £5,000 each month.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, *as well as specimens of plants for naming, should be addressed to the* **EDITORS, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Special Notice to Correspondents.—*The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.*

Local News.—*Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, FEBRUARY 12—
United Hort. Benefit and Prov. Soc. Com. meet.

TUESDAY, FEBRUARY 13—
Roy. Hort. Soc. Ann. Meet. (no exhibition.)

THURSDAY, FEBRUARY 15—
Linnean Soc. meet. Croydon and District Hort. Mutual Improvement Soc. Ann. Dinner.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—39·2°.

ACTUAL TEMPERATURES:—
LONDON.—*Wednesday, February 7* (6 P.M.): Max. 50°; Min. 40°.
Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—*Thursday, February 8* (10 A.M.): Bar. 29·0°; Temp. 49°; *Weather*—Dull.
PROVINCES.—*Wednesday, February 7:* Max 51° Cornwall; Min. 39° Lincolnshire.

SALES FOR THE ENSUING WEEK.

MONDAY AND WEDNESDAY—
Rose Trees, Fruit Trees, Perennials, &c., at 12.30, at Stevens's Auction Rooms, 38, King Street, Covent Garden.

MONDAY AND FRIDAY—
Herbaceous and other Plants, Hardy Bulbs, &c., at 12; Roses and Fruit Trees, at 1.30; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

WEDNESDAY—
Perennials and Border Plants, Lilies and Hardy Bulbs, at 12; Roses and Fruit Trees, at 1.30; Palms and Plants, at 5; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

The Area of Land under Cultivation in Great Britain.

Part 1 of the annual volume of agricultural statistics issued by the Board of Agriculture is devoted to acreage and live stock returns, and is prefaced by a valuable and interesting survey of the state of Great Britain with respect to the extent of the area under cultivation, the number of small holdings, and the amount of land under various crops.

The most important point brought out in the report is the apparent reduction in the amount of land which passed out of cultivation during the present year as compared with the amount in recent years. Thus at the present time the area under cultivation in Great Britain amounts to 56,214,419 acres, of which 32,091,658 acres are under crops or permanent pasture, and constitute the "cultivated area," whilst the remainder, 12,875,660 acres, are "mountain and heath land used for grazing."

The shrinkage of the cultivated area has declined by 51,272 acres, whereas the area returned as mountain and heath land has—it is curious to record—increased by 31,434 acres. Hence, the year 1911 has seen a withdrawal from agricultural or pastoral purposes of about 20,000 acres.

This amount compares favourably with the average of the past 10 years; for during this period the cultivated area has been reduced by 323,000, and the rough grazing area by 55,000. Thus the average for the 10 years amounts to 37,800 acres. The report holds that the present shrinkage is attributed not to the abandonment of land, but to the encroachment of towns upon the cultivated area.

Another noteworthy fact is that, though the decrease of the farming area during the past 10 years amounted to only 0.8 per cent. of the total, the reduction of area of arable land reached the high figure of 6 per cent. During the years 1901-1911 the areas of land withdrawn from the plough amounted to: in England, 661,000 acres; in Wales, 158,000 acres; and in Scotland, 123,000 acres. It is satisfactory to observe that this reduction was less during 1911 than in any year since 1902.

The number of holdings of from one to five acres increased during the past year by 2,085 in England and Wales and the holdings of from five to 50 acres also show an increase of 1,601. Thus the total increase in the number of small holdings amounted during 1911 to 3,686. The total number of holdings of from one to 50 acres was 292,488 in 1911, whereas in 1903 it was 290,671. The present number is still considerably less than it was 20 years ago. For example, there were in 1890, 309,290 holdings of from one to 50 acres. This number fell rapidly during the next few years, till, in 1895, it was reduced to 299,378. The fall continued down to 1908, when the number was 287,176. Since that year, however, as the report points out, the tide has turned, and in the past three years there has been an increase of 5,312, or nearly 2 per cent.

A table showing the extent of land under fruit crops in 1911 demonstrates the fact that the area under small fruit and orchards was almost identical in amount with that of the previous year. The figures are:—for 1911, small fruit and orchards combined, 334,995; and for 1910, 334,982 acres.

Newfoundland.*

The oldest English colony still possesses no book entitled to the designation of "Flora," but Mr. Fernald, an American, has given the world something much better than the ordinary "Flora" in the form of a narrative of a series of botanical excursions in Newfoundland. *Rhodora*, it may be mentioned, is the journal of the New England Botanical Club, and it is mainly to the activity of members of this club that we are indebted for the recent scientific investigation of the vegetation of Newfoundland. Mr. Fernald opens his narrative with a condensed historical summary of botanical discovery in the island, and then proceeds to an interesting and instructive account of the journeys accomplished by himself and companions. Large numbers of plants were dried, but it is what the author says of the living plants that is of more importance. It is something to be read and something that cannot be given in brief—word pictures of plant-life and plant-associations. Newfoundland is about four-fifths of the size of England, and its mountains rise to a height of 2,000 feet. Lakes are numerous and extensive, and rivers abound. Although situated nearly wholly in a lower latitude than England, its climate is more rigorous. Immense areas of the interior are still in a state of nature, thus affording good botanising grounds. We cannot follow the author on any of his interesting trips, but a few extracts may be made from his chapter on "The Geographic Origin of the Flora of Newfoundland." So far as known, the indigenous species and recognised varieties of flowering plants and Ferns on the island number 783, while there are about 200 species evidently introduced by man. The indigenous plants are divided into four classes, namely, (i.) boreal, (ii.) western or Canadian types not included in i., (iii.) south-western types, and (iv.) endemic species or species unknown on the American Continent. The striking feature of an analysis of the flora is the fact that, of the indigenous plants of Newfoundland, 94.5 per cent. are identical either with species found to the north of the Straits of Belle Isle or with plants which occur along the Atlantic seaboard to the south-west, while only 3.5 per cent. are most typically Canadian plants, which on the Continent find their greatest development in latitudes and climatic zones parallel with those of central and southern Newfoundland. A large proportion—some 340 species—of the plants which abound on the Continent at the western edge of the Gulf of St. Lawrence, which might be expected to occur in appropriate habitats in Newfoundland, seem to be absent. In this connection the author points out how little has been effected by birds, winds and currents in the potential conveyance of plants from the mainland to the island. Another interesting fact is the presence in Newfoundland of a number of Carolina plants which do not occur in Eastern Canada.

* "A Botanical Expedition to Newfoundland and Southern Labrador," by M. L. Fernald, *Rhodora*, vol. xiii. (1911), pp. 109 162, with a number of views and maps illustrating the distribution of various characteristic plants.

ROYAL INTERNATIONAL HORTICULTURAL EXHIBITION.—Particulars of the liberal reductions the International Exhibition authorities allow in the case of professional gardeners who obtain their tickets before the opening of the exhibition have already been published in our issue for October 28, 1911. The hon. Press secretary (Mr. R. HOOPER PEARSON) now desires to state that application forms for these cheap tickets have been sent to the county secretaries. All who have the requisite qualifications should apply at once to the secretary for the county in which they reside; the secretary will then send a form, which the applicant must fill up and return to him. Since the issue of the last published list of presentation cups and other special prizes, the directors have been informed, through Mr. JAS. WHITTON, one of the secretaries for Scotland, that the City of Glasgow will offer a silver cup for the best exhibit of hardy trees and shrubs suitable for planting

Photograph by George Forrest.

A NEW SPECIES OF SAUSSUREA (S. LEUCOMA, DIELS.) IN ITS CHINESE HABITAT.

Printed by Temple Press Ltd., London, E.C.

in congested areas. The question of the suitability of particular trees for cultivation in densely-populated towns possesses great interest for all who are engaged in public gardening. Arrangements for the social functions in connection with the exhibition are nearing completion, and the reception committee, through the chairman, Sir ALBERT K. ROLLIT, has presented its report to the directors. The Right Hon. WALTER RUNCIMAN, P.C., M.P., will speak at the lunch to be given on the opening day to the members of the jury and administration.

———The Silver Cup, illustrated in fig 39, will be offered by the YOKOHAMA NURSERY CO., LTD., at the Royal International Horticultural Exhibition in May next, for the best exhibit of Pæonia Moutan. The height of the cup is 18 inches.

LIVERPOOL HORTICULTURAL ASSOCIATION.—This society will hold a spring flower show on Wednesday and Thursday, March 27 and 28, a Sweet Pea show on Wednesday, July 17, and a Chrysanthemum show on Wednesday and Thursday, November 13 and 14. The exhibitions will be held in the Corn Exchange, Brunswick Street, Liverpool. Particulars may be obtained from the secretary, Mr. HAROLD SADLER.

MR. JOHN LAMBERT.—At Welshpool recently Mr. JOHN LAMBERT, late of Powis Castle Gardens, was presented by the Mayor with a purse of gold subscribed by friends to mark the occasion of his retirement from his charge at Powis Castle.

PROFESSOR BATESON ON GENETICS.—Continuing his discussion of meristic variation, Professor BATESON said that the nature of the disturbance which gives rise to such variations is unknown. The consequences of the disturbance are not chaotic, but there are at least traces of orderliness in the variations that result. The organism seems always to aim at producing order. For instance, in the hind foot of the polydactyle cat, not only are the extra toes on the radial side formed like those of the other side, but the normal index is reversed. Similar cases in other animals were given. An interesting discovery was made by Tornier, when studying the regeneration processes of the Tadpole. He made a cut in the bud, from which, normally, a single leg would develop. In addition to the single limb, there developed an extra pair, and these bore a normal right and left-handed relation to each other. If the buds of both legs were cut, two extra pairs of legs were formed. These extra pairs may be compared to the twin larvæ, that may arise from the division of a single egg cell. The one half of the egg cell regenerates the other half, giving rise to a complete larva. Another case of orderly phenomena in regeneration is that of the earth-worm. If the tail is cut off at a certain point it is regenerated, and similarly with the head. But if the cut is made behind these critical points there is no such regeneration. The tail may be cut off between the two critical points, but instead of the growth of a new head a new tail is formed, the mirror image of the first tail. In Planarians, the head may be cut off, and another head, the mirror image of the first, will be regenerated. Scientists have compared the orderly structures of the living organism with the shapes of crystals. But this comparison cannot be fairly made, for crystalline form is ultimately molecular, and form in animals and plants is not molecular. Some remarkable photographs of complex waves and patterns caused by agitation of the surface of mercury were shown. These patterns were compared with the repetitions and reduplications found in the living organism. It was pointed out that these mechanically-produced effects must not be looked upon as directly analogous to the similar effects in the organism. Yet it must not be considered as improbable that it is to some similar mechanical device that meristic phenomena are due.

THE "ORCHID REVIEW."—The February issue of the *Orchid Review* contains a fine portrait and biographical notice of Mr. HARRY J. VEITCH, F.L.S., V.M.H., figures of Oncidium Krameri-anum, Cypripedium San-Actæus "Westfield var.," and the handsome new hybrid Odonto-glossum Delhi. There are articles on the "Orchids of Panama," "Hybridisation of Zygopetalum Mackayi," and "Fertilisation and Secondary Hybrids." In the leading article, under the title "Our Note Book," is a discussion of some of the phenomena of inheritance, illustrated chiefly by the rostellum of an Orchid.

FIG. 39.—ROYAL INTERNATIONAL SHOW.
(Cup to be offered by the Yokohama Nursery Company.)

THE "ORCHID WORLD."—The February issue of this publication gives an account of the Duke of MARLBOROUGH'S Orchids at Blenheim Palace, with an excellent portrait of the Duke, and views in some of the Orchid houses. Mr. KROMER continues the story of his Orchid collecting in British Guiana. Current events and the reports of the Orchid Committee make up a very interesting number.

APPLE PACKING AT MASSACHUSETTS AGRICULTURAL COLLEGE.—Mr. F. C. SEARS, Professor of Pomology at the Massachusetts Agricultural College, sends us particulars of a school of Apple packing, arranged to take place at the College from February 12 to 24. The packing school will be under the personal direction of Professor SEARS; the instruction in packing will be given by JOHN B. CASTNER, expert box packer of Hood River, Oregon. The work will consist of grading and packing Apples in boxes and barrels, those registering performing the operations themselves until they are familiar with the different packs used on the commercial market. Special lectures and demonstrations will be arranged for those who attend on the subjects of planting, fertilising, pruning, spraying, and the management of orchards.

THE CHANNEL ISLANDS.—The Guernsey Press Company have issued a directory of Guernsey, Alderney, and Sark. Agriculture and horticulture are important industries in the Channel Islands. Nurserymen may be interested to learn that the authorities forbid the importation of Gooseberry and Currant bushes, or cuttings of the same; whilst Potatos are not allowed to be imported unless the consignment is accompanied by a declaration. It is also forbidden to import vines, unless special permission is obtained from the Royal Court.

POTATO-GROWING IN WESTERN AUSTRALIA.—The Government of Western Australia recently placed an order with Messrs. SUTTON & SONS, Reading, for 165 tons of seed Potatos to be shipped to the Western State of the Commonwealth. The object of this importation is to improve the type of Potato grown in the State, and to secure immunity from disease. The selection was carried out under the inspection of the Board of Agriculture. The first consignment of 30 tons was despatched by the s.s. "Masunda." The balance of the order, namely, 135 tons, was shipped on the steamer "Jeanara" on Monday, February 5. The tubers, after being carefully examined and hand-picked by Messrs. SUTTON'S staff, were packed in boxes (in specially-prepared material) with a view to preserving them during the protracted journey, each box containing 1 cwt. The total consignment, therefore, consisted of no fewer than 3,300 cases.

THE EXPORTATION OF PLANTS.—The Board of Agriculture and Fisheries announce that they are prepared to issue the certificates required by the Governments of the countries and colonies to which plants are to be exported under certain conditions. The conditions require, among other things, that where consignments of plants or bulbs are only admitted on production of a certificate by the Board, or by one of their inspectors, that the contents have been declared to be healthy or free from certain specified pests, application should be made to the Board a few days before the consignment is to be despatched. When the parcel is to be sent by parcel post the plants should be sent ready packed in a box, with the lid not nailed down, to the Secretary of the Board of Agriculture and Fisheries, 4, Whitehall Place, London, S.W., marked "Plants (or bulbs) for export." If the parcel is to be despatched by the Board a prepaid adhesive label should be enclosed, and the Customs declaration form should be filled up and affixed. No charge is made for the certificate unless the parcel is over 7 lbs. in weight or the inspector is required for any reason to travel to the place where the consignment is to be examined. In this case a charge of £2 2s. will be made. Where a certificate is required that the nursery in which a consignment has been grown has been found to be free from certain specified pests, application for the attendance of an inspector must be made before May 1 each year. A fee of £2 2s. will be charged for the certificate. Where a certificate is required that no disease of a certain kind has been reported from the neighbourhood in which the plants were grown a declaration by the grower must be sent not less than three days before despatch, stating that the plants (in most cases Potatos) were grown on a particular farm, naming the parish and county, and that the disease has not occurred on those premises. No charge is made for this certificate. Applications for further particulars may be made to the Board.

ELECTRICITY AND PLANT CULTURE.—Sir ARCHIBALD BUCHAN, Hepburn, sends us the following extracts on this subject from the *Scott's Magazine* for 1747, these, being amongst the earliest references to a subject that is occupying much attention at the present day, will be read with interest:—"*Scott's Magazine* for 1747, *Caledonian Mercury*, February 20. Mr. Demainbray's Experiments in Electricity. Edinbro', February 19. Sir,—On the 17th of January last Mr. BOUTCHER favoured me with two Myrtles of the greatest equality of growth, vigour, et cetera he could chouse; these I placed in the same room and allowed them an equal quantity of water. On electrifying one of them, it has produced several shoots full 3 inches long, the other shrub which I did not electrify hath not shown any alteration since I first had it. As the business of my school (a boarding school for ladies) does not allow me the necessary time of attending this NOW CERTAIN discovery I submit it to those whose whole leisure will permit them to pursue a hint that may hereafter be highly beneficial to society. —Yours, STEPHEN DEMAINBRAY." "Electrical Queries and Experiments. Proposed Office of Ordinance in the Tower. London, March 10, 1746-47. Electricity as appears by all experiments is a kind of fluid lambent fire produced by collecting and giving a vibrative motion and new direction to the fluids of æther and air, which being the two catholic agents of nature whereby the generation, growth, and corruption of all bodies are affected, there is no doubt that the said general causes properly applied will serve as the only best universal means for preserving the health, and curing of the diseases of animals and vegitables. Some of the probable uses of this wonderful power of nature are hereunder suggested, but as the truth thereof must be discovered by experiments the following are proposed to the curious.—Yours, D. STEPHENSON." "No. 1.—If all plants that grow in pots, boxes are daily and frequently electrified, will they not have a better circulation, growth, and nutrition, and their flower, fruit and seed, be more perfect than those not electrified, and will not this practice greatly advance all the branches of gardining, as the nursery, greenhouse, et cetera? No. 2.—Although such vegitables and trees as are rooted in the ground cannot be made to retain or confine the ætherial fires, yet as it may be determined so as to produce strong instantaneous notions and concussions therein, will not the applications of such shocks, either to the trunk or the whole trees, or any of its branches contribute to its vegitation? No. 16.—The surprising great force of the ætherial fire, when collected is sufficiently manifest from the effects of thunder and lightening, is it not therefore possible with a proper apparatus to collect, condense and accumulate this elementary fire in such quantities as to acquire a power therefrom capable of surmounting any resistence and producing any effects of force, such as raising water?"

IRELAND.

APPLE GROWING IN IRELAND.

THE Rt. Hon. T. W. Russell gave some interesting statistics recently at the meeting of the Irish Agricultural Society. He said that in 1900 the output of Apples from Ireland was slightly over the value of £20,000. In 1909, after the Irish Agricultural Society had amalgamated with the Horticultural Society, and sent its missionaries far and wide through Ireland to instruct the farmers how to grow Apples for market, the total income was well over £3,000,000. This is a very gratifying result, but it can be still improved upon, for there are thousands of acres which could be utilised for fruit-growing, and the climate equals any other in the world. When the Irish farmer awakes to this fact, and he will sooner or later, we shall find that Ireland will produce as good Apples, both for dessert and cooking purposes, as now come to Britain from Canada and elsewhere. *W. A. Maxwell, Coolfin Gardens, Banagher.*

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

A NATIONAL INSTITUTE OF HORTICULTURE.—The leader in your issue of February 3 (see p. 72) appears to me to indicate that at last we, as horticulturists, are awaking to a sense of responsibility. In spite of many appeals from those who are anxious to advance the cause of horticulture, and obtain for its advancement a just share from our national funds, but little headway has been made. I think that the ideas outlined by the article in question are thoroughly practical. We have ideal positions or centres in almost every county for the advancement of agriculture, so why, in all justice, should not similar help be forthcoming in the case of the sister-science of horticulture? When the vast market establishments, the huge quantities of produce put on the markets, and the ever-increasing demand for a greater supply are considered, there can be but one opinion, namely, that a golden opportunity for increasing horticultural efficiency is lost through lack of organisation. Why is this so, and how is it that horticulture suffers so much neglect? The answer is that agriculture is represented powerfully in both Houses of Parliament by large land owners, who work for one common cause, namely, the advancement of agriculture. The essential requirement at the present time is united action on the part of all interested in the several branches of horticulture. *John Donoghue, Bardon Hill Gardens, Leeds.*

SWEET PEAS FOR THE GARDEN.—Sweet Peas are so consistently recommended from the exhibitor's standpoint, and so many people want them solely for decorative purposes at home, that I am tempted to make some notes relating to the subject. Size is not essential. Thus we find that Zephyr, Nettie Jenkins, and Zarina are selected by the flower-gatherer when varieties of nearly the same tints, though larger, are left. Then there is the question of colour, which causes a serious limitation. The striped varieties do not appeal to the best taste, nor the so-called carmine John Ingman and its associates, nor the Fancies, such as Charles Foster, and last the chocolate-coloured. Some of these I do not object to, personally, but I know that they prove distasteful to others. There is yet another point. In the N.S.P.S. classification list we find varieties arranged in order of merit which, for the purposes of which I write, should be at least equal in merit, and in the case of those who have space, and require a large assortment in some cases, might very well be all grown. For instance, Clara Curtis, Paradise Ivory and Isobel Malcolm are tabulated as above noted. Now it is clear that all three are worth growing. Certainly the two first varieties, which are quite distinct. So with the salmon shades, of which four are named. Melba, placed third, is so distinct and so much to be preferred for its colour, that whatever may be said of the others, it certainly ought to stand on an equality with any of them. One can quite understand how a judge might pass it over on account of its colour being less bright than some, but then it is a tone that is most excellent on account of its soft quality for decoration. Elsie Herbert and Mrs. Townsend afford other instances in which both varieties should be grown. Of the cream section, I find that some prefer Mrs. Routzahn and others Mrs. H. Dickson; the former variety is, I think, the more neat in form. Constance Oliver is also essential. Dobbie's Duplex, which I grew last year, was cut so persistently that when the firm wrote me for any seeds there were to spare, only a few pods could be obtained, while many other varieties were carrying heavy crops. I was very much pleased with May Campbell, another of Dobbie's novelties, but of the others, I do not care to hazard an opinion; meanwhile, Elfrida Pearson bids fair to put to rout all the other blush and pink varieties: yet there are still those who enjoy the blushes of the old Gladys Unwin. Minnie Christie, Queen of Norway, Etta Dyke, Dorothy Eckford, Edrom Beauty and Evelyn Hemus are indispensable varieties. For a crimson, there is either Maud Holmes or Sunproof Crimson. Thomas Stevenson is one of the most brilliant varieties, and those who care for chocolates or maroons should secure Nubian. I grow one or two varieties so badly fixed that on that account many would consider them of no value. Audrey Crier is one and Sveira Lee another. Both, when true, are extremely beautiful. Besides the varieties already mentioned, the old Lord Nelson, Janet Scott, Lady Grisel Hamilton, and Rose du Barri are valuable for decorative work. *R. P. Brotherston.*

THE PROTECTION OF PLANTS IN COLD FRAMES.—Our frame ground slopes to the north, is distant from the Thames about 50 yards, and occupies a very cold and exposed position. The frames are raised some 6 inches above the level of the ground, and the interior foundation for the plants consists of rough stones levelled with ashes to prevent surface water reaching the roots. We grow quite a large variety of plants suitable for beds and borders, and among other tender subjects about 1,500 Zonal Pelargoniums in variety. These were struck singly in small "60" pots in the open frame at the end of August, and progressed but slowly until the cooler conditions of October prevailed, but they have since developed into very vigorous and healthy plants. During October wire netting supported by Larch stakes was placed around the three higher sides of a six-light frame containing the Pelargoniums. The netting was the same height as the frame and 18 inches from it. Into this space we put dry Plane leaves as they were collected, treading them well down, until the space was quite full. During the recent severe weather Archangel mats were put six thick over the top of the frame, also spreading lightly between the third and fourth mat a half bundle of meadow hay. For a full week previous to the 6th inst. the plants were not uncovered; on examination they were found to be quite uninjured by the frost. The Plane leaves, in conjunction with the dry mats and hay, thoroughly protected them. Plants wintered in frames may be planted out earlier in spring, and they make a quicker and better start than those grown in heat. Fog and frost are the only conditions which cause us to close the frames. Last spring the planting of the beds and borders was completed by May 15. On the 19th we registered 5° of frost on the ground. Among other things, 500 tuberous Begonias were planted out, and a dozen plants only were affected by the cold. In connection with the storage of plants, the methods related above have been our practice for the past nine years, and we have every reason to be satisfied with the result. *J. G. S.*

COLOUR IN APPLES.—No one can claim that the addition of rich colouring adds to the edible quality of Apples; indeed, the richer the colour, the drier the flesh and the more inferior the flavour. In the majority of cases those varieties with brown or russety skins are amongst the most juicy and pleasant-flavoured of Apples. These rarely show even a tinge of colour externally. As to cooking Apples, many of our finest and best, such as Royal Jubilee, Warner's King, Lord Derby, Hormead Pearmain, Golden Noble, and Bramley's Seedling, seldom or never develop red tints. Some popular varieties, such as Bismarck, Emperor Alexander, Peasgood's Nonesuch, Prince Albert, and Newton Wonder, develop colour in some circumstances, but no one will claim that such fruits keep better, are more juicy, or better flavoured than less brilliant examples. I have fruits of Newton Wonder unusually highly coloured and others without colour, but the former eat far drier, and are of less value for either cooking or dessert purposes. If colour and superb quality were synonymous terms, then there would be good reason for seeking to secure colour. Let us first learn why ordinary highly-coloured varieties always colour, even though not an atom of potash is given them. Then let us learn why so many ordinary green, yellow or russety Apples never put on ruddy tints. *A. D.*

HABENARIA CONOPSEA ALBA.—In respect to Mr. Bowles's article in the *Gardeners' Chronicle* for February 3, on Habenaria (or as it is sometimes called Gymnadenia) conopsea alba, it may interest readers to know that this plant has also been found in Surrey. I collected a specimen in that county in June, 1908; a solitary plant. It is an interesting fact that in the same vicinity I collected a specimen of Orchis pyramidalis alba. *J. R., Kew.*

ANTIRRHINUM. — Some years ago the named varieties of striped Antirrhinums were held in high esteem by both amateur and professional florists, and, as exhibition flowers, were much in evidence on the show bench, especially in the North of England and Scotland. But these grand old-fashioned varieties, "giants of their day," have, like many other old florist flowers, been supplanted in favour by the newer bedding sorts, now so much used in public parks and large gardens. The popularity of the bedding varieties has increased gradually, but during the last few years they seem to have advanced further into public favour, and none will dispute their right to the position they now occupy, for they are amongst the grandest and most floriferous of bedding plants, flowering, as they do, from early July until checked by frost. Three distinct classes have been selected—dwarf, intermediate, and tall. All are fairly reliable as to height and uniformity of habit, and each type can be depended upon as a first-class bedding subject, capable of producing a wealth of flowers. The dwarf or Tom Thumb class is invaluable for ribbon borders, or for edging beds of the intermediate type. With the probable exception of the white, yellow, and crimson sorts, this section is not quite so fixed as the taller classes, therefore, if a colour scheme is intended it is advisable to propagate the plants from cuttings. The intermediate section, which varies in height according to the variety from 15 inches to 24 inches, is decidedly the most striking, and, when massed in large beds, the plants present a remarkably fine effect. Some of the best and most popular varieties are :—Yellow Queen, Crimson, White Queen, Orange King, Pink, Scarlet, and Coral Red. In the tall varieties, which average about 3 feet, all the colours mentioned in the intermediate section, with the addition of Cottage Maid, a beautiful rose and white; Moonlight, apricot-yellow, flushed red; and Striped, make up a fine selection. For summer-bedding, Antirrhinums do best treated as half-hardy annuals. Seed may be sown in February and March in a temperature of about 70°, and should be covered very lightly with soil. When the seedlings are large enough they should be transplanted into boxes or frames, and, after they have been hardened off, planted in their flowering quarters about the beginning of May. In America Antirrhinums are grown in large numbers under glass for furnishing cut blooms. The customary practice there is to select the best colours from a batch of seedlings. The stock plants are potted up, and in February and March they provide plenty of cuttings, which are potted into small pots when rooted. The plants are kept pinched and growing slowly until May, when they are planted in the open. In the month of September they are lifted and transferred to pots, and placed in frames until their flowering quarters are ready for their reception. Some growers, instead of re-potting in September, transplant them to soil benches such as are used for growing Roses and Carnations. In the United States Antirrhinums usually follow the Chrysanthemum crop. *J. B. M.*

SOCIETIES.

ROYAL HORTICULTURAL.

FEBRUARY 6.—We have become accustomed to such large and imposing shows at the fortnightly meetings of the Society that a small exhibition, such as the one on Tuesday last, occasions some disappointment. Fewer Orchids were exhibited than we remember for some considerable time, but novelties in this section were plentiful, and the ORCHID COMMITTEE granted one First-class Certificate and one Award of Merit. The FLORAL COMMITTEE granted only one Award of Merit, this being given to a crimson variety of Carnation. The chief flowers were Roses, Carnations, Cyclamens, Azaleas, Camellias, and forced shrubs. The FRUIT AND VEGETABLE COMMITTEE found little to do, the only exhibit of importance being some splendid Broccoli, shown by Messrs. SUTTON & SONS.

At the 3 o'clock meeting of the Fellows, a lecture on "Plants of Fiji and other South Sea Islands" was delivered by Sir Everard im Thurn.

Floral Committee.

Present: Henry B. May (Chairman); and Messrs. Charles E. Pearson, E. H. Jenkins, G. Reuthe, John Green, W. J. Bean, J. Jennings, J. F. McLeod, J. Dickson, Charles Dixon, R. C. Reginald Nevill, A. Turner, Herbert J. Cutbush, W. P. Thomson, Jas. Hudson, W. J. James, Chas. T. Druery, E. A. Bowles, Wm. Howe, and R. Hooper Pearson.

An imposing group of forced shrubs was shown by Messrs. R. & S. CUTHBERT, Southgate. In centre of the collection was a bold group of Magnolia speciosa, having large petals with claret colour on the outside. Other Magnolias shown well were M. Lennei, M. conspicua, M. stellata Halleana, and M. alba superba. Beside these there was a wealth of such showy plants as Azaleas, Lilacs, Wistarias, Forsythia suspensa, Pyrus Malus floribunda, and Staphylea colchica. (Silver-gilt Flora Medal.)

Messrs. W. CUTBUSH & SON, Highgate, again made a large display with forced shrubs, greenhouse plants, Carnations, and Alpine plants. The shrubs and greenhouse plants intermingled were very beautiful, notably the Magnolias, M. speciosa being especially attractive. Lilacs, Rhododendrons (including Azaleas), Pyrus Malus Scheideckeri and Xanthoceras sorbifolia. Bulbous Irises were the most conspicuous subjects amongst the Alpines, there being large patches of I. Tauri, I. histrioides major, I. Danfordiæ, and I. Sind-pers. The Carnations included most of the popular varieties in cultivation, in addition to seedlings. (Silver Banksian Medal.)

Messrs. WM. PAUL & SON, Waltham Cross, Hertfordshire, showed a collection of Camellias in flower. The plants were very healthy and well bloomed. A number of cut blooms arranged along the front and relieved with a row of Aralia Sieboldii, made the exhibit more attractive. Notable varieties were alba simplex, Jupiter, single, rose-coloured; Mercury, semi-double, rose-coloured; Alba Plena, Minerva single, pink; and The Swan, single, white. (Silver Flora Medal.)

Messrs. H. B. MAY & SONS, The Nurseries, Upper Edmonton, displayed, on a white ground, fronds of 12 species of Ferns and 58 variations from the same species. The exhibit was one of the most interesting in the exhibition, and of great educational value. The species were N. exaltata, N. Pluma, N. tuberosa, N. davallioides, N. phillipiense, N. acuta, N. cordifolia, N. rufescens, N. pectinata, N. Duffii, N. ensifolia, and N. Barteri. The more numerous varieties were derivatives of N. exaltata and N. rufescens. The first break from N. exaltata was the beautiful variety Pearsonii, closely followed by N. Fosteri. Sports from these have given about 20 distinct varieties, of which Marshallii compacta is the latest and most beautiful. It was a difficult matter, in such a diversified collection, to select the handsomest varieties, but N. Fosteri compacta appeared to be unrivalled in beauty. Others that were conspicuously fine were N. exaltata Rooseveltii, with undulate, dark-green pinnæ; N. rufescens Mayi cristata, N. cordifolia splendens, N. rufescens canaliculata and N. exaltata dissecta. (Silver-gilt Flora Medal.)

Messrs. JAMES VEITCH & SONS, LTD., King's Road, Chelsea, made a great feature with Rhododendron indicum (Azaleas) in a group which included Camellias, Lily-of-the-Valley, the double, rose-flowered form of Amygdalus persica, Acacia Drummondii, Prunus sinensis fl. pl. alba and Orange trees in fruit. The plants of Lily-of-the-Valley were exceptionally good. (Silver Flora Medal.)

Messrs. GEO. MOUNT & SONS, LTD., Canterbury, showed exquisite blooms in the bud state of the beautiful rich red Rose Richmond. (Silver Banksian Medal.)

Messrs. STUART LOW & Co., Bush Hill Park, Enfield, showed Carnations in great variety. The following varieties were the more notable: White Enchantress, Beacon (scarlet), Carola (crimson), Rival, Baroness de Brienen (salmon-pink), and Lady Alington. As a separate exhibit, this firm showed Hyacinths in pots and pans of Cyclamen latifolium. (Silver Banksian Medal.)

Messrs. ALLWOOD BROS., Wivelsfield Nurseries, Haywards Heath, showed Carnations of the perpetual-blooming type; La Rayonnante is the finest yellow variety of this type. (Bronze Flora Medal.)

Carnations were also exhibited by Mr. H. BURNETT, Guernsey (Silver-gilt Banksian Medal); Mr. C. ENGELMANN, Saffron Walden, Essex (Bronze Banksian Medal); W. WELLS & Co., LTD., Merstham, Surrey; and Mr. BERTIE E. BELL, Castel Nursery, Guernsey. (Bronze Flora Medal.)

Mr. L. R. RUSSELL, Richmond, showed the handsome Cerasus sinensis "J. H. Veitch" and Prunus triloba, set in well-flowered Azaleas, of which the delightful A. amœna Hexe was utilised as an edging. Numerous well-berried plants of Aucuba japonica completed a pretty exhibit. (Bronze Flora Medal.)

Inflorescences of Senecio Petasites, shown under the name of S. grandifolius, were exhibited by MARY Countess of ILCHESTER. The flower-trusses resemble those of the hardy S. tangutica.

Messrs. BARR & SONS, King Street, Covent Garden, showed hardy flowers in season, including Crocuses, Narcissi, Iris Danfordiæ, I. Tauri, I. japonica, I. reticulata, Scilla bifolia, and Snowdrops.

Mr. F. H. CHAPMAN, Rotherside Gardens, Rye, showed seedlings of Cyclamen ibericum, including a pale-flowered variety named album.

Exhibits of hardy flowers were staged by the Misses HOPKINS, Shepperton-on-Thames; Messrs. THOMPSON & CHARMAN, Bushey, Hertfordshire; Messrs. T. S. WARE, LTD., Feltham; and Messrs. J. CHEAL & SONS, Crawley, who had also models of garden seats, pergolas, and other appurtenances in woodwork.

A Silver Flora Medal was awarded to Miss MASSEE, daughter of Mr. Geo. Massee, Kew, for a collection of floral paintings. Each plate had the characters of the species carefully delineated, and in this respect were the best examples of the kind we have observed at these exhibitions.

Paintings of views in the Fiji Islands were displayed by Lady IM THURN, which were especially interesting in view of the lecture on plants of the Fiji Islands by Sir Everard im Thurn.

A Bronze Banksian Medal was awarded to Mrs. SWINBURN-HANHAM, Hampstead, for paintings of wild flowers.

AWARD OF MERIT.

Carnation "Triumph."—This new perpetual-flowering Carnation has rich crimson flowers of excellent form and build. The petals are fringed, and the flowers have more perfume than some varieties of this type. Shown by Mr. C. ENGELMANN.

Orchid Committee.

Present: J. Gurney Fowler, Esq. (in the Chair); and Messrs. Jas. O'Brien (hon. sec.), Harry J. Veitch, R. Brooman-White, W. Bolton, Walter Cobb, Gurney Wilson, W. H. White, A. Dye, H. G. Alexander, J. E. Shill, W. H. Hatcher, J. Cypher, T. Armstrong, A. A. McBean, C. H. Curtis, F. J. Hanbury, R. A. Rolfe, and Sir Jeremiah Colman, Bart.

Messrs. W. BAYLOR HARTLAND & SONS, Ardcairn, Ballintemple, Co. Cork, were awarded a Silver Flora Medal for a group of hybrid Odontoglossums and Cypripediums, the former containing a dozen dissimilar forms resembling O. crispo-Harryanum; a fine plant of the mauve-purple O. Groganiæ, and others; and the Cypripediums, good varieties of C. Leeanum, C. aureum Surprise, C. Mrs. Wm. Mostyn, some good forms of C. insigne, including the yellow C. insigne Sanderianum, C. callosum Sanderæ, and varieties of Cattleya Trianæ.

Lieut.-Col. Sir GEORGE L. HOLFORD, K.C.V.O., Westonbirt, showed the beautiful new Odontoglossum Merlin, which received a First-class Certificate (see "Awards"); Cypripedium Helen II "Holford's variety" (insigne Harefield Hall × bellatulum), a fine cream-white flower marked with purple; and the very richly-coloured Sophro-Lælio-Cattleya Marathon var. Vesuvius, a glowing rose-red flower, with a violet flush, and intense ruby lip, with chrome base; the spike bore six flowers.

Messrs. CHARLESWORTH & Co., Haywards Heath, were awarded a Silver Banksian Medal for a select group, in which were noted the rare Catasetum Randii, with a white-crested lip; Vanda teres alba, of the best type: Odontoglossum crispum Xanthotes, home raised, a large, pure white, with a few yellow blotches; Odontioda Charlesworthii, O. Bradshawiæ, and other hybrids.

Messrs. J. CYPHER & SON, Cheltenham, were awarded a Silver Banksian Medal for a group principally Cypripediums, including C. Beeckmanii, C. Vandyke, C. aureum Hyeanum, and other varieties of C. aureum, C. Bridgei, C. Alcibiades, and some hybrids of it, Masdevallia triangularis, M. Schröderiana, M. Hinckseana, Lælio-Cattleya Callistoglossa, varieties of L. anceps, &c.

Messrs. J. & A. A. McBEAN, Cooksbridge, received a Silver Banksian Medal for an effective group, the best plants being Cymbidium eburneo-Lowianum, and its yellow variety auriferum, with which were a very fine white C. eburneum, good examples of Lælia anceps Williamsii alba, Hollidayana, and Bradshawiana, the latter uniformly rose colour, Cypripedium Alcibiades, C. San-Actæus, Odontioda Charlesworthii, a pretty Brasso-Cattleya, good Odontoglossums, &c.

Messrs. STUART LOW & Co., Bush Hill Park, were awarded a Silver Banksian Medal for a group of good Cypripediums, &c., the best being C. Lady Dillon (nitens "Bell's variety" × Mrs. Wm. Mostyn), a very fine flower, with the large white dorsal sepal profusely blotched with rose-purple, the fine petals and lip being yellowish, tinged with reddish-purple. Pleurothallis Roezlii bore a dozen spikes of dark-purple flowers; various Odontoglossums were well displayed; Calanthes, Cypripediums, &c., were also noted.

FRANCIS WELLESLEY, Esq., Westfield, Woking, showed a selection containing Brasso-Cattleya Wellesleyæ (C. Mossiæ Wageneri × B. glauca), a very pretty and fragrant, pure-white flower, with yellow disc to the lip; Cypripedium Duchess of Argyll (Druryi × Leeanum giganteum), a massive flower, of fine shape and colour; C. Memoria Mostynii superbum, yellow, with white dorsal sepal; the very handsome C. Waterloo; and C. Wellesleyæ (Venus × insigne King Edward), a very attractive flower.

Sir JEREMIAH COLMAN, Bart., V.M.H. (gr. Mr. Collier), showed Odontoglossum Collieri (Phœbe × ardentissimum), a very handsome, purple-blotched flower, blooming on a small plant raised about 3½ years ago.

J. GURNEY FOWLER, Esq., Glebelands, South Woodford (gr. Mr. J. Davis), showed the home-raised Odontoglossum crispum Olive (white, profusely spotted with red-brown) and the handsome O. Memoria Lily Neumann (see "Awards").

Mr. W. A. MANDA, South Orange, New Jersey, U.S.A., and St. Albans, showed Cattleya Trianæ American Beauty, of the Backhousiana class, and with the petals bearing a deep-purple feather; C. T. Abe Lincoln, a dark form, of good shape; and two others.

Messrs. HASSELL & Co., Southgate, showed a selection in which were Lycaste Skinneri alba, of the best form, Cypripedium Chrysotoxum Victor, a magnificent variety, and various hybrid Odontoglossums, &c.

From TRACY'S NURSERY, Twickenham, came a very fine form of the rare Oncidium anthocrene, with large flowers, heavily barred with chocolate and tipped with white.

AWARDS.

FIRST-CLASS CERTIFICATE.

Odontoglossum Merlin (parentage unknown), from Lieut.-Col. Sir GEORGE L. HOLFORD, K.C.V.O., Westonbirt (gr. Mr. H. G. Alexander). A magnificent flower, very near to some of the finest blotched Odontoglossum crispum, but with traces of hybridity in the lip. The flowers were 3½ inches across, all the segments broad, and forming a perfect flower. White, with 10 or 12 rose-purple blotches on the sepals, and one large, irregular blotch of a darker tint on the petals, with some smaller spots around it. The spike bore 13 blooms.

AWARD OF MERIT.

Odontoglossum Memoria Lily Neumann (parentage unknown), from J. GURNEY FOWLER, Esq., Glebelands, South Woodford (gr. Mr. J. Davis). A very handsome hybrid, with flowers of fine shape and substance, the inner two-thirds of the sepals and petals deep claret-purple, with slight white lines of the ground colour, and white tips tinged with rose.

Fruit and Vegetable Committee.

Present: J. Cheal, Esq. (in the Chair); and Messrs. C. G. A. Nix, W. Bates, E. Beckett, A. Dean, A. W. Metcalfe, J. Harrison, G. Wythes, O. Thomas, J. Davis, A. R. Allan, A. Bullock, A. Grubb, and W. E. Humphreys.

One dish of Apples sent for tasting and a collection of Broccoli, shown by Messrs. SUTTON & SONS, Reading, were the only exhibits before the Committee. The Broccoli formed a very striking group, there being 130 most perfect white heads of the varieties Early White, Snow White, and Mammoth White. There were four large mounds, each containing some 20 heads, and 12 smaller mounds. The Broccoli had been grown in an open field in the West of England, and, in view of the recent severe frosts, their condition was remarkable. (Silver Banksian Medal.)

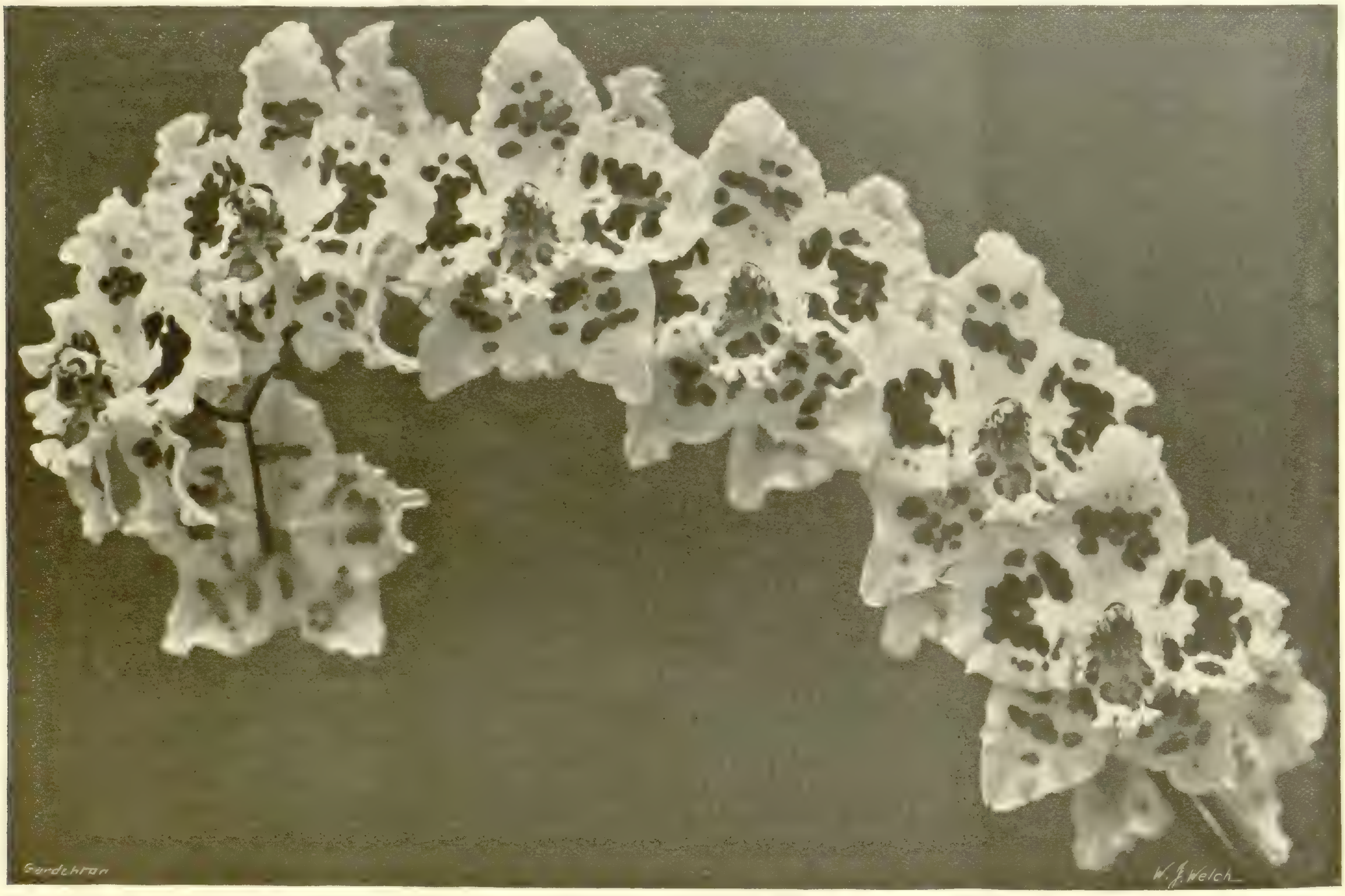


FIG. 40.—ODONTOGLOSSUM "MERLIN."
(Awarded R.H.S. First-class Certificate on Tuesday last.)

Scientific Committee.

JANUARY 23.—*Present:* Mr. E. A. Bowles, M.A., F.E.S., F.L.S. (in the Chair); Messrs. A. D. Michael, G. Massee, R. H. Curtis. W. Hales, G. Gordon, and F. J. Chittenden (hon. sec.).

Ruscus aculeatus.—Mr. E. A. BOWLES had examined the flowers on the fruiting branch of Ruscus aculeatus shown at the last meeting and found they were all male. He showed various forms, including a dwarf form from Wales with hermaphrodite flowers, the common tall form, a close growing form collected by Mr. Paul in Epping Forest, and one with blue-green cladodes of still dwarfer form. The var. angustifolius, a variety with very narrow cladodes and bearing pistillate flowers, a rather stiffly-growing variety

with somewhat broader cladodes, and one with very loose growth and very broad cladodes were also shown. Mr. Hales said the flowers of Ruscus Androgynus were variable in the same way as those of R. aculeatus.

Galanthus Elwesii var. poculiformis.—Mr. BOWLES also showed a flower of this beautiful and robust Snowdrop, the inner segments being white without the green marks usual in Snowdrops.

Nandina domestica fruiting.—Mr. FOX, of Carmino, Falmouth, reported the fruiting of Nandina domestica in his garden in 1911.

Raspberry canes diseased.—Mr. PETERS, of Ripley, sent canes of Raspberries showing whitish patches on the skin with tiny black spots upon them. Many canes had died, and others attacked had grown and fruited but poorly. Mr. Massee recognised the disease as due to the attack of the fungus Hendersonia rubi.

REPORT OF THE COUNCIL FOR 1911.

The annual general meeting of the Fellows of the Royal Horticultural Society will take place on Tuesday next, the 13th inst., in the Society's Hall, Vincent Square, Westminster, at 3 p.m. Below we print extracts from the report of the council to be submitted at that meeting.

WISLEY GARDENS.

In common with most gardens having sandy soils in the South of England, the Society's garden at Wisley suffered from the exceptionally hot and dry summer. The heavy rains of October, November and December have been most welcome. A large rock garden, including a small bog garden and a miniature moraine, has been constructed by Messrs. Pulham. It covers what was formerly a rough Grass-grown hill above the Water Lily pools in the south-west corner of the old garden, to which it will, when fully planted, make a most attractive addition. The planting has been begun, but is necessarily a somewhat lengthy proceeding, and the full effect of the new work will hardly be apparent until the plants have had some years growth. It should be remembered that the garden is not designed to afford the most artistic arrangement of stonework, so much as a suitable home for rock and Alpine plants. The Council gratefully acknowledge the gifts of rock plants from Sir Frank Crisp and Mr. E. A. Bowles and of Ferns from Mr. W. Marshall, V.M.H. A special foreman, Mr. D. Sarsons, lately rock gardener at Wretham Hall, Norfolk, has been placed in charge of this department. and the Council have full confidence that under his superintendence it will soon be an object of interest and instruction to the Fellows.

SCHOOL OF HORTICULTURE AND LABORATORY.

The valuable, practical, and scientific educational work being conducted at Wisley is becoming more and more widely recognised. Its position is in some respects unique, there being in many places too great a tendency to look upon information about gardening as the one thing to acquire, instead of a knowledge of gardening. The Council are convinced that the young horticulturist to be started on the right lines for his future development should both be equipped with (1) a sound knowledge of the scientific principles underlying his craft, and also have acquired (2) a considerable degree of and appreciation for technical skill, which can only be derived from the actual and continual performance of the various operations. The more closely these two are connected with one another in time and place, the more capable each is of aiding the other, and this is the aim of the students' course inaugurated at Wisley in 1907.

During the past year Sir Albert Rollit, as a Member of the Senate of the University of London, and also a Member of the Council of our Society, has been endeavouring to secure the University's recognition of our School of Horticulture at Wisley. The matter has made considerable progress, and hopes are entertained of its reaching a successful issue, though as yet it is too soon to speak at all confidently.

The increased demands upon the time of the director, and the necessity for his constant presence at the gardens to watch experimental work, has necessitated both the appointment of an Assistant Lecturer—Mr. Arthur S. Horne, B.Sc., F.G.S., and also the building of a house on the spot for the Director.

DIPLOMA IN HORTICULTURE.

The Council have requested a committee to enquire into the desirability of establishing a National Diploma in Horticulture (see *Gardeners' Chronicle*, February 3, p. 72).

SHOWS, 1911.

The intense sunshine which blazed over the Summer Show at Olympia was very trying to visitors as well as to the flowers; the latter being almost dried up before the first day of the Show was over. It is, however, satisfactory that the loss on the Show was but small, notwithstanding the unusually heavy expenses. The Council are glad to say that they have been able to arrange for the Summer Show in 1912 to be again held at Holland House, and for three days instead of two only as heretofore, the actual dates being July 2, 3, and 4.

THE CORONATION CUP.

In celebration of the Coronation of their Majesties King George and Queen Mary, Patrons of the Society, the Council caused a special Silver Gilt Challenge Cup to be designed at a cost of 60 guineas. It will generally be offered for competition at the Summer Show, and will be adjudged directly by the Council to whatever in their opinion is the best exhibit in the Show. A small replica of the Cup will each year be given to the winner, together with the custody of the larger cup for 12 months.

MASTERS' LECTURES.

The fifth and sixth lectures in memory of the late Dr. Masters were delivered by Mr. G. F. Scott-Elliott, M.A., B.Sc., on "Single Seed Selection" and "The Changing of Species." (See R.H.S. *Journal*, vol. xxxvii., pp. 1-14.)

Professor I. Bayley Balfour, F.R.S., V.M.H., will deliver the Masters' lectures in 1912 on May 14 and June 4. Subjects:—(1) "Gardening and Drought"; (2) "Problems of Propagation."

DEPUTATIONS.

A Deputation from the Council, consisting of Sir Albert Kaye Rollit, D.C.L., LL.D., Litt.D., and Messrs. E. A. Bowles, G. Bunyard, J. Hudson, H. B. May, and the Rev. F. Page Roberts, attended the Summer Show of the North of England Horticultural Society at Harrogate, on August 15, and made awards. The Council desire to acknowledge the very hospitable reception accorded by Lord Faber, J.P., D.L., and Major Dent, J.P. The Council were also represented by Mr. Jas. Hudson and Mr. F. J. Chittenden at the N.E.H.S. second Fruit Congress at Newcastle-on-Tyne last November, and have accepted an invitation to send a Deputation to the Leamington and County Flower Show, to be held on July 24 and 25, 1912.

LIBRARY.

The Annual Report for 1910 recounted the steps which had been taken by the Council and Trustees to secure a closer identification of the Lindley Library with the Society, whilst at the same time preserving it as a perpetual Trust. This action paved the way for the appointment of a Special Library Committee, which now consists of Messrs. J. T. Bennett-Poë, E. A. Bowles, E. A. Bunyard, J. Gurney Fowler, Dr. Daydon Jackson, J. R. Leewe, Arthur Paul, Harry J. Veitch, and Rev. W. Wilks. The Committee meets fortnightly, and recommends to the Council the acquisition of desirable new or rare old books which may happen to be obtainable at the moment, together with those suggested by any of the Fellows. About 300 volumes have been purchased this year, amongst them being Redouté's *Les Liliacees*; Dr. M. C. Cooke's *Original notes and drawings of Parasites of Cultivated Plants*; Sibthorp's *Flora Graeca*; Mas' *Pomologie*; *Pomologie de la France*; Mas' *Le Verger*; Besler's *Hortus Eystettensis*; Bury's *Hexandrian Plants*; Trew's *Plantæ Selectæ*; Descourtilz's *Flore des Antilles*; Maund's *Botanic Garden*; Andrews' *Heathery*; and many others. The amount expended on books has been between £800 and £900. The whole Library is being re-arranged, classified, indexed, and catalogued, under the supervision of Messrs. Wesley.

The necessity of putting up additional book cases having come to the knowledge of Baron Bruno Schröder—nephew of the late Baron, who so generously fitted up the Library at his own expense—Baron Bruno offered to take upon himself the provision of the new oak cases, in order that the whole of the furnishing of the Library might continue to be identified with his family's name. The total cost exceeded £100. The Council greatly appreciate this most kind generosity.

PLANT NOMENCLATURE.

The rules adopted by the Brussels Horticultural Congress, held in April, 1910, on plant nomenclature, have been published in the *Journal* of the Society, vol. xxxvii., pt. 1, p. 140; and the Standing Committees have been requested to adopt them in the Society's work. Fellows, and especially Exhibitors, are asked to make themselves familiar with these rules for naming their plants, and to act on their guidance, as by so doing they will materially help to clear up that confusion and duplication of names which not only causes so much difficulty in horticultural work, but is also productive of not a little disappointment and soreness to buyers.

PLANT COLLECTOR.

The appointment of a Plant Collector will be considered by the Council at an early date.

THE EXHIBITION HALL AND LECTURE ROOM.

The Hall has been redecorated in plain green and white colours.

Inner casement windows have been fixed in the Lecture room to help to exclude the distracting street noises, and an electric fan ventilation system has been installed, the atmosphere of the room being greatly improved thereby.

JUDGING RULES REVISED.

The Society's Code of Rules for Judging, with suggestions to schedule makers, has been further revised, and the new Edition may be obtained from the Society's office, price 1s. 6d.

LUNCHEON TO COLONIAL VISITORS.

Taking advantage of the opportunity afforded by the presence of many Colonial visitors in London for the King's Coronation, the Council invited a large number of gentlemen from the Dominions and the Colonies to luncheon at the Olympia Flower Show; about 130 were present, and the speeches testified to the esteem in which the Society's work is held in the Colonies. A full report was issued in the *Journal*, vol. xxxvii., pt. 2.

TRANSACTIONS.

At the last Annual Meeting it was suggested that, in addition to the present *Journal*, "Transactions" should be issued from time to time, devoted exclusively to

ANNUAL REVENUE AND EXPENDITURE ACCOUNT FOR YEAR ENDING DECEMBER 31, 1911.

Dr. **Cr.**

	£ s. d.	£ s. d.
To ESTABLISHMENT EXPENSES—		
Ground Rent	690 0 0	
Rates and Taxes	479 9 1	
Water Rate	78 15 6	
Electric Light	216 19 3	
Gas	38 7 7	
Insurances	57 6 9	
		1,560 18 2
Salaries and Wages	1,787 16 0	
Printing and Stationery	1,218 18 9	
Postages	480 13 9	
Fuel	63 12 0	
Professional Fees	126 14 0	
Gratuities	13 2 0	
Repairs and Renewals (including £150 for Hall Painting)	506 12 1	
Miscellaneous Expenses	157 3 9	
		4,354 12 4
„ JOURNAL, PRINTING and POSTAGE		3,465 8 4
„ STAFF PENSION	472 9 2	
Less contributed by the Staff, as per scheme	199 3 1	
		273 6 1
„ SHOWS and MEETINGS—		
Temple Show	984 2 5	
Olympia Show	1,413 9 7	
Autumn Shows	375 5 6	
Labour, Floral Meetings and Conferences	191 11 9	
Expenses, Floral Meetings and Conferences	170 3 1	
Council, Committee and Deputation Expenses	275 3 4	
Painting Orchid Certificates	33 15 0	
		3,443 10 8
„ PRIZES and MEDALS—		
Awarded at Society's Shows	470 10 1	
„ by Deputation at other Shows	25 7 6	
		495 17 7
„ WISLEY GARDENS—		
Rates, Taxes and Insurances	77 14 5	
Superintendent's Salary	250 0 0	
Labour	1,129 7 1	
Garden Implements	158 1 10	
Loam and Manure	138 19 2	
Repairs	124 11 9	
Fuel	215 2 0	
Miscellaneous Expenses	156 9 3	
		2,250 5 6
„ COST of GROWING, PACKING and DISTRIBUTION of PLANTS to FELLOWS		272 11 0
„ LABORATORY, WISLEY—		
Salaries	351 19 4	
Miscellaneous Expenses	112 5 9	
Prize Fund	5 12 11	
		469 18 0
„ CONTRIBUTION to LINDLEY LIBRARY (Purchase of Books)	822 9 2	
„ CONTRIBUTION to LINDLEY LIBRARY	156 19 8	
		979 8 10
„ COST OF NEW ROCK GARDEN, WISLEY		1,302 18 9
„ COST OF NEW ROAD TO DIRECTOR'S HOUSE, WISLEY		72 15 0
„ DEPRECIATION—		
Hall Glass Roof, Furniture, Glass Houses, Wisley, Plant and Materials		554 14 0
		19,496 4 3
„ BALANCE, carried to BALANCE SHEET		8,454 10 2
		£27,950 14 5

	£ s. d.	£ s. d.
By ANNUAL SUBSCRIPTIONS		17,965 12 0
„ ENTRANCE FEES		376 19 0
„ DIVIDENDS AND INTEREST	1,980 19 7	
„ Do. DAVIS TRUST	50 11 2	
		2,031 10 9
„ SHOWS AND MEETINGS—		
Temple Show	1,791 18 3	
Olympia Show	1,371 16 0	
Autumn Shows	14 12 0	
Takings at Hall Shows	270 5 6	
		3,448 11 9
„ JOURNALS AND OTHER PUBLICATIONS—		
Advertisements	715 12 6	
Sale of Publications	232 15 4	
		948 7 10
„ HALL LETTINGS	2,241 7 4	
Less Labour Expenses	232 8 9	
		2,008 18 7
„ PRIZES and MEDALS		226 14 0
„ EXAMINATIONS in HORTICULTURE—		
Amount received in Fees	195 0 0	
Less expended	138 0 0	
		57 0 0
„ WISLEY GARDENS—		
Produce sold	87 12 6	
Students' Fees	115 10 0	
Inspection of Gardens	178 18 0	
		382 0 6
„ EDUCATIONAL GRANT, WISLEY SCHOOLS		400 0 0
„ LIFE COMPOSITIONS—		
Being amounts paid by Fellows now deceased		105 0 0
		£27,950 14 5

scientific matter, and sent to those only of the Fellows who would like to subscribe an additional £1 1s. a year for the purpose. A communication was therefore sent to all the Fellows of the Society setting forth the proposal, but as fewer than 60 favourable replies were received out of 12,000 Fellows, the Council have decided to allow the proposal to stand over at least for the present.

SPECIAL SHOWS IN 1912.

Several special exhibitions are to be held in 1912. That for forced Spring Bulbs is fixed for March 5 and 6. On April 16 and 17 a Daffodil Show will be held; and the Vegetable and the Fruit Shows on September 24, and October 10 and 11 respectively. A two days show of Orchids will also be held on November 5 and 6, in order to demonstrate the autumn-blooming possibilities of many of these beautiful and interesting plants.

INTERNATIONAL HORTICULTURAL EXHIBITION, MAY 22-30, 1912.

Most of the Fellows of the Society will have already heard that an Association has been formed to organise an International Flower Show in London next spring, as the outcome of a suggestion made by the Council in their Report for the year 1909, that such a courtesy on the part of Great Britain was due (or indeed overdue) to the Continent and to America for the many similar hospitalities which foreign countries have so frequently offered to British horticulturists.

It must be fully understood and constantly borne in mind that our Society is not organising this exhibition, nor are we in any way responsible for anything connected therewith. All responsibility rests with the Directors, as in every other regularly constituted Limited Liability Company. Fellows are, therefore, asked to recognise the Exhibition as being absolutely distinct from the Society, being, in fact, an entirely separate and independent organisation. The Council have, however, welcomed the proposal that such an International Exhibition should be held, and will render the Association every reasonable assistance in its power.

The Association, recognising the importance of securing the great weight of horticultural interest vested in the Society, approached the Council with a view to establishing a suitable friendly working arrangement between the two bodies, and—

(*a*) The Royal Horticultural Society has agreed:—
1. To contribute £1,000 towards the expense of promoting the International Exhibition; and
2. To guarantee a further sum of £4,000 against the contingency of there being an ultimate loss on the Exhibition.

(*b*) The Directors of the International Exhibition Association have agreed:—
1. To give to all Fellows of the Society certain special and definite privileges over the General Public in regard to the purchase of tickets for the Exhibition; and
2. To allow all such tickets purchased by Fellows of the Society to be transferable.

A statement of the reduction on the charge for admission to be made to Fellows having been so recently issued in the last *Journal*, it need not be repeated here. (See *Gardeners' Chronicle*, vol. l., p. 310.)

THE USE OF F.R.H.S.

Cases of mis-use of the letters F.R.H.S. having recently been brought to the notice of the Council, a legal opinion has been obtained with a view to restricting their use in the future. One Fellow, in particular, having neglected to pay his annual subscription for a series of years a special Resolution of the Fellows assembled in General Meeting on November 21 declared his rights and privileges as a Fellow forfeited, under Bye-law 24, and he thereupon ceased to be a Fellow, and consequently forfeited also his right to append to his name the letters F.R.H.S.

PRESENTS.

Many gifts have been made to the Society during the year. Baron Bruno Schröder's munificent gift to the Library has already been mentioned; as have also the plants from Sir Frank Crisp, Mr. Bowles, and Mr. Marshall. 230 books for the Library have been received under the bequest of the late Mr. Gumbleton; 150 volumes from the late Colonel Beddome's library, presented by his widow; a collection of dried specimens of British plants from Miss F. M. Hudson; a fine old steel engraving of Linnaeus from Mr. Christopher J. Sandberg; an original autograph engraving of William McNab, of Edinburgh, from Mr. Chas. Ross, V.M.H., and two Silver Cups, one from Mr. A. L. Wigan as an annual prize for Roses at the Summer Show, the other for Alpines, presented by Mr. Reginald Farrer. The Council take this opportunity of expressing their cordial thanks to the donors.

VICTORIA MEDAL OF HONOUR.

The year was almost spent, and the Council were rejoicing in not having any vacancy to report in the ranks of the Victoria Medal of Honour, when almost simultaneously it became necessary to record the loss of two of the most prominent of the recipients of this distinction. Sir Joseph D. Hooker, O.M., G.C.S.I., C.B., F.R.S.—the foremost of English botanists in the 19th century—passed away in December after an unusually long life of useful and active scientific work. Sir Joseph was predeceased by only a few days by Mr. James Douglas, one of the greatest practical gardeners and florists of this country, and one who for many years has worked wholeheartedly on the Council of the Society and on Committees, and as a judge and an examiner. Sir Joseph Hooker had for more than half a century been chairman of our Scientific Committee, and only four years ago, writing to the President to thank him for the Society's congratulations on his 90th birthday, he said:—"It has been a source of great regret to me that I am obliged to abandon all hope of attending the Society's meetings. As a botanist, I have thereby lost much, for the Royal Horticultural Society has contributed more to botanical science as represented by collections, publications, and experimental research, than any other establishment in Europe." The President and Council desire to put on record the very high esteem in which they have always held both of these Victoria medallists, the one so distinguished in Science, the other in the practical work of the application of Science.

OBITUARY.

Among many other friends whose names will no longer be seen on our list are the Right Hon. Sir Chas. Dilke, Bart., a Director of the *Gardeners' Chronicle*; Colonel R. H. Beddome, a past Member of the Council; the Dowager Duchess of Wellington; Earl Spencer, K.G.; The Earl of Onslow, G.C.M.G.; The Earl of Cranbrook; Colonel Arthur Collins, C.B., M.V.O.; Sir William Grantham, K.C., to whom the Society owes much in connection with the Temple Show; Sir Francis Galton, F.R.S.; Sir John Aird, Bart.; Sir William Farrer; Lady Joicey; Messrs. C. Foster, Geo. Hobday, and James Walker—Members of the Society's Committees; and Messrs. G. R. M. Murray, F.R.S., late Keeper of Botany, British Museum, Henry Bohn, W. E. Gumbleton, John Robson, H. F. Tiarks, A. W. Weeks, and L. A. de Graaf (of Leiden). Their loss to the Society is much regretted, but their influence will long remain in the Society's active life.

ANNUAL PROGRESS.

The following table will show the Society's progress in regard to numerical strength during the past year:—

LOSS BY DEATH IN 1911.

		£ s. d.
Hon. Fellows	3	0 0 0
Life ,,	25	0 0 0
4 Guineas	1	4 4 0
2 ,,	64	134 8 0
1 ,,	78	81 18 0
	171	£220 10 0

LOSS BY RESIGNATION, &C.

		£ s. d.
4 Guineas	0	0 0 0
2 ,,	177	371 14 0
1 ,,	374	392 14 0
Associates	30	15 15 0
Affiliated Societies	17	17 17 0
	598	£798 0 0
Total loss	769	£1,018 10 0

FELLOWS ELECTED IN 1911.

		£ s. d.
Hon. Fellows	7	0 0 0
4 Guineas	9	37 16 0
2 ,,	702	1,474 4 0
1 ,,	735	771 15 0
Associates	50	26 5 0
Affiliated Societies	43	45 3 0
Commutations = £463 1s. 0d.	19	
	1,565	£2,355 3 0
Deduct loss		1,018 10 0
Net increase in income		£1,336 13 0

New Fellows, &c.	1,565
Death and Resignations	769
Numerical increase	796
Total on December 31, 1910	12,043
Total on December 31, 1911	12,839

COMMITTEES, &C.

The Society owes a constantly recurring debt to the Members of the standing and special committees, chairmen, judges, writers of papers for the *Journal*, compilers of extracts, reviewers, lecturers, and the several examiners, who, during the past twelve months have done so much to contribute to the Society's usefulness, and to help maintain its high standing among the practical and scientific institutions of the world.

The Council also acknowledge their obligations to the Press for their invaluable assistance in reporting upon, and calling attention to, the work of the Society.

By Order of the Council,
W. WILKS, Secretary.

Royal Horticultural Society,
Vincent Square, Westminster, S.W.
January 1, 1912.

NATIONAL CHRYSANTHEMUM.

FEBRUARY 5.—The annual general meeting of the members of the National Chrysanthemum Society was held on Monday last at Carr's Restaurant, Strand. Mr. Thomas Bevan occupied the Chair, in the absence of the President, Sir Albert Rollit, who was indisposed, and the attendance numbered about 30. The business included the adoption of the Report for 1911 and the election of officers for the ensuing year.

EXTRACTS FROM THE REPORT.

At a meeting of the Committee held on November 20, it was resolved that an expression of the Committee's thanks on behalf of the members should be suitably engrossed and formally presented to the President at the annual dinner on November 29. The actual terms of the resolution were as follow:—

"That the Executive Committee, on behalf of the members, desires to place on record its sincere appreciation of the very valuable services rendered to the Society by Sir Albert K. Rollit, LL.D., D.C.L., since his appointment as President of the Society in February, 1908.

"The Committee particularly appreciates the President's special personal efforts towards increasing the membership of the Society, being certain that, in addition to the direct results of the President's action, a distinct advantage has accrued to the Society from the publicity given to the Society's name and work."

This resolution was handsomely engrossed in black and gold on vellum in book form and bound in royal blue morocco, and duly presented to the President at the annual dinner by the Chairman of the Executive Committee, Mr. Thomas Bevan.

Two shows were held as usual at the Crystal Palace on October 4 and 5 and November 1, 2 and 3. The early exhibition showed marked traces of the prolonged drought. The competition was consequently not keen, and the quality of the flowers was hardly up to the usual standard. At the November show the same influences were felt in a smaller degree. Here again the entries in the competitive classes were not so good as in the previous two or three years, although the quality of the blooms staged compared very favourably with previous exhibitions.

For the third year in succession the Committee arranged a conference, which was held at Carr's Restaurant on December 4, when the following papers were read:—"Chrysanthemums for Market," by Mr. F. W. Ladds; "Soil Preparation and Some Chemical Foods," by Mr. P. A. Cragg. The audience numbered over 100 enthusiastic growers, and each paper was followed by an animated discussion. A full report of the proceedings at this conference will be issued in a publication to be called the *Transactions* of the National Chrysanthemum Society which is referred to more fully in a later paragraph.

The deliberations of the Floral Committee during 1911 have again formed a very important branch of the Society's work. Eight meetings of the Committee were held at Essex Hall and the Crystal Palace. Two hundred and twenty-seven new varieties were considered by the Committee, and the following awards were made:—38 First-class Certificates, 33 Commendations, and 1 Award for Colour.

The sections to which First-class Certificates have been awarded during the past five years are set forth in the following table, which is an interesting commentary on the yearly variations in the novelties raised:—

	1907.	1908.	1909.	1910.	1911.
Japanese	5	23	8	19	8
Japanese Incurved	4	—	—	—	—
Incurved	3	3	3	2	3
Singles	9	13	7	12	21
Decorative	11	8	8	20	7
Semi-double Decorative	—	—	—	1	—
Total	32	47	26	54	38

In the Committee's last Report mention was made of the fact that the Floral Committee were taking into consideration the whole question of classification with a view to revising the list of sections. The Sub-Committee which has been charged with the duty of bringing up a full report on the matter have not yet finished their labours. The exceptional difficulties of the task only became apparent when the matter came to be considered in detail, but the Floral Committee hope to complete their deliberations and make a report to the members in time for the 1912 season.

The medals of this Society which were offered to the Committee of the International Exhibition (as referred to in our last Report) have been accepted, and a class appears in the schedule for 12 bunches of Chrysanthemums.

Having regard to the nature of the class, your Committee have made further representations to the secretary of the Exhibition, and he has agreed to allocate space for non-competitive exhibits of Chrysanthemums. It is proposed to offer to the Committee of the International Exhibitions the small gold medal, silver-gilt medal and large silver medal of this Society, to be awarded in connection with these non-competitive exhibits.

It was particularly noticed that these types of Chrysanthemums were not represented at the show as worthily as might be desired. At a subsequent meeting of the Committee special attention was drawn to this matter, and it was suggested that steps should be taken to arrest the apparent decline in these sections. The matter was very fully discussed, and eventually a recommendation was made to the Schedule Committee that they should take this question into careful consideration, with a view to offering in the 1912 schedule special prizes for seedling plants to be exhibited in 1913 of Pompons, Anemone Pompons and Anemone Chrysanthemums. That recommendation will be carried into effect by the Schedule Committee.

The finances of the Society still continue in a very healthy condition. The accounts show that there were no ordinary liabilities on December 31 last, whilst the assets amounted to £126 15s. 7d.

During the year, 22 Fellows and 51 ordinary members have been added to the Society's roll, and three horticultural societies have been admitted to affiliation.

In May last the Committee published a work entitled *The Culture and Exhibition of Large Chrysanthemum Blooms (and Special Reports)*, which contained a full report of the proceedings at the 1910 Conference, together with other information. This publication met with instantaneous success, and the copies available for sale were quickly exhausted. The Publications Committee decided to set aside a certain number of copies to be presented to new members only, and these are all that are now in stock.

Early in the year the Committee were enabled by the kindness of Mr. R. Ballantine to obtain complete sets of the Society's schedules and other publications since 1883, and these have now been bound in suitable style and form a valuable addition to the Society's historical records.

Your Committee have taken into special consideration the form in which the Society's publications should be issued in the future, and it has been decided that for 1913 and subsequent years the *Schedule* shall contain only the list of members and affiliated societies, the list of classes at the Society's shows, and such other matter as may have direct relation to our exhibitions. A separate book will be published each year, to be called the *Transactions* of the National Chrysanthemum Society. The volume of transactions to be issued in May next will include, inter alia, the following:—Full verbatim report of the 1911 Conference; special descriptive record of the November, 1911, show; annual report and accounts for year 1911; list of awards of the Floral Committee; audit of November, 1911, show; report of Flora Committee outings; and such other matter as the Publications Committee may decide to be of permanent value.

An agreement has been signed with the Receiver of the Crystal Palace for the holding of two shows during 1912, on October 2 and 3 and October 29, 30 and 31. The date of the large show is slightly earlier than the Committee would desire, but it has been necessitated by the fact that, at the date when the agreement was signed, the Receiver of the Crystal Palace had only been granted permission by the Court to make agreements for shows up to the end of October, 1912. Under these circumstances your Committee are making special arrangements for the holding of a supplementary exhibition at Essex Hall, on November 20 next.

It has already been decided to hold the Society's annual conference at Essex Hall, on Wednesday, November 20, the same date as that fixed for the supplementary exhibition and meeting of the Floral Committee.

The balance-sheet shows total receipts amounting to £532 7s. 10d., including balance at bank, £50 8s. 8d.; annual subscriptions, £156 10s. 7d.; received of the Crystal Palace, £150; and affiliation fees, £46 14s. 6d. There is a balance on the year's working of £45 1s. 2d., and a surplus of assets over liabilities of £101 12s. 7d.

The adoption of the report and balance-sheet was moved by the Chairman and seconded by Mr. Green, who said that the Society was now getting into smooth water again. The report was adopted. Sir Albert Rollit was re-elected president amidst applause. Mr. John Green was re-appointed treasurer, Mr. Thomas Bevan chairman, Mr. E. F. Hawes vice-chairman, Mr. C. Harman Payne foreign corresponding secretary, and Mr. R. A. Witty general secretary. The auditors were also appointed. The following gentlemen were elected to fill vacancies on the committee:—Messrs. F. J. Toms, W. A. Cull, J. McKerchar, Geo. L. Caselton,

A. Searle, and W. Wells, Jun. It was announced that the usual dinner of the Floral Committee will be held on the 19th inst., at Carr's Restaurant, Strand, and that members of the Society will be welcome. Application for tickets should be made to the secretary, Mr. R. A. Witty.

SANDY HORTICULTURAL.

JANUARY 19.—The annual meeting of this society was held at the Assembly Rooms on this date, Mr. Edward Sills presiding. The balance-sheet showed that the receipts, including a balance from last year, amounted to £1,578 12s. 2d., and that there was a balance of £42 11s. 7d. on the year's working, besides a bank deposit account of £450. It was decided that Mr. W. F. Graves be asked to be president for this year. Mr. Parsons, of Bedford, was elected a member of the committee in the place of Mr. W. S. Brocklehurst, who had retired.

BURY HORTICULTURAL.

JANUARY 23.—The annual meeting of this society was held on this date: the president, Mr. E. W. Lake, occupied the chair. In presenting the balance-sheet, the hon. treasurer stated that there was an increased deficit, but the society had £200 invested in Town Bonds. Major V. Davoren was elected president in the place of Mr. Lake, who retires after being in the office for 20 years. The election of other officers was as follows:—Mr. W. Arnold, hon. treasurer; Mr. W. Horton, hon. secretary; and Mr. J. H. Bonner, auditor. It was decided to hold the annual show on November 7 and 8, 1912.

THE WEATHER.

THE WEATHER IN WEST HERTS.

Week ending February 7.

The sharpest frost for three years.—Between the 27th of January and the 5th of the present month, or for 10 days, the weather remained exceptionally cold. On six days during that cold period the highest reading in the thermometer screen did not exceed 37°, and on six nights the exposed thermometer fell from 20° to 27° below the freezing-point. On the coldest day the highest temperature in the thermometer screen was 27°—making this the coldest day in February for 17 years. On the coldest night the exposed thermometer registered 27° of frost—making this the coldest night since December 30, 1908. The ground is at the present time 3° colder at 2 feet deep, and 5° colder at 1 fool deep, than is seasonable. Rain or snow fell on four days, but to the total depth of less than a quarter of an inch, when the snow had been melted. On the evening of the 5th inst. the ground was covered with snow to the average depth of 1½ inches. Owing to the frost there was no percolation through the soil gauges except on two days, when small amounts passed through both of them. The sun shone on an average for 1 hour 48 minutes a day, which is 17 minutes a day short of the average duration for the beginning of February. Calms and light airs alone prevailed, the direction of these light airs being almost exclusively some point between north and east. The mean amount of moisture in the air at three o'clock in the afternoon fell short of a seasonable quantity for that hour by seven per cent.

JANUARY.

Rather warm, but very wet, sunless and calm.—Taking the month as a whole this was a rather warm January. The first half proved very warm, while the last five days were as exceptionally cold, the intervening 10 days being variable in temperature. On the warmest day the highest reading in the thermometer screen was 51°, which is about the average extreme maximum for the month. On the coldest night the exposed thermometer registered 23° of frost, which is lower than any extreme minimum in January for two years. Rain, hail, snow or sleet fell on as many as 21 days, and to the total depth of 3¾ inches, which is 1½ inches in excess of the average for the month, making this the wettest January for six years. Snow fell on only two days, but on one of them the ground was covered to the mean depth of 2 inches. The sun shone on an average for 1¼ hours a day, which is 20 minutes a day short of the average, making this the most sunless January for 8 years. This was a remarkably calm winter month; in fact, if we except the same month last year, it was the calmest January for 14 years. In the windiest hour the mean velocity amounted to 20 miles—direction W. The average amount of moisture in the air at 3 p.m. exceeded a seasonable quantity for that hour by 2 per cent.

OUR UNDERGROUND WATER SUPPLY.

Since the winter half of the drainage year began in October last the total rainfall has exceeded the average for those 4 months by as much as 5½ inches, equivalent to an excess of 116,280 gallons on each acre in this district. At the same time last year there was an excess of 51,350 gallons per acre. *E. M., Berkhamsted, February 7, 1912.*

GARDENING APPOINTMENT.

Mr. H. INGRAM, for 2½ years Foreman at Paddockhurst, and previously at Cassiobury, Watford, as Gardener to H. V. BATHURST, Esq., Marham House, Downham Market, Norfolk.

MARKETS.

COVENT GARDEN, February 7.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—EDS.]

Cut Flowers, &c.: Average Wholesale Prices.

	s.d.	s.d.
Arums (Richardias)	5 0	7 0
Azalea, doz. bnchs.	3 0	4 0
Camellias, per box of 18's and 24's	2 6	—
Carnations, p. doz. blooms, best American var.	1 6	2 0
— smaller, per doz. bunches	18 0	21 0
— Carola, crimson, extra large	6 0	—
Eucharis, per doz.	2 6	3 0
Freesia refracta alba, p.dz. bun.	1 6	2 0
Gardenia, per doz.	6 0	9 0
Helleborus (Christmas Roses), p. dozen	1 6	2 0
Hyacinth (Roman), pr. doz. bnchs.	6 0	8 0
Lilac, per bunch white	2 6	3 0
— mauve	3 0	3 6
Lilium auratum per bunch	4 0	5 0
— longiflorum, long, per doz.	5 0	6 0
— short, per doz.	6 0	—
— lancifolium alba, long	2 6	3 0
— — short	2 0	2 6
— speciosum rubrum, dz. blooms:		
— long	2 6	—
— short	0 9	1 0
Lily of the Valley, p. dz. bunches:		
— extra special	15 0	18 0
— special	10 0	12 0
— ordinary	8 0	—
Marguerite, per doz. bunches:		
— Yellow	2 0	2 6
Narcissus, per doz. bunches:		
— Double Van Sion	4 0	6 0
Narcissus, per doz. bunches:		
— Emperor	6 0	7 0
— Empress	6 0	7 0
— Golden Spur	4 0	5 0
— Henry Irving	2 6	3 0
— Paper white	3 0	3 6
— Poeticus	2 0	2 6
— Princeps	3 6	5 0
— Sir Watkin	4 0	6 0
— Soleil d'Or	1 0	1 6
— Victoria	5 0	7 0
Orchids, Cattleya, per doz.	12 0	—
— Odontoglossum crispum	3 0	4 0
Pelargoniums, p. dz. bunches:		
— Double Scarlet	8 0	12 0
Roses, 12 blooms, — Bridesmaid,	4 0	5 0
— C. Mermet	4 0	5 0
— Liberty	5 0	8 0
— Mme. Abel Chatenay	5 0	8 0
— Niphetos	2 6	3 6
— Richmond	5 0	6 0
Snowdrops, p. doz. bunches	1 0	2 0
Tuberose, gross	9 0	10 0
— long, p. bunch	2 0	—
Tulips, per bunch:		
— double pink	1 0	1 6
— — yellow	1 0	1 6
— — scarlet	1 3	1 6
— pr. doz. bnchs:		
— white	7 0	8 0
— yellow	7 0	9 0
— scarlet	8 0	10 0
— bronze	8 0	9 0
— pink	9 0	15 0
Violets, per dozen bunches	1 3	2 0
— Princess of Wales, per doz. bunches	3 0	4 0
— Parma	2 6	3 0

Cut Foliage, &c.: Average Wholesale Prices.

	s.d.	s.d.
Adiantum Fern (Maidenhair), best, dz. bnchs.	7 0	8 0
Agrostis (Fairy Grass), per dz. bunches	2 0	4 0
Asparagus plumosus, long trails, pr. ½doz.	1 6	2 0
— medium, doz. bunches	12 0	18 0
— Sprengeri	10 0	12 0
Carnation foliage, doz. bunches	4 0	—
Croton foliage, various, per dozen bunches	12 0	15 0
Cycas leaves, artificial, per doz.	3 0	12 0
Eulalia japonica, per bunch	1 0	1 6
Moss, per gross	6 0	—
Myrtle, dz. bchs. (English), small-leaved	6 0	—
— French	1 0	—
Smilax, per bunch of 6 trails	1 0	1 3

Plants in Pots, &c.: Average Wholesale Prices.

	s.d.	s.d.
Aralia Sieboldii, p. dozen	6 0	7 0
Araucaria excelsa, per dozen	18 0	21 0
Asparagus plumosus nanus, per dozen	10 0	12 0
— Sprengeri	8 0	9 0
Aspidistra, p. dz., green	21 0	30 0
— variegated	30 0	60 0
Azaleas, per dozen	36 0	42 0
Cocos Weddeliana, per dozen:		
— 60's	6 0	12 0
— larger, each	2 6	10 6
Croton, per dozen	18 0	30 0
Cyperus alternifolius, per doz.	5 0	6 0
— laxus, per doz.	4 0	5 0
Daffodils, per dozen	6 0	8 0
Dracæna, green, per dozen	10 0	12 0
Ericas, per dozen:		
— hyemalis	10 0	12 0
— alba	10 0	12 0
Ferns, in thumbs, per 100	8 0	12 0
— in small and large 60's	12 0	20 0
Ferns, in 48's, doz.	6 0	—
— choicer sorts per dozen	8 0	12 0
— in 32's, pr. doz.	10 0	18 0
Ficus elastica, per dozen	9 0	12 0
Genistas, 48's, doz.	10 0	12 0
Geonoma gracilis, 60's, per dozen	6 0	8 0
— larger, each	2 6	7 6
Hyacinths white & clrd., p. dz. pots	10 0	12 0
Kentia Belmoreana, per dozen	5 0	42 0
— Fosteriana, 60's, per dozen	4 0	6 0
— larger, per doz.	18 0	60 0
Latania borbonica, per dozen	12 0	30 0
Lilium longiflorum, p. doz.	20 0	24 0
— lancifolium rubrum in pots, per dozen	15 0	18 0
— lancifolium alba	15 0	18 0
Marguerites, white, per dozen	8 0	10 0
Pandanus Veitchii, per dozen	36 0	48 0
Phœnix rupicola, each	2 6	21 0

Fruit: Average Wholesale Prices.

	s.d.	s.d.
Apples (English cookers) bushel	4 0	7 6
— Nova Scotian, per barrel	13 0	20 0
— Californian Newtowns, pr. case	9 0	12 6
Apples (Canadian), per barrel	20 0	—
— Oregon (Hood River), per case	16 0	18 6
— American, per barrel	20 0	32 0

Fruit: Average Wholesale Prices *(continued).*

	s.d.	s.d.
Bananas, bunch:		
— Doubles	10 0	12 0
— No. 1 ,,	8 0	10 0
— Extra	10 0	12 0
— Giant ,,	14 0	18 0
— Loose, per dz.	0 6	1 0
— Red coloured	5 6	6 6
— Jamaica Giants, per ton	£10	£12
— Jamaica Ordinary, per box (9 doz.)	4 0	5 0
Cranberries, per case (30 qts.)	10 0	11 0
— Cape Cod, per case (30 quarts)	9 6	—
Dates (Tunis) doz. boxes	4 6	5 6
Grape Fruit, case: — 96's, — 80's, — 64's, — 54's	18 0	24 0
Grapes (English), per lb.:		
— Muscat of Alexandria	6 0	10 0
— Cannon Hall Muscat	6 0	10 0
— Black Alicante	1 4	2 6
— Gros Colman	1 0	2 6
— (Belgian), Gros Colman, p. lb.	0 9	1 3
— Almeria, p. brl.	11 6	15 6
Per dozen lbs.	3 0	4 6
Lemons:		
— (Naples), case	26 0	30 0
— Messina, per case	6 0	15 0
Limes, per case	4 0	—
Mangoes, per doz.	4 0	6 0
Nuts, Almonds, per bag	52 6	—
— Brazils, new, per cwt.	85 0	100 0
Nuts, Spanish, per sack	40 0	42 0
— Barcelona, per bag	35 0	36 6
— Chestnuts, per bag	3 6	19 0
— Cocoanuts (100)	18 0	23 0
— English Cobs per lb.	0 5	0 6
— Walnuts (Naples) kiln dried, cwt. cases	54 0	—
— French Grenobles, per bag	6 6	7 0
— Boeris, per bag	6 0	7 0
Nectarines (Cape) per box	16 0	20 0
Oranges, Jamaica per case	9 0	11 0
— Californian	18 0	20 0
— Denia, case	14 0	33 6
— Valencia	10 0	12 0
— Jaffa, per case	9 6	—
— Mandarins, per box	0 6	3 6
— Bitter, per ½ chest	16 0	18 6
— Seville Sour ½ chest	15 0	18 0
Peaches (Cape), pr. case	6 0	12 0
Pears (Californian), per case	10 6	16 6
— Glou Morceau	11 6	12 6
— Easter Beurré	8 6	—
— Winter Nelis	12 6	13 6
— (American) per barrel, 180 lbs.	25 0	26 0
— cases	7 0	—
Pineapples, St. Michael	2 6	4 0
Plums (Cape), per case	2 6	6 0
— Apple, per box	8 0	12 0

Vegetables: Average Wholesale Prices.

	s.d.	s.d.
Artichokes (Globe), per dozen	3 0	4 0
— Ground, per ½ bushel	1 0	1 3
Asparagus, Sprue	0 9	—
— Cavaillon	3 0	—
— Paris Green	4 6	5 0
Beans, Madeira, per basket	4 0	7 0
— Guernsey, Dwarf, per lb.	4 0	4 6
Beetroot, p. bshl.:		
— Long	2 6	3 0
Brussel Sprouts, per ½ bushel	1 0	1 6
— half bags	1 6	2 6
Celeriac, per doz.	2 6	3 0
Cabbages (English), per tally	3 0	6 0
Cauliflowers, p. dz.	2 6	3 6
— (Italian), p. pad	2 0	3 0
— (Cornish), per crate	7 0	9 0
Celery, per. dozen bundles	10 0	14 0
— (washed), per dozen bundles	12 0	18 0
Carrots (English), pr. doz. bun.	1 6	2 0
— per cwt.	3 6	4 6
— (washed) p. bag	4 0	5 0
Chicory, per lb.	0 4	—
Cucumbers, p. doz.	9 0	15 0
Endive, per dozen	2 0	—
Greens, per bag	1 6	2 0
Herbs (sweet), pkts., p. gross	7 0	—
Horseradish, 12 bundles	11 0	12 0
Leeks, per doz.	3 0	4 0
Lettuce (French), per doz.	1 0	2 0
Mint, per dozen bunches	6 0	7 0
Mushrooms, cultivated, p. lb.	0 10	1 3
Mustard and Cress, pr. dz. punnets	1 0	1 6
Onions (Dutch) per bag	8 0	8 6
— English	9 0	9 6
— (Spanish), per case	8 0	9 0
Parsley, ½ sieve	2 6	3 0
— per doz. bun.	3 6	4 0
Parsnips, per bag	6 0	6 6
Radishes (English), per dozen	1 0	1 3
Rhubarb, forced, per 12 bundles	0 8	0 9
Savoys, per tally	7 0	10 0
Spinach, per bushel	5 0	7 0
Seakale, p. punnet	0 9	1 0
Tomatos (Canary Islands), per bundle	12 0	16 0
Turnips (English), per dz. bunches	2 0	2 6
— bags (washed)	6 0	7 0
— (unwashed)	5 0	6 0
Turnip Tops, per bag	2 6	3 0
Watercress, p. dz. bunches	0 6	0 6½

REMARKS.—Supplies of Gros Colman and Black Alicante Grapes have been about equal to the demand; Canon Hall Muscats are still obtainable at prices ranging from 6s. to 10s. per lb. Consignments of Cape fruits received this week per s.s. "Kenilworth Castle" amounted to 30,768 boxes, consisting of Plums, Peaches, Nectarines and Pears. Prices for reliable samples have been well maintained. Other importations per s.s. "Philadelphia" amounted to 2,899 packages of Apples, Oranges, Grape Fruit and Cranberries. Teneriffe Tomatos are a fairly plentiful supply with a limited demand. The first shipment of the new crop of Brazil Nuts is expected to arrive about the end of this month. The following varieties of forced vegetables are now obtainable: New Potatos, Beans, Asparagus and Cucumbers. Supplies of outdoor vegetables are fairly plentiful considering the recent severe weather. *E. H. R., Covent Garden, February 7, 1912.*

Potatos.

	per cwt. s.d.	s.d.
Kents—		
Queen's	4 0	4 6
Up-to-Date	4 0	4 6
Lincolns—		
Up-to-Date	3 9	4 6
British Queen	3 9	4 3
King Edward	3 9	4 6
Epicure	3 0	3 6
Northern Star	2 9	3 6
Evergoods	3 0	3 9
Lincolns—		
Maincrops	4 0	4 6
Blacklands	2 6	3 3
Bedfords—		
Up-to-Date	3 9	4 0
Puritan	4 0	4 3
Dunbars—		
Up-to-Date	5 0	5 3
Maincrop	5 3	5 6

REMARKS.—Trade is very steady. Consignments have been very small on account of the frosty weather, consequently stocks in London are much smaller. With mild weather the supply should be quite equal to the demand. *Edward J. Newborn, Covent Garden and St. Pancras, February 7, 1912.*

Obituary.

G. A. INGLEFIELD.—We regret to record the death, on the 20th ult., of Mr. G. A. Inglefield, of Tidworth Gardens, Andover, in his 69th year. For 27 years he had been in charge of Tidworth Gardens in the service of Sir John Kirk, Bart., and latterly the War Office. Mr. Inglefield was a successful exhibitor of Chrysanthemums, fruit and vegetables. He was a well-known judge at shows in the West of England. Before going to Tidworth, Mr. Inglefield was 13 years gardener to the late Mr. Gaskell, Kiddington Hall, Oxfordshire.

THOMAS GALVIN.—Mr. Thomas Galvin, nurseryman, Rhode Island, U.S.A., died at his residence, Spring Street, Newport, on the 13th ult. Mr. Galvin was born in London, in 1826, He emigrated to America when 10 years of age, and secured employment as a gardener on an estate near New York. Later, he was engaged in his father's nursery at Newport, to the management of which he succeeded, building up an important business.

J. M. ROBSON.—Mr. John Mather Robson, of Beacon Grange Gardens, near Hexham, died after a brief illness on the 26th ult., in his 65th year. He took a prominent part in the Fruit Show and Conference held at Hexham in the autumn of 1910, and was one of the founders of the Hexham and District Horticultural Mutual Improvement Society.

ANSWERS TO CORRESPONDENTS.

BASIC SLAG FOR LAWNS: *Reader.* Six ounces per square yard would be far too heavy a dressing, as this is equivalent to about 17 or 18 cwt. per acre, which amount is only used occasionally on grass land in damp climates. A dressing of 1 to 2 ounces per square yard would be quite sufficient, but, in the circumstances you describe, we do not recommend basic slag at all. This is on account of the stimulating effect it has on Clover, whereby the lawn becomes liable to burn, is slippery, and discolours the tennis balls. If you require advice for renovation purposes, we shall be pleased to advise you on receipt of such particulars as the nature of the soil and sub-soil, which grasses at present grow on the lawn, rainfall, aspect, and use to which the lawn is usually put.

BRAZILIAN ORCHIDS: *T. D. H.* We do not know of any special work on the Orchids of Brazil. *Flora Brasiliensis*, which you might study in some good library, deals fully with the Orchids of the country, and it contains illustrations of many of them. The species of Orchids are, to a very great extent, met with only in certain localities, and it would be useless to desire to collect species not found in the part where you are going.

CANVAS AS A PROTECTIVE SUBSTITUTE FOR GLASS: *J. A. T.* Improvised houses covered with Hessian canvas are suitable for the hardening of bedding plants prior to planting them in the beds. This description of house is used in many market nurseries for protecting, in their summer quarters, such autumn-flowering varieties of Chrysanthemums as Soleil d'Octobre and its bronze sport, Source d'Or, and Mrs. J. W. Scott. The houses are made 12 feet wide (the length being according to circumstances), so as to accommodate seven rows of plants. To three rows of upright posts, made of 2-inch square wood, 6 feet long at the sides, and 7 feet long in the middle, are nailed battens 3 inches wide and 1 inch thick. The posts are pointed, and driven into the ground to the depth of 12 inches or 15 inches at intervals of 12 feet, the battens being nailed close up to and flush with the top of the individual posts. Other battens are nailed on to a middle line of posts to form the ridge of the span structure, and to the top of this the two 6 feet widths of Hessian canvas are secured by means of large, flat-headed tacks. Short lengths of stout string are attached to the side of both widths of canvas at intervals of 3 feet with which to secure them to the side rails when let down over the roof at night-time. String should also be provided to loop up the canvas when rolled up from the inside. Care should be exercised to make the canvas secure when drawn down at night. Canvas should be nailed at the ends; it will not be necessary to roll this up, therefore the ends may be fixed. Hessian canvas, 72 inches wide, is sold at 5d., 6d., and 7d. per yard, and at ½d. per yard less when rolls of about 100 yards are purchased. With care the canvas will last for several years. Scrim canvas, 54 inches and 72 inches wide, may be obtained at 5d. and 6d. per yard respectively. In fixing the canvas on the roof, allowance should be made for covering both ends. Hessian and Scrim canvas may be obtained from any of the horticultural sundriesmen. Struts should be put to each of the two side upright posts at each end to give stability to the structure. Both the woodwork and the canvas should be stored in a dry place when not required for use.

CINERARIAS SEEDING: *W. B.* Great difficulty is experienced by most growers in obtaining seeds true to variety from these plants, as the plants cross-pollinate so freely. But the Cineraria is so readily raised from seeds and good strains produce such high-quality blooms that propagation by any other means is only occasionally carried out. Even the double varieties come fairly true from seeds, only an occasional plant being single. A few hybrids which are sterile with their own pollen, or cannot be reproduced true from seeds, have,

THE LATE G. A. INGLEFIELD.

of necessity, to be increased by cuttings or suckers. Examples of these are C. Moorei, C. cantabridgensis, and C. Lady Thiselton-Dyer. Selection has been so carefully and systematically carried out during recent years with Cinerarias, that seeds of high-class strains sold in separate colours may be relied upon to produce a very large percentage true to variety. By lightly dusting the flower-heads with a camel-hair brush, when the pollen grains are mature, pollination is effected. It will soon be noticed that, when pollen is abundant, the brush becomes yellow. Plants sometimes fail to produce seeds when self-pollinated, but seed readily when pollen from another plant, even although it may be the same colour, is used. Experience proves that seedlings obtained by cross-pollination are more vigorous. A different camel-hair brush should be used in the case of plants of distinct colours. Pollination may be carried on at any time when the pollen is mature, the best time being between the hours of 11 a.m. and 3 p.m. on a bright, sunny day. The atmosphere of the house in which the plants are growing should be light and fairly dry, at the same time affording free ventilation. Feeding with liquid manure should be gradually discontinued before the flowers are fully expanded. Cinerarias are found to produce seeds more freely when grown in comparatively small pots. In some nurseries where the plants are grown extensively for seed production, hives of bees are placed in the houses when the plants are in flower. In addition to bees from outside finding their way into the houses through the open ventilators, various other agencies assist pollination. Moving the plants from one position to another, and the consequent shaking, will distribute the pollen. A slight wind or draught through the open ventilators also assists fertilisation. If plants of the highest excellence are selected for seed production, measures should be taken to prevent cross-pollination. This may be accomplished by distributing the plants singly in houses some distance apart, or covering each plant separately with fine muslin. A favourite practice adopted in private gardens if any plants of outstanding merit occur among the seedlings, is to place them in a cool pit or frame, with an ash bottom. When mature, the seeds fall on the ashes, where they soon germinate. When large enough to handle, the seedlings are transferred to shallow boxes filled with a light, sandy compost.

FREESIAS: *Tom.* If your plants of Freesias have been well cultivated and the old corms properly dried off and stored there should be no need to purchase fresh stock every year. Some growers raise their plants from seeds and get better stock in that way than the average corms that are offered for sale. The plants when employed for decorative purposes in dwelling rooms or conservatories often receive a check which has a bad effect on the next season's flowering. In such cases it is better to purchase new stock rather than trust to defective corms.

GARDENS AND THE PUBLIC: *G. W.* The course for you to adopt is to write to the head gardener in each case, and he will doubtless give you the information you seek respecting any privileges of inspection available to the public.

NAMES OF PLANTS: *F. T.* 1, Cheilanthes elegans; 2, Adiantum hispidulum; 3, Blechnum occidentale; 4, Pteris hastata.—*A. W. G.* 1, Cupressus ncotkatensis aureo-variegata; 2, Tsuga canadensis; 3, Cryptomeria japonica; 4, Cassinia fulvida.

NERINE SEEDS: *W. D. A.* Seeds of Nerine germinate freely when placed on the surface of the soil in a seed-pan. They do not require covering with soil, and nothing is gained by placing the seed-pans in a very warm house, for germination is slow and the seeds will keep in better condition on a shelf in a warm greenhouse. When a root and first leaf appears the seedlings should be transplanted, either in store pans or singly in very small pots. The young plants should be potted on as they require larger receptacles, and they should not be dried off until they are approaching the flowering stage. The seeds should be sown as soon as they mature. Nerine seeds often germinate naturally on the soil in the pots containing the parent plants.

ORCHID LEAVES SPOTTED: *J. B.* and *A. J. W.* No disease is present, nor is the trouble caused by insect pests, but it may be traced to an insufficiency of light.

PEAR-LEAF BLISTER MITE: *R. R.* The quantities of paraffin and soft soap for use in each gallon of water or 2 gallons of paraffin and soft soap ½ lb. Use boiling water. Make the ingredients into a perfect emulsion by boiling the soap in the water, and, whilst still boiling, pour it into the paraffin, and churn with a syringe until a white or creamy mixture has been obtained. The mixture should then be pumped with a force of not less than 20 lbs. to the square inch through a fine spray nozzle into another nozzle, which completely emulsifies the oil. When this is finished nearly two-thirds of its bulk will be paraffin, and before it is applied to the bark of a tree the solution may be diluted with nine times its quantity of soft water made hot, mixing thoroughly again with the syringe. When applied to tender foliage 50 gallons of water may be added to the original emulsion; one gill of oil to each gallon of water is sufficient for tender plants.

Communications Received.—D. R.—A Reader.—J. D.—G. F.—A. G., Somerset.—H. C., Switzerland.—E. M.—R. J. W.—E. M. M.—G. L, J.—E. O. B.—G. B.—J. S.—S. E. N.—E. J. R—H. C. B.—C. E. M.—T. M.—A. H.—C. T. D.—H. F.—F. W. S.—E. A B.—J. B. M.—S. A.—D. R. W.—Prof. F. K., Berlin.—J. G. S.—R. P. B—F. J.—W. A. M.—W. P. H.—J. R. J.—C. F., Lincolnshire.—H. W.—H. A.—T. Y. N. C L.—Anxious.—A. D.

PARTIAL STERILISATION OF SOILS.

THE GARDENERS' CHRONICLE

ESTABLISHED 1841 Nº 3712

No. 1,312.—VOL. LI. {THIRD SERIES.} SATURDAY, FEBRUARY 17, 1912. {Registered as a Newspaper. WITH SUPPLEMENT: } {PRICE 3d. POST-FREE, 3½d.

SUBSCRIPTION—Inland, 15/-; Foreign, 17/6 [22fr. 10c.] [$4 26c.] per annum. Entered at the New York Post Office as second-class matter.

Postal Address—41, Wellington Street, Covent Garden, W.C. Telegraphic Address—"Gardchron, London." Telephone—Gerrard, 1543.

☞ **For CONTENTS see page 97.**

WEBBS' "GOLD MEDAL" COLLECTIONS OF VEGETABLE SEEDS.—Best value obtainable. Arranged to produce a constant supply of delicious Vegetables throughout the year. Excellent selection.

63s. Collection contains 107 varieties.
42s. " " 92 "
21s. " " 66 "
12s. 6d. " " 45 "
5s. " " 25 "

10s.6d. Special Exhibitors' Collection contains 32 varieties to grow for exhibition.

CARRIAGE FREE.
CONTENTS ON APPLICATION.

WEBB & SONS, The King's Seedsmen, WORDSLEY, STOURBRIDGE.

BARR'S VEGETABLE AND FLOWER SEEDS of finest selected strains and tested growth. Descriptive Catalogue, with Cultural Notes, free.

BARR'S BEAUTIFUL LILIES, GLADIOLI, MONTBRETIAS, CANNAS, TIGRIDIAS, etc. for Spring planting. Special Catalogue free. BARR & SONS, 11, 12 & 13, King St., Covent Garden, London.

BARR'S REMOVAL SALE OF HARDY PLANTS.—Clearance List of surplus plants at greatly reduced prices (prior to removal of nurseries from Surbiton to Taplow), post free. BARR & SONS, 11, 12 & 13, King St., Covent Garden, London.

TO NURSERYMEN.—THE NEW PATENT MULTI-DIBBER. Indispensable to all who raise seedlings in boxes, frames, or in the open ground. Send for special list with prices. BOULTON & PAUL, Ltd., Norwich.

GISHURST COMPOUND is harmless in use; its soluble Sulphur, &c., has for 40 years cured Blights and Fungus on Plants, and is good for washing unhealthy dogs. Gishurstine keeps boots dry in all weathers; they will polish. Good for Harness. Wholesale from— PRICE'S PATENT CANDLE CO. LTD., London.

OSMUNDA for Orchids.—Consignments arrive fortnightly. 2s. 6d. per bushel; per bag, 8s. 6d. SANDER & SONS, St. Albans.

THE Popularity of "XL ALL" Specialities increases every year. All gardeners proclaim that nothing equals these celebrated preparations. "XL ALL" NICOTINE VAPORISING COMPOUND, the gardeners' favourite Fumigant, both Liquid and Cake. "XL ALL" NICOTINE INSECTICIDE WASH for Syringing, Dipping and Dressing Fruit Trees and Plants; Mealy Bug, Scale, etc., cannot exist where this is used. "XL ALL" INSECTICIDE WASH B (*sine* Nicotine), best non-poisonous Wash on the Market. No licence required to sell this. Other preparations of great renown, both poisonous and non-poisonous, are:—"XL ALL" WEED KILLER, "XL ALL" FERTILISER, "XL ALL" WINTER WASH for Fruit Trees, RICHARDS' BANDING GREASE, etc. Don't forget to ask your Nurseryman, Seedsman or Florist for Richards' small pink list.—G. H. RICHARDS, Manufacturer, 234, Borough High Street, London, S.E.

BUNYARD'S CATALOGUES, free on application.

FRUIT TREES AND VINES.

SHRUBS AND CONIFERS.

ROSES AND OTHER CLIMBERS, in Pots.

HERBACEOUS & AQUATIC PLANTS for present planting.

GEORGE BUNYARD & CO., LTD., Royal Nurseries, Maidstone. Established 1796.

SUTTON'S WHITE GEM CELERY. Per packet, 1s. and 1s. 6d., post free. Mr. C. H. HAGRAM, Gardener to W. H. Norris, Esq., writes:—"I shall never attempt to grow any other Celery than your White Gem. For earliness, crispness, and good flavour, it is unequalled."

SUTTON & SONS, The King's Seedsmen, READING.

DOUGLAS'S CARNATIONS & PINKS, border and perpetual, are noted all over the world. 5 Gold Medals, R.H.S., 450 Medals and Cups. Newest and best varieties at most reasonable prices, all ready for planting or potting on. Finest hand fertilized seed only sold. Carnation and Picotee seed, all types, 1s. 6d. to 2s. 6d. packet. Auricula, Pink, Polyanthus, finest strain in existence, all 1911 fine crop, now ready for sowing. Send for catalogue, Edenside, Gt. Bookham.

CLARK'S GARDEN SHEARS (Patent).—The most ingenious garden invention. Holds in position the object to be cut, and stops it slipping away. Marvellous value at 5s. per pair. Send P.O. to-day to W. CLARK, Limited, 2, Stourcliffe Street, London, W.

AUTO SHREDS FUMIGANT kills Leaf-mining maggot, insects in greenhouses, frames. For 1,000 cubic feet, 6d.; 10,000, 3s. 6d. No apparatus. WM. DARLINGTON & SONS, Patentees, Hackney, N.E.

WALTERS & CO., Morland Rd., Croydon, Makers of Lath Roller Greenhouse Blinds; Trellis Screens and Fences, Arches, Arbours, Rose Pillars. Established over 20 years. Catalogues free.

New Phloxes.

GUNN & SONS were Awarded a Silver Cup at the Great Show at Olympia. New Lists now ready. Address: Olton, Warwickshire.

ALPINES & HERBACEOUS PLANTS,—Himalayan and other rare Rhododendrons, rare Shrubs, Construction of Rockeries. Catalogues ready. G. REUTHE, Keston, Kent.

LISSADELL ALPINE & HERBACEOUS PLANTS.—Write for our new illustrated and enlarged List, containing many beautiful novelties at moderate prices. Also List of Seeds collected from above in 1911. J. A. COOPER, Lissadell (No. 2), Sligo, Ireland.

GARDEN PESTS.—Cross's "Clubicide" is the Gardeners' Insurance against damage by Eelworm, Wireworm, Slugs, Maggot, and all Disease Germs and Insect Pests. Kills all harmful Bacteria, reinvigorates the soil, stimulates plant life. In 1s. flasks and ½-gall. and 1 gall. drums. From all Seedsmen. Sole Manufrs.: A. CROSS & SONS, Ltd., Glasgow.

POULTRY and KENNEL APPLIANCES of every description. Write for latest Catalogue free on application. BOULTON & PAUL, Ltd., Norwich.

FIDLER'S NEW ILLUSTRATED CATALOGUE of CHOICE GARDEN SEEDS will be sent post free to any address on receipt of postcard. Write at once for a copy; it may help you to save 50 per cent. on your seed bill this season. FIDLER & SONS, Royal Berkshire Seed Stores, Reading.

BATH'S SELECT SEEDS.—New Illustrated Catalogue of Choice Vegetable and Flower Seeds, with full cultural notes, is now ready, and will be sent post free on application. (Dept. A), R. H. BATH, Ltd., The Floral Farms, Wisbech.

AVENUE TREES, large girth, 10 by 12, 12 by 14 feet. Chestnuts, Sycamore, Limes, Birch, &c. Enquiries solicited. HARGREAVES, Sunnyside, Lancaster.

WM. DUNCAN TUCKER & SONS, Ltd., 27, Cannon Street, London, E.C.; Works, Tottenham. Conservatories, Winter Gardens, Vineries, Peach-houses, Portable Buildings, etc. Catalogue gratis.

For Advertisement Charges see page viii. last issue.

KELWAY'S "Manual of Horticulture" is the best of all Garden Books, 2s., post free. From ——, Esq., Northwood, Middlesex, September 28th, 1911: "I find that I have never forwarded 2s. for your lovely Catalogue you sent me some weeks since. It would be cheap at five times the price, and I sincerely regret the oversight."—KELWAY & SON, Langport, Somerset.

NOW is the time to plant Kelway's Delphiniums—fine, bold upstanding plants with a wealth of bloom in all shades of blue and purple. They are from strong country-grown stocks, and flourish under almost all conditions. From ——, Esq., ——. Ravenscourt Park, London, W.: "The Delphiniums you sent me some years ago have been a great success, and have been much admired." Choice named collections 15s., 24s., 34s., 56s. a dozen.—KELWAY & SON, The Royal Horticulturists, Langport, Somerset.

FRUITING VINES IN POTS.—Muscat of Alexandria, and leading Market varieties. We make Vines a speciality. G. COLEMAN, The Vineries, Burgess Hill, Sussex.

IRON & WIRE FENCING for GARDENS, Tree Guards, Gates, Arches, Espaliers, Rose Stakes, and Ornamental Garden Iron and Wire Work of every description. Send for Illustrated Catalogue, free. BOULTON & PAUL, Ltd., Manufacturers, Norwich.

LAVENDER.—Common, Giant and Dutch, 3s. per dozen, 21s. per 100; also the dwarf Compact variety, 5s. per dozen, 35s. per 100, and the White-flowered, very sweet-scented, 7s. 6d. per doz., 55s. per 100.—THE GUILDFORD HARDY PLANT NURSERY, Guildford.

Roses and Herbaceous Plants.

GUNN & SONS were awarded the 25 Guinea Challenge Cup in each collection at the Leamington Show. Up-to-date List for each now ready. Address: Olton, Warwickshire.

CHRYSANTHEMUMS.—Descriptive Catalogue of choice up-to-date varieties and novelty list for 1912, sent free. Apply H. W. THORP, Durrington, Worthing.

GREENHOUSE PAINTING & GLAZING "Vitrolite" superior to White Lead Paint, 9/- per gall. "Plastine" supersedes Putty, 16/- per cwt. Full particulars from W. CARSON & SONS, Grove Works, Battersea. Agents throughout the country.

LANDSCAPE GARDENING.—W. INNES STUCKEY, Landscape Gardener, Piccadilly Mansions, Piccadilly Circus, W. (With the late Mr. H. E. Milner).

DICKSONS Horticultural Manure & other high-class Fertilizers; also Dicksons Improved Mushroom Spawn. Priced Circulars free on application to DICKSONS, Royal Seed Warehouses & Nurseries, Chester

THE COMING OF THE SPRING reminds you of the importance of sowing the Best Seeds. These are John K. King & Sons', grown on their great Essex Seed Farms.

THE COMING OF THE SPRING.—Send for John K. King & Sons' Manual of Gardening for 1912, the best Seed Book of the year, replete with cultural instructions, charming illustrations, and correct descriptions—post free on application. JOHN K. KING & SONS, Seed Growers to H.M. The King, Coggeshall, Essex.

RITCHIE'S SWEET PEAS.—Universally acknowledged to be the best procurable; Exhibition collection, containing the best 12 Spencers, viz., Asta Ohn, Clara Curtis, Edna Unwin, Elsie Herbert, Gladys Burt, Jno. Ingman, Marj. Linzee, Maud Holmes, Mrs. Sykes, Mrs. Breadmore, Prince Asturias, Tennant Spencer, 30 seeds each, 2s. 6d., post free; Sweet Pea list free on request.— A. S. RITCHIE & CO., Seedsmen, Belfast.

SALES BY AUCTION.

Monday, Wednesday and Friday next.

MONDAY and FRIDAY NEXT, February 19th and 23rd, at 12 o'Clock.—A choice assortment of Hardy Perennials and Herbaceous Plants, Lily of Valley, Spiræas, Iris, Pæonies, &c., Japanese Liliums, Gladiolus, Begonias, and other Hardy Bulbs.

At 1.30 o'Clock.—1,500 ROSES, Standard, Dwarf, Climbing, &c., also Fruit Trees in variety.

WEDNESDAY NEXT, February 21st, at 12 o'Clock.—Japanese Liliums in large variety, Begonias, Gloxinias, Gladiolus, Lily of Valley, Iris, Carnations, Pinks, &c., Herbaceous and Rock Plants, and Perennials. Tuberoses.

At 1.30 o'Clock.—3,000 ROSES, English, French and Dutch grown, Standards, Dwarfs, Climbers, &c., Standard, Pyramidal, and other Fruit Trees.

At 5 o'Clock.—100 lots of Ornamental and Decorative Palms and Plants, Azaleas indica and mollis, Rhododendrons, Aspidistras, Standard Bays, &c., from Belgium, also Stove and Greenhouse Plants.

MESSRS. PROTHEROE & MORRIS will SELL the above by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, E.C. On view mornings of Sale and Catalogues had.

Wednesday Next, February 21st, at 12 o'Clock.

Trade Sale in suitable lots of Gladiolus, Begonias, Gloxinias, Hardy Liliums, Berlin crowns Lily of Valley, Crozy Cannas, Spiræas, and other Hardy Bulbs and Forcing Plants. 1,500 choice young Fruit Trees suitable for trade requirements.

At 2.30 o'Clock,

A consignment just to hand of

1,066 CASES JAPANESE LILIUMS,

comprising

2,560 LILIUM AURATUM.
3,380 " " PLATYPHYLLUM.
400 " " RUBRO-VITTATUM.
5,480 " SPECIOSUM RUBRUM.
8,200 " " " MAGNIFICUM.
1,010 " " MELPOMENE.
1,310 " " ALBUM.
5,350 " TIGRINUM FORTUNEI GIGANTEUM.
1,300 " LONGIFLORUM.
450 " " GIGANTEUM.
120 cases JAPANESE IRIS CLUMPS.
500 IRIS KÆMPFERI and 630 IRIS SIBERICA CLUMPS.
5,000 DAVALLIA BULLATA FERN BALLS.
700 ACER PALMATUM JAPANESE IRIS drawings.
HOLLYHOCK, HIBISCUS, and MORNING GLORY SEEDS.

MESSRS. PROTHEROE & MORRIS will SELL the above by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, E.C. On view morning of Sale and Catalogues had.

Friday Next, February 23rd, at 12.45 o'Clock.

700 lots of Choice Cool, Intermediate, and Hot-house Orchids in variety from various sources. Also Lælio Cattleyas and Cattleya Hybrids. A small importation of Disa Grandiflora.

MESSRS. PROTHEROE & MORRIS will SELL the above by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, E.C. On view morning of Sale and Catalogues had.

ROSE TREES.—Sales every Tuesday, Wednesday, and Friday of Roses, Shrubs, Lilies, Gladioli, &c., at Moorgate Auction Rooms, 23 and 25, Moorfields, E.C. (near Moorgate Street Station). Catalogues post free.

PROPERTY TO LET.

OLD-FASHIONED IVY-CLAD COTTAGE, close Chislehurst; three reception, five bedrooms, stables, three acres grass, garden; suit Nursery or Poultry; rent £50.—LARKE, 4, Tenter Street, Moorfields, London.

BUSINESSES FOR SALE, &c.

£350 will buy compact NURSERY BUSINESS, South coast, including 500 feet of glass frames, pony, governess car, harness, trolley, tools, mats, &c., also capital stock for coming season, including Carnations, Violets, Tomatos, Cucumbers, &c.; rent £50 per annum for two acres; well cultivated land, with charming, old-world cottage, three fine heated glasshouses, potting, packing, storing sheds, small stable and coach-house; or would sell freehold; all new; water laid on.—Write, 1,332, SELL'S ADVERTISING OFFICES, Fleet Street, London.

PENRITH (Main line, London and North-Western Railway).—For Sale, owing to ill-health of proprietor, a genuine NURSERY, MARKET GARDEN, and FLORIST'S BUSINESS, with or without shop in town; established 60 years; grounds of about seven acres; one mile from town; five glasshouses, practically new, modern heating apparatus; quantity of frames; varied and general stock of growing plants, florists' requisites, &c.; shop in central position; total valuation, £1,500; offers invited for quick sale; splendid opportunity for energetic man with moderate capital.—Full particulars from THORNBORROW & CO., St. Andrew's Churchyard, Penrith.

SEED, FLORAL, BULB, SUNDRIES BUSINESS for Sale; stock at valuation; rent £45; Salop; price about £160.—J. J., Box 13, 41, Wellington Street, Covent Garden, W.C.

FOR IMMEDIATE SALE, through death of proprietor, LEASEHOLD MARKET NURSERY, of about 2½ acres; 1,150 feet run of well-heated glasshouses in full working order, stocked with a grand lot of Strawberries in pots ready for forcing and stock Chrysanthemums; one minute from station; 10 miles from Covent Garden.—For full particulars, apply TUBBS, "Avondale," Southwood Road, New Eltham, Kent.

TO NURSERYMEN, etc.—An excellent opportunity occurs to acquire the goodwill of a NURSERY and FLORISTS' Business in large provincial town; rent £20 per annum; freehold £600, including Nursery stock, &c.; vineries, Peach house, Cucumber and Tomato houses all heated; frames, stables, potting shed, coach house, &c.; good retail and local supply trade could be worked up.—All particulars, FRANK WALDRON, Auctioneer, Evesham.

NURSERY for SALE in residential Suburb; 66 years lease at £15 10s. per year; 500 feet run of Houses; 100 feet run of pits; good business; all Plants and Fruit sold at Nursery; established 20 years; room for building more houses if wanted; everything for use; price low.—BUSINESS, Box 14, 41, Wellington Street, Covent Garden, W.C.

FRUITERER'S, FLORIST'S and SEEDMAN'S; doing a big cash trade; close to factory gates; rent £36; price £160.—WILSON'S, 27, Market Place, Reading.

BUSINESSES TO LET.

TO BE LET or SOLD.—Jobbing Garden business; London suburb; eight-roomed house; four greenhouses; every convenience; suit energetic man; good neighbourhood; low price.—"OWNER," Box 3, 41, Wellington Street, Covent Garden, W.C.

BALHAM.—New NURSERY, close to high road; three greenhouses and show house; rent £28.—Apply, CORNWALL NURSERIES, Devonshire Road, Balham.

BUSINESSES WANTED.

WANTED, small NURSERY and FLORISTS' JOBBING BUSINESS; dwelling house; little stock; good suburbs of London, Surrey or Kent.—W., Box 6, 41, Wellington Street, Covent Garden, W.C.

BUSINESS CARDS.

PROTHEROE AND MORRIS, HORTICULTURAL, MARKET GARDEN, and ESTATE AUCTIONEERS and VALUERS, 67 and 68, Cheapside, London, E.C., and at Leytonstone, E. Monthly Horticultural Register had on application.

AGENCY WANTED. — First-class German firm desires representation of well-established English house for Germany for Seeds, Gardening Utensils, &c.; undeniable references and first-class connections.—Apply first instance, ESSINGTON, care of Deacon's, 154, Leadenhall Street.

NOTICES.

Minehead Urban District Council.

TO LANDSCAPE GARDENERS.

THE Minehead Urban District Council invite COMPETITIVE DESIGNS for LAYING OUT the BLENHEIM MEADOWS at MINEHEAD as a PUBLIC PARK and PLEASURE GROUND.

Plan of the site and conditions may be obtained from the undersigned on deposit of five shillings, which sum will be returned on receipt of bona-fide designs in accordance with the conditions.

A Premium of £10 10s. (subject as stated in the conditions) is offered by the Council for the best design, and the design in respect of which such premium may be awarded shall become the property of the Council.

Designs, &c., enclosed in a sealed package, as directed in the conditions, and endorsed "Blenheim Meadows," are to be sent to the undersigned on or before the 26th day of February, 1912.

Dated this 17th day of January, 1912.

By order,
L. C. WEBBER-INCLEDON, Clerk.
16, Park Street, Minehead.

EXHIBITIONS.

NATIONAL SWEET PEA SOCIETY.

GREAT EXHIBITION

at Royal Horticultural Hall, Westminster, July 9th and 10th.

Join now. Minimum Annual Subscription 5/- Schedules on application. "Sweet Pea Annual" free to members, 2s. post free to non-members. "List of Sweet Pea Names" free to new members. Charles H. Curtis, Hon. Sec., Adelaide Road, Brentford, Middlesex.

NATIONAL VEGETABLE SOCIETY.

Schedule of Classes and Prizes offered at the Society's

Great Exhibition of Vegetables

to be held in the

CLARENDON HALL, WATFORD, OCTOBER 2nd NEXT,

are now ready, and can be had on application to E. C. QUICK, Hon. Sec., Kelmscott, Harrow View, Wealdstone, Harrow.

PUBLISHERS' NOTICES.

KYNOCH'S "Wild Flowers of Barmouth," fourth edition, including Salwey's Scarce List, Habitats and Notes, published 1863, pp. 50, price 6d.—J. KYNOCH, 8, College Road, Brighton.

THE HORTICULTURAL DIRECTORY

for 1912. (53rd year).

1/3 post free. Cloth Bound, **2/6.**

AN UP-TO-DATE WORK OF REFERENCE.

A complete Register of the

Principal Nurserymen, Seedsmen, &c.
" Mansions, their Occupiers and Head Gardeners.
" Horticultural Builders, Engineers, Sundriesmen, &c.

Offices: JOURNAL OF HORTICULTURE, 10, Essex Street, Strand, London, W.C.

ALPINE FLOWERS AND ROCK GARDENS. By Walter P. Wright. A practical book containing magnificent colour and half-tone plates of the flowers as they grow. The most beautiful book on the subject yet produced. 12s. 6d. net.
HEADLEY BROTHERS, Bishopsgate, London.

ROSES AND ROSE GARDENS. By Walter P. Wright. A companion volume to above. *The Sphere* says: "Buy the book this winter and you will have a fine rose garden next June and July." 12s. 6d. net. Write for illustrated booklet post free.
HEADLEY BROTHERS, Bishopsgate, London.

AMONG THE HILLS. By Reginald Farrer, being an account of the Author's wanderings in search of Alpine Flowers. Profusely illustrated in colour. "Mr. Farrer has won for himself a unique place among writers on Alpine Plants."—*The Gardener's Chronicle.* 10s. 6d. net. Prospectus post free.
HEADLEY BROTHERS, Bishopsgate, London.

PLANTS, &c., WANTED.

WANTED, large KENTIA PALMS, from 5 feet to 25 feet in height; large, well-coloured Dracænas and Crotons, also Aspidistras; for cash or exchange.—ROBERT GREEN (1911), LTD., 28, Crawford Street, London, W.

BOX EDGING.—Wanted, 1,500 yards of the above; must be first-class stuff.—State height and price to F. J. EDWARDS, Cowdray Gardens, Midhurst.

WANTED, CUTTINGS of Plants of Mrs. Gilbert Drabble and H. E. Converse in exchange for novelties, 1912.—H. J. JONES' NURSERIES, LTD., Ryecroft, Lewisham.

WANTED, quantity of good, clean TURF for Lawns.—Price and sample to C. GODDARD, Thames Bank, Goring-on-Thames.

PLANTS, &c., FOR SALE.

PERPETUAL CARNATIONS.—Our 1912 Illustrated Catalogue free. Read our "Cultural Treatise," 1s.—YOUNG & CO., Carnation Specialists, Hatherley, Cheltenham.

CUTHBERT'S SPECIALITE MUSHROOM SPAWN.—NEW SPAWN NOW READY. We continue to receive the most gratifying testimonials as to the productiveness and good quality of our Spawn. Per bushel, 5s.—R. AND G. CUTHBERT, Seed and Bulb Merchants, Southgate, Middlesex.

PERPETUAL FLOWERING CARNATIONS; strong, established plants in pots, from 4s. per doz., carriage paid; 20s. per 100, carriage forward; illustrated catalogue, describing 75 leading varieties with cultural hints, post free.—C. F. A. VAN DER SLUYS, F.R.H.S., Ramee, Guernsey.

BEGONIAS, choice Liliums, named Achimenes, Cannas, Iris, Montbretias, Arums, Gladioli, Gloxinias, Spiræas, Tritomas, Hippeastrums, Kerr's strain, 15s. doz.; choice named ditto, 5s.; catalogue free.—ELLISON, 45, West Bromwich.

AURATUM LILY, special shipment, large bulbs, 11 inches to 13 inches round, 1s. 3d. each, 6s. for six, 10s. doz., £4 100; Lily Valleys, fine crowns, 2s. 6d. 100, 21s. 1,000; Tuberoses, 1s. 6d., 2s. doz., 10s., 12s. 6d. 100.—ELLISON, 45, West Bromwich.

PEDIGREE VEGETABLE SEEDS, choice flower seeds, English grown Sweet Peas recommended by N.S.P. Soc., all at reasonable prices. I give you the value in seeds, not in elaborate catalogues and large adverts.—ELLISON, 45, West Bromwich.

FERNS! FERNS!!—Tree, Climbing, Basket, Stove, Greenhouse, and Garden Ferns; catalogues free.—SMITH, London Fern Nurseries, Loughboro' Junction, London, S.W.

CUT FLOWERS AND FOLIAGE.—A. W. REDFORD, Wholesale Bulb Grower, Stevenage, offers choice Daffodils, Narcissus, and Tulips in variety daily; boxes free; price lists forwarded on application.

THE
Gardeners' Chronicle

No. 1,312.—SATURDAY, February 17, 1912.

CONTENTS.

Agricultural Bulletin of the Straits and Federated Malay States ...	105
Alpine garden, the—Primula amœna ...	98
Big-buds, spraying for...	106
Books, notices of—The Botanical Magazine	105
Publications received	105
Cleistogamic flowers ...	105
Cyanide fumigation ...	101
Fiji Islands, some plants of the	107
Florists' flowers—Perpetual-flowering Carnations	100
Formosa, expedition to	105
Forrest, Mr. George ...	105
Fruit trees in grass land	106
Games in L.C.C. parks	105
Genetics, Professor Bateson on	104
Habenaria conopsea alba	107
International Exhibition, Continental visitors to the	105
L.C.C. parks employees	104
Leptospermum bullatum	100
New Zealand, notes from	98
Obituary—Lister, Lord	111
Maw, George	111
Molden, Thomas ...	111
Mortensen, M. L. ...	111
Swift, Thomas ...	111
Odontoglossum Memoria Lily Neumann	99
Orphan Fund, Royal Gardeners'	109
Potatos, the present distribution of wart disease of	104
Rhubarb growers, complaint from	105
Rosary, the—Cultural hints for February	99
New Roses of the N.R.S. "Catalogue".	99
Scotland, notes from ...	107
Small holdings, suitable buildings for	105
Societies—Birmingham Hort. ...	110
Bournemouth Hort....	109
Dresden Botanical and Horticultural ...	105
Herefordshire Fruit Growers' and Hort.	108
Herefordshire Fruit, Root, Grain and Chrys.	108
Horticultural Club ...	104
Kent Commercial Fruit Show	110
Manchester and North of England Orchid-	110
Royal Horticultural	104, 107
(Scientific Committee)	108
Royal Scottish Arboricultural	110
Scottish Horticultural	108
Soils, partial sterilisation of	97
Surveyors' Institution, the	104
Sweet Pea streak disease	101
Week's work, the—Flower garden, the...	103
French garden, the...	102
Fruits under glass ...	103
Hardy fruit garden ...	102
Kitchen garden, the...	103
Orchid houses, the ...	102
Plants under glass ...	102
Wilson, Mr. E. H. ...	104
Yucca Whipplei (nitida)	106

ILLUSTRATIONS.

Chrysanthemums rooted in sterilised and unsterilised soils 97
Flowers of Yucca Whipplei (nitida) 106
Leptospermum bullatum in a Devonshire garden ... 100
Odontoglossum Memoria Lily Neumann 99
Tomato plants, showing the effects of growth of, in sterilised and unsterilised soils 96
Yucca Whipplei (nitida) (Supplementary Illustration)

PARTIAL STERILISATION OF GLASS-HOUSE SOILS.

FOR some time past Messrs. Russell and Petherbridge have been investigating at the Rothamsted Experimental Station the important question of partial sterilisation of horticultural soils.

The essential principle of the method of partial sterilization is the subjection of the soil to treatment whereby some, but not all, of its numerous inhabitants are killed. As is well known, the soil is teeming with microscopic organisms, some of which are beneficial and some detrimental to the plant. The authors have found that the harmful organisms are in general more readily killed than the useful ones, and have thus been able roughly to separate the bad from the good, and leave in the soil a more useful population than it normally possesses. Thus, starting with Tomato-sick or Cucumber-sick soils, worn out and infested with eelworm, it was found possible to destroy the micro-organisms that are responsible for the deterioration of the soil, thus leaving a free field for the beneficent plant-food producers which are then able to multiply and make much more plant food than was before possible. Plants grown on these treated soils made healthy, vigorous growth, whilst those on the untreated soils were badly attacked by eelworm, &c., and only gave poor returns.

The method consists in heating the soil by steam to a temperature of 200° Fahr., or in adding to it a poisonous liquid which is given time to evaporate before anything is planted. The liquids used in the experiments were toluol and carbon bisulphide. The three most striking results shown by the plant are (1) a more complete utilisation of the reserves of plant food in the soil so that larger crops are obtained; (2) freedom from the insect and fungus pests that occur in the soil; (3)

A B

FIG. 42.—CHRYSANTHEMUMS ROOTED IN UNTREATED AND TREATED COMPOST.

(A) Untreated compost. (B) Compost treated with toluol.

certain minor changes in the plant due to the rather altered course of nutrition. These effects are not equally valuable to all growers. They may not be worth much to the man who has abundance of virgin soil and manure at his disposal, but they are of great importance to growers less favourably situated.

Very good results were obtained in cases where the plant was left without regular supplies of manure. Thus, Chrysanthemums struck in partially sterilised compost made much better growth, as shown in Fig. 42, than those struck in untreated compost; they had larger leaves, stouter stems, shorter internodes, and generally a sturdier and altogether more promising aspect. The same result followed when a compost thrown out from a Cucumber border was used in a cold house or frame for the growth of other plants without manure; heating to 200° Fahr., or treatment with ½ per cent. of toluol led to increases of, from 20 to 200 per cent. in the crop.

On the other hand, the treatment led to practically no improvement where the plant was grown in virgin soil free from disease organisms, and regularly and sufficiently manured. In these circumstances it appeared that the plant was already making maximum growth on the untreated soil for the prevailing conditions, and therefore that the extra plant food in the partially sterilised soil was without effect. The gross feeding Cucumber, however, benefited by the treatment, and in addition, yielded fruit of higher quality.

Partial sterilisation also produces certain secondary effects on the plant, and these are due to two causes: (a) the plant does not, as is the case when it is grown in untreated soil, obtain its nitrogen in the form of nitrates, but as ammonia, at any rate until the nitrifying organisms have reestablished themselves in the soil; (b) some of the soil decomposition products have a physiological action on the plant, modifying it in certain ways. The first effect to be noticed is a retardation of germination and seedling growth, which manifests itself chiefly in the steamed soil. The precise cause is not yet ascertained, and consequently no remedy can be suggested; the problem is, however, under investigation. The amount of retardation varies with the soil, the seed and the conditions of growth. It was very marked in a turf and a rich Cucumber soil, and was more pronounced the higher the soil had been heated. There were indications, however, that the harmful effects passed off after a time. Often there was no retardation, but an acceleration both of germination and of seedling growth in soil heated only to 130° Fahr. Poor seeds and old seeds appeared to be most affected; Tomatos were specially susceptible, more so perhaps than Cucumbers. Soon after the third and fourth leaves are out, however, the plants make more rapid growth and soon catch up those in the untreated soil.

The root action is sometimes, but not always, retarded in the early stages of growth on soils heated to 200° Fahr. Like the retardation of germination, the effect is erratic. The same grower has obtained a good root development in August, and a very poor one in January, in heated soils. Later on, however, the soil heated to 200° Fahr. stimulates root action in a most remarkable way. Fig. 43(c) shows a root of a Tomato plant grown in the heated soil, B, the corresponding root in the untreated soil, and A the root in the soil heated to 130° Fahr. When applied as a top dressing to pots containing Tomato plants, or to borders where Cucumbers were growing, the heated soil also caused rapid growth of fibrous roots.

Plants grown on steamed soils showed, in comparison with those grown on unheated soils, larger leaves, stouter stems,

a darker green colour, shorter joints, and a more vigorous habit. The actual amount of the shortening of the stem depends on the plant; it is not noticeable on Tomatos, but is very distinct in some of the other cases.

In spite of the extra growth on the steamed soils the plant is not rank or coarse, a result attributed to the nature of the food it was now taking up. It gives a larger quantity of fruit for every 100 parts of leaf and stem, so that the total amount of fruit is considerably in excess of that on the plants on the untreated soils. Further, as fig. 44 shows, the Tomatos grown on heated soil yielded a heavier and better crop than those grown on ordinary soil. *E. J. Russell.*

(To be continued.)

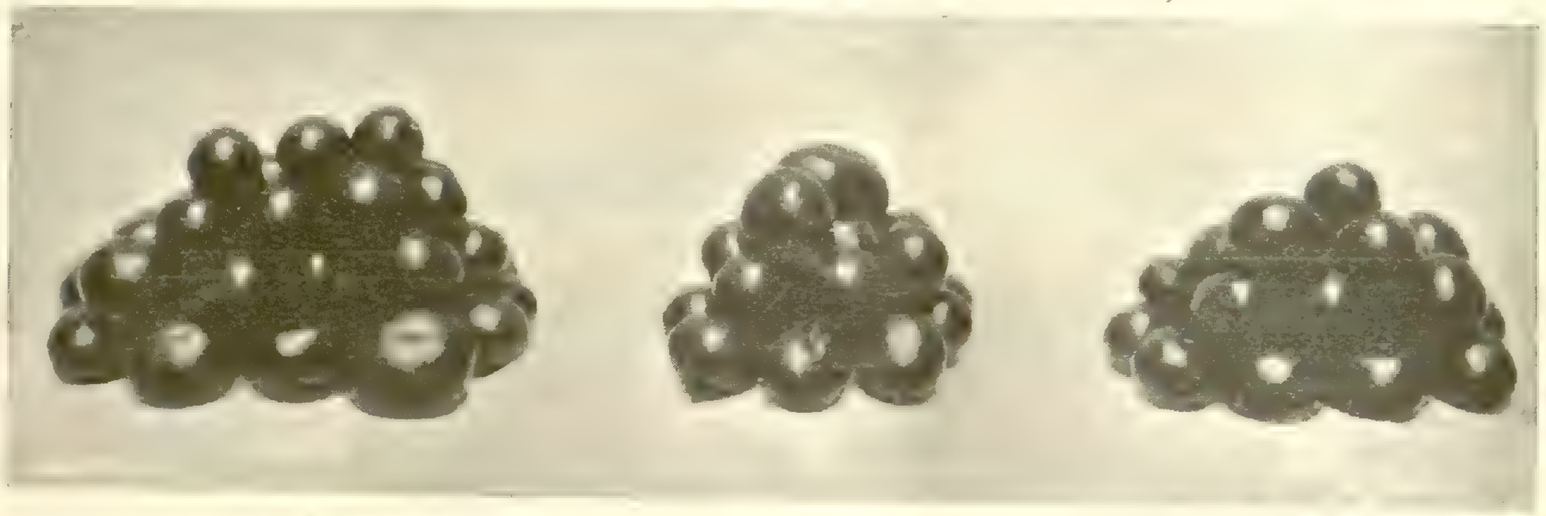
NEW ZEALAND.

I THINK perhaps some readers of the *Gardeners' Chronicle* may find interest in the following extracts from a letter I have received from a friend, who has just been appointed to the Woods and Forest Department in the North Island. He writes, dated November 11, 1911, Auckland, New Zealand:—

"Nothing but gales of wind and rain here, and it has been pretty bad travelling in the northern forests, where I have been. I think it better to keep clear of the bush until the dry weather sets in. I find that the Kauri forests on the west coast have an old buried forest of Kauri underneath them in places; it seems incredible that trees, roughly estimated as 2,000 years old, should have similar buried trees right underneath them. The hearts of the buried trunks are, to all appearances, sound timber still. I expected that the timber would go to pieces after exposure to the air, but the saw-millers say it does not; anyway, they pay thousands of pounds to get the timber out. The sap wood goes to dust at once with the bark, but the centre is being milled. It is rather fun watching the logs being dug out and a wire cable being put on to them. They then start the winding engine, everybody stands clear; something has to go, and as a rule it is the buried log; out it comes. It is then sawn into 15-feet lengths and rafted down the river to the mill.

"I came across the most delightful lake; hardly anyone goes near it. The bottom is white glass sand, i.e., a sand that the best glass can be made of, and the water absolutely clear. In it were trout 12 lbs. to 15 lbs.; the lake is 40 feet deep in places. Up to the present only a stray bushman catches the fish. The trout were put there as fry many years ago by an enterprising man. It is a wild, sparsely-populated district, very pretty. My duties now take me to these wild, out-of-the-way places. It is rather rough work, but, as long as one has a dry camp and one's own food—which one knows is clean—the life is all right. When I get to know all the spots and how to get at them things will be easy. The low-lying hills were yellow with Pomaderris in flower, but, beyond that and white Manuka, there was nothing in the way of flowers to interest me. The undergrowth in the bush is so dense that the traveller can only follow cattle tracks. There were a good many wild pigs, and, if fairly young ones are taken, the meat is excellent when they have been feeding on the Fern. It is prepared in a simple way: get the pig down to a creek with a good clay bank; as a rule they run to a creek where they bail up. After it is killed, light a big fire; get clay and cover the pig with it (or a portion), just like a paste, then put it in front of the fire, and with a tin billy keep wetting the clay, ending by letting the clay bake hard; then tap off the clay, which comes away with the pig's skin. The white meat then is excellent. A Maori showed me the dodge.

"I saw a huge piece of Kauri gum, weighing 243 lbs., dug out by some Australians. I never saw a larger bit. I advised them not to break it up, but to trade it off to some museum, but I believe they hung it on a pole and so got it out of the bush into a town and sold it to a gum buyer, who broke it up. I was asked by a settler to call at his place and see a Waratah (Telopea speciosissima)* in flower. You know the Australian shrub. I had seen many before, but this one was the most showy thing I had seen. It was about 40 feet high, and on every shoot a glorious scarlet flower. Miles before I arrived at the place I saw it. The settler knew Tasmania, and he and others told me this tree was supposed to be one of the finest specimens known. It lasts in flower for weeks. If it had been near a town I am certain they would have run an excursion to see it. It was the glorious scarlet in a mass that appealed to me. My last plant of Olearia semi-dentata† is dead; it cannot stand this sub-tropical climate (Auckland)."
A. T. B., Ludgvan, Cornwall.



A B C

FIG. 44.—TOMATOS FROM PLANTS IN PARTIALLY-STERILISED SOIL.
(A) Soil heated to 200° Fahr. (B) Untreated soil. (C) Soil heated to 180° Fahr.

A B

FIG. 43.—ROOTS OF TOMATO PLANTS GROWN IN PARTIALLY-STERILISED SOIL.
(A) Tomato-sick soil heated to 180° Fahr. (B) Some of the same soil untreated. (C) The same soil heated to 200° Fahr.

THE ALPINE GARDEN.

PRIMULA AMŒNA.

REGARDING the note on this Primula (see p. 33), I may say that it is a plant which I grew a good number of years ago, after having been attracted to it by Mr. Robinson's description, just as Mr. Farrer seems to have been. It was then, as now, rather difficult to obtain, but I secured some plants from a correspondent at Broussa, and I established, as I thought, a few of these. They were afterwards lost in a severe winter 16 or 18 years ago. The plant has long borne a reputation for tenderness, which makes me doubt its being the parent of the double-lilac Primrose, which is the freest and best of the flowers of its class. Primula amœna is a delightful plant, which I would gladly possess again, notwithstanding my doubts of its hardiness. We have made some advance in the cultivation of the Primulas, and it is possible that we did not give the plant the best conditions. I grew it under the shade of trees and in a sheltered position. *S. Arnott, Dumfries.*

* TELOPEA SPECIOSISSIMA (Waratah), a native of New South Wales—is still a rare plant in this country. I have had it out for two winters and it seems to be thriving well; it has not yet, however, had a severe winter to contend against. If it succeeds it will be a beautiful adjunct to Cornish gardens where so many fine shrubs thrive so well.

† OLEARIA SEMI-DENTATA.—Native of Chatham Islands, N.Z., was introduced into British gardens by Capt. A. A. Dorrien-Smith in 1909. There is a good plate of it in the R.H.S. *Journal*, October, 1911. It is early days to say how it will succeed here, but so far it is flourishing well in a moist situation protected from the mid-day sun; in fact, one is led to believe that what it resents is excessive heat rather than excessive cold. I have no doubt that there will be a great demand for this plant when it is put on the market.

ODONTOGLOSSUM MEMORIA LILY NEUMANN.

OUR illustration (fig. 45) represents a flower of this handsome hybrid Odontoglossum, to which an Award of Merit was accorded when its owner, J. Gurney Fowler, Esq., Glebelands, South Woodford (gr. Mr. J. Davis), exhibited a magnificent inflorescence at the Royal Horticultural Society's meeting on February 6 last. As to the derivation of the hybrid there is some doubt. The record on one side is said to be O. amabile, and on the other a fine hybrid raised by Messrs. Sander & Sons and named O. Royal Sovereign, but the record was somewhat in doubt, and therefore perhaps it is better to conclude that the parentage is unknown. As will be seen, it is a very good hybrid, with the flowers of fine shape and segments well displayed. The colour is deep claret-purple with a few lines of the white ground showing through, the tips being white tinged with rose. The lip has a yellow crest and white front lobe with rich claret-coloured markings.

THE ROSARY.

CULTURAL HINTS FOR FEBRUARY.

IT is the practice of many to apply heavy mulchings of manure to Roses in winter, but I do not recommend it. In such a wet season as this the manure becomes a wet mass around the base of the plant, which is the most vital part. It is my experience that the plants are much safer when kept dry. The fertilising properties of the mulch are of little, if any, value to the plants in winter, seeing that the roots are not active.

Instead of these moisture-conserving mulches, I recommend drawing up some of the soil towards the stems to throw off the rains. This is a certain protection against injury by frost to the base of the stems of dwarf Roses, and it is useless to protect the upper wood and leave the base exposed to both frost and wet; for this is the part that is soonest injured.

If, instead of manures, strawy litter is applied, the latter is either blown to some corner, where it is not wanted, or else battered down by snow or rain. Nurserymen, with their many thousands of plants, seldom protect Roses, but they endeavour to keep the plants as dry at the bottom as possible. This season being so wet, we have drained the rows on Rose quarters by making small gullies with a spade or hoe.

Perhaps the best protective materials for Roses are branches of Fir, Beech or Laurel. These can be applied quickly and they possess the great advantage of staying where they are placed. They do not harbour wet, but form a protection from cold winds and frosts. Tender varieties should not be grown as standards, for in this type of plant the most vital part is where scion and stock unite. This part of the plant will naturally be dry, and it may be protected from frost by tying a small tuft of hay, straw or bracken about it. I have seen cases where the tops of the plants were trussed up with straw much after the manner of bottle protectors. Although this undoubtedly protects them, it also has the effect of making the plants tender and it induces a premature growth. Very tender varieties I would protect, but these should not be planted, except in warm, sheltered positions. I would warn cultivators against early pruning. Formerly some of the hardy Damask and Gallica Roses, also a few of the Hybrid Perpetuals, were pruned in the last week of February. I do not agree with this early pruning, especially now that we have a large number of varieties halfway between the old ones and those that are sometimes styled tender.

ROSES UNDER GLASS.

The plants should be encouraged to make all the growth possible, as the flowers will not be so much prized after a few are available from plants on warm walls and sheltered nooks out-of-doors. Roses that are planted just outside a house and the growth trained inside under the glass, often fail if the outside border and wall are left exposed. This is not to be wondered at when the great difference between the temperature of the house and the border is considered. Good mulchings on the border, kept in place by a few boards, so pitched as to throw off superfluous moisture, are a great help, as are also mats, or straw hurdles placed against the wall. The young growths are often close to the roof-glass, and a mat placed over the glass in severe weather is very beneficial. There should not be much humidity in the atmosphere of the house for the present, and any drips from condensed moisture should be prevented, as these are frequently the cause of the leaves and young flower-buds dropping. As growth progresses afford the roots weak liquid manure freely.

Insect pests are sure to appear on the plants sooner or later, and measures should be taken immediately they are detected to destroy them. Two or three slight fumigations in succession are safe; if used at too great a strength, many small buds may fall prematurely. I have found the variety Niphetos very sensitive to injury by fumigations; not so much with respect to its foliage as the flower-buds.

Mildew is the most troublesome disease of Roses, and, in spite of every care in ventilating, seems to put in an appearance after any sudden change of weather. Several specifics are recommended for this disease, but although we have given most a fair trial and found them more or less effective, we still use the following preparation:—Soft soap and extract of quassia, mixed with black sulphur and a little soluble paraffin. This is deadly to almost all insects, as well as to mildew; and it leaves the foliage clean. MoEffie, used from the first and continued according to directions, is one of the best of the many proprietary articles used for mildew. Any check to growth, such as is caused by careless watering, either in extremes or by using too powerful liquid stimulants, has much to do with the outbreak of this disease.

Roses enjoy plenty of light, but sometimes an excess of sunshine with clear glass may cause injury, and some plan should be adopted of shading for an hour or two during the brightest part of sunny days.

The more forward plants of this season's grafting will need another shift, giving them a rather stronger compost than before. See that the ball of soil is neither too wet nor dry before turning the plants out of their pots, and if the junction of scion and stock has not been covered with the soil, take this opportunity of covering it.

Newly-potted Roses should be shaded lightly for a few days unless the weather is dull. *Practice.*

NEW ROSES OF THE N.R.S. "CATALOGUE."

(Continued from p. 68.)

ROSES INTRODUCED IN 1909.

THE new edition of the N.R.S. *Catalogue* for 1912 contains 32 Roses brought out in the year 1909. Of these, there are 10 which were mentioned in the 1910 edition, viz., Beatrice, Dorothy Dennison, Duchess of Wellington, Jessie, Lady Alice Stanley, Climbing Liberty, Margaret, Mrs. Hubert Taylor, Simplicity and White Killarney, and are, therefore, placed in the body of the *Catalogue*, while the remaining 22 now make their appearance here for the first time, and take their place in the list of new varieties. I have already dealt in previous articles with the new Roses of 1911 and 1910, mentioned in this list, and the observations I have there made with regard to our knowledge of these new Roses apply, with some slight modifications, to the Roses I propose now to discuss.

ANDRÉ GAMON, H.T., is a good Rose, likely to be useful, both for garden and exhibition. The flower is rose colour with a slight shade of carmine, but not an objectionable one, and there is often a slight yellow colour at the base of the petals, which helps to light them up, the result being a bright and pleasing flower. If not, perhaps, a great Rose, it is quite likely to become a popular one. It seems also to do well under glass, and was well shown at the Temple Show last May.

BEATRICE, H.T., is a rich pink. The flower is well formed, and I have often expected it to give me exhibition flowers, which it will do occasionally, but it cannot be relied on to do so,

FIG. 45.—ODONTOGLOSSUM MEMORIA LILY NEUMANN.

and I think it should be regarded as a garden Rose, in which case, though it is not a bad Rose, we have many others of its colour equally good.

BETTEL STUDENT, Poly. Pom., is a dwarf, single-flowered, crimson Rose, and may turn out useful for edging or bedding.

CLIMBING LADY ASHTOWN, H.T., is a climbing sport from Lady Ashtown, which is too well known to need description.

CLIMBING LIBERTY, H.T., a climbing sport from Liberty, is but little known to me. Some say it is at its best when grown under glass.

COUNTESS OF SHAFTESBURY, H.T., is light carmine, with a paler edge to the petals. The flower is well formed, and received a Gold Medal in the summer of 1910. I saw it last autumn looking very bright and cheerful.

CYNTHIA, H.T., is a creamy-yellow Rose of the Kaiserin Augusta type.

CYNTHIA FORDE, H.T., is a very attractive Rose for the garden. The colour is bright rose-pink, and the habit of the plant branching, making it a useful Rose for bedding or decoration of the garden; also it will probably become popular for arranging in vases. Though we have so many Roses of this colour, I think this variety is quite distinct and worth a trial by those who have not grown it. It is too thin for exhibition.

DOROTHY DENNISON, Wich., is a pale-coloured sport from Dorothy Perkins. I think it is not quite identical with Lady Godiva, which came out the year before (1908), but is so near it that those who grow one need not trouble about the other. The colour is a soft blush-pink, and is beautiful and attractive.

DUCHESS OF WELLINGTON, H.T.—This is a fine bedding Rose of a striking colour, and is excellent in autumn. The buds are long and pointed, in colour they are orange slightly splashed with carmine, in this stage not unlike the buds of Killarney in shape. The flowers are a deep saffron on the inside and orange on the outside of the petal. The plants are strong and stocky, and not being tall are very suitable for growing in beds, and the Rose is quite free enough in flowering for this purpose. It has, however, one fault in that it does not stand wet weather well; the petals are rather thin in substance, and if the buds get really wet the petals stick together and the flowers fail to open. In spite of this, it is worth growing, and makes a good companion bed to Mme. Ravary. *White Rose.*

(To be continued.)

FLORISTS' FLOWERS.

PERPETUAL-FLOWERING CARNATIONS.

ON dull, sunless days it is much safer to allow the temperature to drop, say, 5° below that which is usually maintained, for although this treatment will retard growth, the plants will be more hardy and respond to the sunshine of the lengthening days instead of being in a soft, weakened condition, which is sure to result from undue forcing in dull weather.

Some varieties withstand the sunless weather better than others, and these include those having serrated petals, which open more easily than those of a round, smooth-edged type. Among these may be enumerated:—*(Pink)* Gloriosa, Mrs. C. W. Ward, Baroness de Brienen, Winsor. *(White)* White House, White Wonder, Marchioness of Linlithgow. *(Red)* Scarlet Glow, Rival (Beacon is also good, except that the petals are inclined to lose their fine scarlet colour and become grey at the back of the petals). *(Fancy)* La Mode and Mrs. T. M. Crook. *(Crimson)* Harlowarden and Triumph. Those of The Enchantress family and even the beautiful May Day, fine varieties as they are, are apt to become "soft," but those sorts which are most affected by sunless days of winter are Mrs. Burnett, O. P. Bassett, Sarah Hill, J. W. Riley, Bay State, Ruby, Rose Dore (fine as it is at other times), Regal Mauve, and the perpetual Souvenir de la Malmaison Marmion. *Laurence J. Cook.*

LEPTOSPERMUM BULLATUM.

THE Leptospermums or Australian Myrtles are known locally as Tea plants. They are a genus of free-flowering, evergreen shrubs, confined to Australia, New Zealand, and Tasmania, and require the protection of a glasshouse in most parts of this country. In Devon and Cornwall and in the Isles of Scilly, however, they are perfectly hardy and form fine shrubs in the open, specimens 20 feet and more in height being not uncommon. Though there are about 25 species, a strong family likeness runs through all the Leptospermums. They usually form dense, twiggy bushes, clothed with tiny leaves, and bear flowers composed of five petals, for the most part white, but sometimes slightly tinged with pink. As a rule, the flowers are about half an inch in diameter, but occasionally they are rather larger. They constitute a tribe distinct from the true Myrtles, which are equally numerous in South America. With the exception of the Gum trees and two or three small genera, the family consists of small-leaved, evergreen shrubs and trees. Many of them have gorgeously-coloured flowers, and most of them, like the subject of this note, flower very profusely. Among those bearing brilliantly-coloured flowers are the genera Callistemon, Calothamnus, Metrosideros, and Beaufortia. Though not so showy as some of their allies, the Leptospermums are very pretty dwarf shrubs, which in the spring of the year are so covered with blossom as to appear as sheets of white. L. bullatum (see fig. 46) blooms with great freedom even when the plants are small. It forms a close, compact bush, which is smothered in spring with small, white blossoms, and not only do the individual blooms remain a good while at their best, but later buds keep up a succession of flowers for some time. The Leptospermums are so nearly hardy that in the neighbourhood of London they will often survive many winters if trained to a wall and protected by a mat during periods of severe frosts. When it is desired to have very small plants in flower, the best way is to propagate them by cuttings of the current season's shoots, taken just as they become slightly woody, for, if too succulent, they are apt to damp off. All that is needed is to take off the shoots at a length of about 3 inches, remove the bottom leaves for an inch, and dibble the cuttings into pots filled with sandy soil, and give a good watering. They should be kept close till rooted in a temperature slightly warmer than that in which they have been growing.

FIG. 46.—LEPTOSPERMUM BULLATUM IN A DEVONSHIRE GARDEN.

Among the best known species, beside L. bullatum, are L. scoparium, L. lanigerum, and L. flavescens. All of these are generally grown in the open in Devon and Cornwall and the South of Ireland. L. scoparium shows, in its native country, considerable variation. A plant was discovered in the South Island of New Zealand, bearing flowers of a bright rose colour. This was named L. Chapmannii, and it has been found that it produces itself fairly true from seed. Later, a remarkable individual plant was discovered growing in the sand-hills a little north of Christchurch, rather over 200 miles distant from where L. Chapmannii had been found, and this bore blood-red flowers. This plant is now known as L. scoparium var. Nichollii. Its foliage is much darker than that of the type, being of a Copper Beech colour. It is easily propagated by cuttings, and will doubtless soon be in commerce. *Wyndham Fitzherbert.*

SWEET PEA STREAK DISEASE.

THE current issue of the *Kew Bulletin** contains an illustrated article by Mr. George Massie on "A Disease of Sweet Peas, Asters and Other Plants." The article, from which the following is an extract, attributes streak disease of Sweet Peas to the fungus Thielavia basicolor.

SYMPTOMS OF THE DISEASE IN SWEET PEAS.

"In those instances where the land is badly infected, the majority of the Peas do not appear above ground at all. This occurs when both the plumule and radicle are attacked. In such cases if a number of the Peas are dug up and placed with sterilised manure in a Petri dish, the contents kept moist and at a temperature of about 65° F., the white Milowia condition of the fungus will appear on the surface of the manure within a few days. In the majority of cases the root only is attacked, at least at first, and the plant often attains a considerable growth before any sign of injury appears, but suddenly the plant may begin to wilt, turn yellow, and die, or in some instances only one branch dies, the rest of the plant remaining green for some time, but rarely producing perfect fruit. Another very common symptom of the disease is known to growers of Sweet Peas under the name of "streak" or "stripe," characterised by the presence of dingy yellow streaks or stripes on the leaves and stem. This condition is the result of what may be termed a mild attack, the fungus not being present in the tissues of the root and collar in sufficient quantity to kill the plant outright, yet sufficiently abundant to prevent the root from performing its function to the fullest extent, hence the stem and leaves lack water and are hungered. The green portions of a plant showing "streak" correspond to the position occupied by the vascular bundles or water-conveying vessels where the limited supply of water obtained by the root makes itself evident, whereas the yellow portions between the veins are dead, owing to lack of water. If the root of a Pea plant that has been attacked by the fungus is examined, it will be seen to present a blackened or charred appearance, and very frequently to be more or less decayed on one side, suggesting the idea that it had been gnawed by wireworm. In some cases small black patches of the Torula form of fruit are present on the surface.

SYMPTOMS OF THE DISEASE IN ASTERS.

"So far as my experience goes, Asters are always killed outright during the seedling stage. When the plants are about 3 inches high, they commence to wilt, and soon fall over, as in the disease known as "damping off." The roots of diseased plants are shrivellled and blackened, and all the rootlets are dead. The fungus appears to spread very rapidly in the soil, as whole batches of seedlings collapse simultaneously.

SYMPTOMS OF THE DISEASE IN ORCHIDS.

"I have only observed the disease on cultivated species of Cypripedium, of which abundant material was sent to Kew, and it was stated to be present on most of the plants occupying a large house. The roots are attacked first, then the bases of the leaves, which gradually become brown, and finally assume the condition of a soft rot, when the whole plant falls over. The snow-white Milowia fruit was produced in abundance when the decayed portions were placed under favourable conditions for its growth. It was in all probability the spores of this condition of the fungus that spread the disease from one plant to another in the house, the minute sports being dispersed by wind, syringing, &c.

PREVENTIVE METHODS.

"It is practically impossible to cure a plant that is once infected, as the mycelium is located in the living tissues of the root, and no substance is known that will check or kill such mycelium, without at the same time killing or materially injuring the host-plant. Hence the only means of checking the onslaught of the fungus is by the adoption of preventive measures. The great majority of the disease is obviously due to infected land. No evidence of the presence of spores on Peas or other seeds is forthcoming, and would not be expected to occur, when it is remembered that the fungus, as a parasite, confines itself to the root and collar of the stem. Infection of the soil may be brought about by various means. When a diseased crop is grown, the roots in most instances become thoroughly decayed, and too friable to remove even if an attempt was made to do so. It is on such decayed roots that the Torula or resting-spore stage of the fungus grows, consequently the soil becomes infected, and even if a crop of some kind is afterwards grown that the fungus cannot attack, it finds host-plants in the various kinds of weeds growing along with the crop. In addition, when it is remembered that the fungus can pass through its complete course of development as a pure saprophyte, feeding on the humus present in the soil, it will be readily understood that when land is once infected, the fungus is quite capable of holding its ground, and of quickly extending its area of devastation, unless prompt measures are taken. The infection of a new area is, in the majority of instances, due to the use of manure, on which material the fungus flourishes and reproduces itself at a rapid rate.

"Commercial formalin (= 40 per cent. formaldehyde), has proved to be the most effective fungicide for sterilising infected soil. In the United States, where Thielavia proves very destructive in causing a root-rot of Tobacco seedlings, the soil of the seed-beds is thoroughly soaked with a solution of formalin in water, in the proportion of one pint of formalin to twelve gallons of water. One gallon of the mixture should be allowed for each square foot of surface. After the watering is completed, the soil should be covered for two or three days with coarse sacking or canvas, to keep in the fumes. The watering should be done after all digging has been done and when the seed-beds are in a condition ready for sowing, and a week or ten days should intervene between the soaking of the soil and the sowing of seed, to allow for the complete escape of the formaline fumes and the drying of the soil.

"When green manure is dug into land intended for seed-beds, it should previously be thoroughly watered with formalin as above.

"Professor Benincasa has quite recently conducted a series of experiments, as to the best means of checking root-rot of Tobacco in seed-beds. Having proved that infected soil is the usual source of injury, and that heating such soil to a temperature of 90° C. does not completely eradicate the disease, comparative tests were made by using ordinary garden soil, pure sand, and volcanic ash or pumice for seed-beds. The plants grown in garden soil were badly infected, seed-beds of sand proved very efficient in controlling the disease, volcanic ash gave the best results of all, both in arresting the disease and in the rapid and vigorous growth of the seedlings. This result is partly due to the absence of humus, which favours the continuous growth of the fungus in soil containing organic matter, and also to the physical conditions of such soil.

"The author suggests the use of coal ashes, volcanic scoria, or naturally or artificially-powdered volcanic rocks, as suitable for the formation of seed-beds."

* *Kew Bulletin* of Miscellaneous Information, No. 1, 1912.

CYANIDE FUMIGATION.

FUMIGATION with hydrocyanic acid, though largely practised in America, does not seem to appeal much to gardeners on this side of the Atlantic. The reasons are not far to seek, for the fumigants commonly used are very efficacious, and cyaniding has some disadvantages: in fact, its chief recommendation is its extreme cheapness. Until recently the amounts given for ordinary greenhouse fumigation were far in excess of what is necessary, and two extremely important factors, the time of day and the duration, were apt to be ignored. A fumigation which will, if done in the daytime, blacken and scorch half the plants in a house, will, if done at night, have no ill-effects on them. Whether this be due to the closing of the stomata at night or to some deeper cause is not known. A strong dose of, say, one ounce of sodium cyanide to every thousand cubic feet, will kill aphis in 20 minutes; there is, therefore, no point in prolonging the operation. Experiments at the John Innes Horticultural Institution showed that a fumigation of ½ ounce of sodium cyanide to every thousand cubic feet for half an hour is quite sufficient to kill all green fly, and even such delicate vegetation as the young fronds of Maidenhair Ferns was unharmed when the fumigations were done at night. Its cost is about one-third that of an ordinary fumigation per unit volume. A quarter of an ounce per thousand cubic feet in 30 minutes killed 75 per cent. of the "fly," and in an hour killed all but one or two. There is little doubt, therefore, that in an hour and a half all would have been killed.

On the other hand, five ounces for three hours failed to kill red spider, and injured the plants. One ounce for half an hour is said to kill "mealy bug." The method of procedure is very simple. A weight of strong sulphuric rather in excess of the weight of sodium cyanide to be used is poured into an earthenware receptacle containing about twice this weight of water, and when all is ready, the cyanide, roughly powdered, is poured in and the door locked.

There is no point in prolonging the fumigation beyond the time necessary to kill insects, as it is only detrimental to the plants: in practice this time is half an hour with half an ounce to the thousand cubic feet, and longer as the charge decreases.

It should be noted that if potassium cyanide is used, nearly double the amount is required, and also more acid in proportion. It is also more expensive.

A great deal has been said about the danger attending the use of cyanide as a fumigant. As a matter of fact, with reasonable care, there is no danger, but a fumigation of this sort should not be done *alone*. If care is taken not to inhale the gas, it will do no harm. Plants vary considerably in their susceptibility to damage by cyanide; some, like Primula sinensis, are very resistant, while Roses and Gerberas are extremely susceptible. It can only be found by experiment which can safely be fumigated; it was found, for instance, that Diplacus glutinosus is very susceptible, even to small amounts, its rather glutinous young leaves being scorched in the same way as are wet leaves. Needless to say, the drier the house before fumigation the better, as the gas is extremely soluble in water. *W. O. Backhouse.*

The Week's Work.

THE HARDY FRUIT GARDEN.

By F. JORDAN, Gardener to Lady NUNBURNHOLME, Warter Priory, Yorkshire.

MORELLO CHERRIES.—If the pruning and training of Morello Cherry trees have not yet been done, the work should be completed at the first opportunity. The pruning is a simple operation as the trees bear the greater number of their fruits on shoots of the previous season. The growths should be thinned in the same manner as is practised with Peaches, cutting out any old, useless wood, and training the growths at about 4 inches apart. This Cherry will grow in almost any position, and may be trained in any form. It is especially valuable for growing on north walls where few other fruits are profitable. The Morello Cherry is a prolific cropper; bush trees planted in the open fruit with great freedom, even in northern districts. It grows well in ordinary soils, provided they are well drained. A difficulty is experienced in the case of trees grown as bushes in the open in protecting the fruits from attacks of birds. A row of trees should be planted, and a simple framework fixed over them provided with two side rails and a central ridge in span form. A net may then be placed over the framework with little trouble.

MISCELLANEOUS WORK. — During frosty weather, such as we have experienced recently, work of a preliminary or preparatory character should be undertaken to save time when the busy season arrives. Manure should be carted to where it is required, and mulchings applied to newly planted trees. Manure should be wheeled to established trees which show signs of weakness whilst the ground is hard with frost. An opportunity will also be afforded for placing fresh labels to any of the trees that require it, and a list of names should be prepared accordingly.

PLANTS UNDER GLASS.

By THOMAS STEVENSON, Gardener to E. MOCATTA, Esq., Woburn Place, Addlestone, Surrey.

POTTING MATERIALS.—During February and March many of the occupants of the plant-houses will require to be repotted, and the stock of bedding plants will have to be overhauled. A quantity of loam, peat, leaf-mould, sand and other potting materials should be placed under cover, and if possible, where they will be kept partially dry and warm. It is detrimental to the well-being of plants to pot them in soil which is a trifle too moist. If means exist for sterilising the soil, this should be done, as Carnations and many other plants succeed better in soil which has been treated in this manner. Where the presence of eelworm is suspected, it is essential that the soil should be thoroughly sterilised.

PROPAGATION.—The middle of February is probably the best time for propagating many kinds of indoor and bedding plants from cuttings, and a start should be made at once. Stove plants, if required, should be propagated first. Cuttings of such plants as Codiæum (Croton), Dracæna, Panax, Acalypha, Pandanus, Phyllanthus, and Strobilanthes may be inserted singly in thumb-pots filled with a compost comprised of peat, leaf-mould, loam and sand in about equal proportions. They will soon develop roots if afforded warmth in a propagating frame, and should retain all their foliage. Smaller plants such as Panicum, Selaginella, Fittonia, Tradescantia, Ficus repens and Pilea muscosa should be rooted several together in the same pots they will occupy all the season. Propagated in this way, they will be available for use in a comparatively short time. Greenhouse plants such as Fuchsia, Coleus, Streptosolen, Heliotrope, Abutilon, Begonia metallica and B. Haageana may, with advantage, be propagated now, and if the plants are kept growing freely after they are rooted they will make good specimens by July. "Leggy" plants of Crotons and Dracænas that have healthy heads may be made into good specimens by ringing or tonguing. Roots will develop quickly at this time of the year, and, when well rooted, the plants should be gradually severed from the old stems, for if they are taken off suddenly a considerable loss of foliage may result after potting. I do not recommend this method of propagation except in the case of fairly large specimens, as smaller plants grow more shapely when rooted from cuttings.

SEED SOWING.—Many plants grown under glass are raised from seed, and there is no better time for seed-sowing than the present. Seeds of most kinds germinate freely, and the seedlings will grow quickly with the lengthening days. Seeds of Begonia, Gloxinia, Streptocarpus, Gesnera, Torenia and Exacum all require very careful treatment. Use shallow pans well furnished with crocks for drainage, and filled with a very fine, light compost, pressing the soil only moderately firmly. Give the soil a thorough soaking with water before sowing the seeds, which may be done after the surplus moisture has drained away. Distribute the seeds as evenly as possible, and then sprinkle sand over them very slightly, more for the purpose of keeping the seeds in position than to cover them. Cover the pans with a sheet of glass, and no further waterings should be required until the seedlings are well through the ground. If there is not room in the propagating case for the seed pans, they may be stood in a warm corner of the stove or forcing house, but they must be watched carefully and placed near to the roof-glass as soon as germination has taken place. Seeds of many other greenhouse plants that do not require so much heat or quite such fine soil as those mentioned may also be sown now, including species of Acacia, Asparagus, Clerodendron fallax, Eulalia, Grevillea, Amaryllis and Medeola.

THE ORCHID HOUSES.

By J. COLLIER, Gardener to Sir JEREMIAH COLMAN, Bart., Gatton Park, Surrey.

CATTLEYA AND LÆLIA.—During the winter months Cattleyas and Lælias are very subject to attacks of scale insects, which should be removed by sponging the leaves and rhizomes with an insecticide, taking care to dislodge the pests from and around the "eye" at the base of the pseudo-bulbs. The creatures secrete themselves underneath the outer skin of the plants, which should be opened carefully and the insects removed by the aid of a small brush. If scale insects are allowed to remain unchecked they will infest the young growths as they develop, causing the plants to become yellow and unhealthy. Plants that are beginning to push new roots from the base of the pseudo-bulbs of last year may, if they need it, be re potted. The work should be done when the roots first make their appearance as the roots break easily when they are long. Although the present is not the usual time for potting Cattleyas and Lælias, it is better done now than when the roots have attached themselves to the sides of the pots. Pot firmly in a compost composed of equal parts A1 fibre and Osmunda fibre, cut up rather roughly with a small quantity of Sphagnum-moss. After potting, the plants should be kept on the dry side until the new roots have grown freely in the compost. Seedlings of these plants should be kept growing without a check until they have reached the flowering stage. If possible they should be afforded a warmer temperature than the parent plants. Greater success is obtained when a house is devoted entirely to the raising and growing of seedlings. A temperature of from 60° to 75° and a moist atmosphere are suitable conditions. Shift the plants into larger pots as they require increased room, and never allow them to become pot-bound. Use a compost composed of A1 fibre, Osmunda fibre, and Sphagnum-moss in equal proportions. Cut up the materials rather short, and add some crushed crocks to keep the mixture porous. Fumigate the house at intervals to keep down thrips.

AËRIDES AND SACCOLABIUM. — Plants of Aërides odoratum, A. Lobbii, A. virens, A. Fieldingiana, A. Lawrenceana, A. Sanderiana, also such Saccolabiums as S. violacea, S. retusa, and S. guttatum will be showing signs of fresh root action, and any that need re-potting should receive attention. Aërides are best grown in pots, whilst Saccolabiums give the best results potted in teak-wood baskets and suspended from the roof-rafters. A quantity of crocks should be placed in the bottom of the receptacles to provide drainage. Employ clean Sphagnum-moss as a rooting medium, mixing portions of broken pots among it to allow the water to pass through freely. Fill the receptacles to their rims, and raise the materials higher in the middle of the pot or basket. Finish with a layer of living moss over the surface. Plants that do not need repotting should have the old materials removed from their roots and new compost substituted. Clean the plants thoroughly from scale insects which infest the stems and axils of the leaves. Water the roots copiously, and place the plants in the warmest house afterwards, keeping the moss moist by lightly spraying it with clear water until growth is again active, when water may be freely applied. Aërides, such species as A. Lindleyanum, A. crassifolium, A. crispum, and A. Warneri are best grown in an airy position in an intermediate temperature.

THE FRENCH GARDEN.

By PAUL AQUATIAS.

HOT-BEDS.—The cold weather and bright sunshine has proved very favourable to the recently-planted Lettuces. It has been necessary to cover the frames with mats until 9 a.m. or 10 a.m., but as the hot-beds were very warm, no ill-effects followed. The preparing of the beds for setting the cloches should be commenced as soon as possible. Lettuce Little Gott and the first batch of Cos Lettuces may be planted under cloches within three or four days after the beds are made. As a rule we place only two Cabbage Lettuces on the south side as the third one, when planted on the north side, does not thrive so well and forms its heart with difficulty. The Cos Lettuce is set firmly and deeply in the centre of the cloche. Sometimes one Cauliflower is also planted next to the Cos Lettuce at the same time, but this method is not satisfactory.

CROPS IN UNHEATED FRAMES. — Crops planted early last month are well forward. The Radishes are through the ground, and the Lettuces are forming a new crown of leaves. Cauliflowers will be planted, five plants per light, of the varieties Duan Court, All the Year Round, and similar large kinds. If dwarf varieties are selected such as Salomon, Snowball, or Early London, eight of these may be grown in each light, provided a liberal dressing of black soil has been used when filling the frames. Lettuces will now develop rapidly, as the Cauliflowers will in no way impede their growth. All the glass implements intended either for placing in hot-beds or unheated beds should be fully utilised by the end of this month. Should the weather not be propitious to the immediate planting of the first batch of Lettuces in the open ground, the glass may be safely removed from them and used for the growing of the spring crops.

NURSERY BEDS.—In many gardens seeds of the first batch of Melons are inserted in boxes placed on a hot-bed 2 feet 6 inches in thickness, specially made for the purpose, or, better still, in a greenhouse when the latter is available. It is, however, generally better to wait until the end of the month in order to obtain a healthier and quicker growth, economise the cost, and minimise the risk of success. A bed from 14 inches to 16 inches deep, to accommodate one light, should be prepared for the sowing of Green and White Bush vegetable Marrows. The seeds are sown in a box filled with good loam, or singly in 4-inch pots.

TOMATOS.—A sowing of Tomatos should be made now in a shallow box, to provide plants for growing in frames during the summer. The seeds need not be watered, as the manure will provide sufficient moisture.

MILDEW.—As recent investigators in France have recommended the use of sulphate of copper for destroying mildew on plants, we decided to apply this substance in the nursery quarters before top dressing the beds with a coat of black soil, as it is usually done. We therefore sowed broadcast Strawson's sulphate of copper at the rate of half-pound for each full-sized bed, 4 feet 6 inches wide by 65 feet long. Three parts of the beds were top-dressed with black soil, while finely-screened loam was used for the other quarter, as the quantity of black soil was limited. The growth of the seedling Lettuces pricked out in the black soil was well up to the average, while the vegetation in the other beds was not so satisfactory; but, to our satisfaction, the plants

were all exceedingly clean and healthy. The cloches were ventilated from November 1; they were never covered with mats, except on two occasions in January. About November 20 Lettuce Little Gott in a cloche was attacked with mildew; some dry sulphate of copper was applied on the plants and outside the cloche. The disease never appeared again in the vicinity. On December 28 mildew was present in four cloches containing Cos Lettuces, and was treated in the same manner, with the same result. Out of 75,000 Lettuce plants we have grown this season, we only lost those in five cloches, or exactly 90 plants, in one of the most favourable seasons for the growth of this fungus. As the mildew very rarely appears after the middle of January, we may safely assume that the Lettuces will remain clean as their growth advances. The disease was very prevalent here last season, and we had to spray the Lettuces planted on hotbeds in February with a solution of sulphate of copper 36 ounces, and salt of ammonia 40 ounces, diluted in 25 gallons of water. The application caused the growth of the Lettuces to be retarded some 15 to 20 days, to the detriment of the crop growing conjointly with them.

THE FLOWER GARDEN.

By J. G. WESTON, Gardener to Lady NORTHCOTE, Eastwell Park, Kent.

BEDDING PELARGONIUMS. — Pelargoniums that are still in the boxes or pans in which they were rooted should be potted at once. The compost should consist of light loam mixed with leaf-mould and plenty of sharp sand. The size of the pots should be in accordance with the constitution of the several varieties; strong growers such as Paul Crampel and Henry Jacoby should be afforded fairly large pots, whilst small-growing sorts as well as the finer-leaved, scented Pelargoniums may be grown in 3½-inch or 4-inch pots. After they are potted, the plants should be started into growth by placing them in a moderate warmth: a house having a minimum temperature of 55° to 60° is suitable. As soon as they become established in their new pots and are growing freely, transfer them to cooler quarters, gradually hardening them preparatory to standing them in the open in May.

THE PROPAGATING PIT.—All kinds of soft-wooded bedding plants may now be propagated. Most of the subjects root readily, especially if bottom heat is provided. Heliotrope, Ageratum, Coleus, Iresine and Lobelia compacta are usually required in considerable quantities. A few plants of Aloysia citriodora (Lemon-scented Verbena) should be pruned and placed in a warm house for furnishing cuttings. The plants will soon produce plenty of suitable shoots, and these will root better now than later.

SEED SOWING. — The stock of flower seeds should be examined at frequent intervals, so that no subject is overlooked for sowing at its proper time. Seeds of Begonia, Ageratum, Nicotiana, Lobelia, Pansy, Pyrethrum (Golden Feather), and Petunia should all be sown now; also Ricinus, Wigandia, Melianthus major, and plants of similar nature used for sub-tropical bedding.

SALVIA.—Varieties of Salvia splendens may be propagated either from seeds or cuttings. Scarlet Queen and Zurich are both excellent varieties for planting out-of-doors in summer time. Well-grown plants arranged in a mass make a blaze of scarlet colour during the summer and until frost arrives. Strong, healthy plants, that are grown without a check, provide a display of flowers soon after they are planted. Let the beds be well prepared and the soil liberally manured. Do not plant too early in the season; it is better to leave tender subjects such as these till the beginning of June, when the ground is warm, but this must be largely determined by the season and locality. The purple Salvia Horminum (Bluebeard) is a hardier subject, and should be sown with, and treated in the same manner as, East Lothian Stocks. This Salvia may be planted in April and May, after the plants are suitably hardened.

SALVIA PATENS.—The flowers of Salvia patens are of a delightful blue colour; indeed, they are amongst the finest of all blue-flowered subjects used for summer bedding. The roots or tubers are usually lifted and stored during the winter, as is practised with Dahlias. If an increase of stock is desired, a number of tubers should be potted and placed in a warm house. Young shoots will soon appear, and these make the best cuttings, rooting quickly in a propagating pit. At Eastwell Park we have associated Salvia patens with Galtonia candicans, the latter planted thinly through the Salvias and finished off with a white edging. The bed was a great success. In milder parts of the country the roots may be allowed to remain in the ground during winter, where they increase in strength yearly.

DAHLIAS.—Tubers of the choicer varieties of Dahlias should be placed in a warm house or pit to provide a supply of cuttings. The shoots should be taken off as soon as they are large enough for the purpose and inserted singly in thumb pots. Discard long-jointed, sappy growths, choosing firm, stocky shoots.

FRUITS UNDER GLASS.

By E. HARRISS, Fruit Foreman, The Royal Gardens, Windsor.

CHERRIES.—When the trees are in flower great care should be taken not to allow the temperature to rise or fall too quickly during changeable weather. Neither should the hot-water pipes be overheated at any time. Keep the atmosphere dry, and allow a constant circulation of air to pass through the house, but on no account must there be cold draughts. Pollinate the flowers at mid-day by gently touching them with a rabbit's tail; also give the trees a sharp tap to disperse the pollen. Trees in pots should be watered carefully, especially until it can be seen that the fruits are well set. Even at that stage they will require very careful attention, especially in regard to the regulating of the temperatures. To attempt to unduly force the plants is sure to result in failure. The Cherry is very subject to black aphis, which may be kept in check by fumigations. Guard against injury to the foliage by a small grub which will be found rolled up in the leaves.

PLANTING ONE-YEAR-OLD VINES.—Although it is too early to plant vines, the old soil of the border should be removed and, whilst the house is empty, the grass, woodwork and trellis should be thoroughly cleansed with strong soapy water. This also affords a good opportunity to paint the woodwork and trellis, should this be necessary. The new border may be made as soon as the soil is in a good condition. If the compost is prepared and placed in position two or three weeks before the time of planting it will become warmed to the temperature of the vinery and settled. The depth of the border must be according to the needs of the varieties which are to be planted. Late vines should not be planted in shallow borders; 3 feet will not be too much depth, provided there is ample drainage. It must be remembered that shallow borders require to be frequently watered, and this would be injurious to Grapes that are required to hang for a considerable period after they are ripe, whilst it would be equally injurious to allow the roots to become too dry. For early and mid-season varieties a depth of 2 feet 6 inches will be ample. In most cases it is advisable to cover the bottom of the border with a layer of concrete, so that the roots may be kept under control. For the first two years a border 4 feet wide will afford ample rooting space, and this should be confined to the inside of the house. The drainage materials may consist chiefly of old bricks. Make the first layer of whole bricks, placed on their edges; place another layer of smaller pieces on the flat, and finish with a layer of broken materials, making about 9 inches in all. An effort should be made to procure a soil which is rich enough to meet the requirements of the young vines without adding artificial manures. Concentrated manures may be used more effectively when the vines reach the fruiting stage. The top spit of soil from an old pasture is the best rooting medium for the vine. To this should be added a sufficient quantity of old mortar rubble and wood ashes to keep the compost open. A quantity of coarsely-crushed bones should also be added. In making the border, see that the soil is rammed quite firm, and, except for the top layer, the turves may be used whole. The vines should be kept in a cool house until the buds are just beginning to break. They should then be knocked out of their pots and the roots carefully teased out with a pointed stick. To facilitate the disentanglement of the roots the ball should be immersed occasionally in a pail of luke-warm water. Spread the roots out to their full length near to the surface of the border, and afford water, when planted, with a can provided with a rose. The vinery should be kept close and moist and the vines frequently syringed till growth becomes active. Fire heat should be used as sparingly as possible till the vines are making good progress. The rods of some of the strongest varieties, such as Lady Hutt, Appley Towers, and Black Alicante, should be planted a distance of 4 feet apart; varieties which are less robust may be allowed 3 feet 6 inches. Vines give the best results when planted 7 feet or 8 feet apart, training two rods from each plant.

THE KITCHEN GARDEN.

By EDWIN BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

CUCUMBERS.—The winter has been exceptionally sunless, and Cucumbers have experienced anything but a favourable time. With the lengthening days we may reasonably expect a larger amount of sunshine, which will prove conducive to a better growth. Healthy plants will now strengthen quickly and produce fruit much more readily. Apply a good surface dressing of a fairly light material previously warmed to the temperature of the house. Remove useless shoots and regulate the remaining ones evenly over the trellis. Avoid over-cropping, and cut all fruits immediately they are of a sufficient size for use. A brisk temperature should be maintained night and day, and the atmosphere of the house kept humid by damping the bare spaces frequently. During the early afternoon damp the paths with strong manure water, which will be found highly beneficial to the young shoots, giving a great stimulus to their growth; it will also act as a preventive of red spider. Young plants that were raised at the beginning of last month should now be in a suitable condition for planting in well-prepared beds. The materials should consist principally of Oak or Beech leaves with a little long stable litter added. The leaves and manure are best placed together in an open shed where they may be mixed thoroughly and turned at frequent intervals before use. A fairly light compost should be prepared. It may consist of light, fibrous loam and well-decayed leaf-mould, with sufficient road grit or old mortar rubbish added to render it porous. The soil should be placed on the fermenting materials at least one day previous to planting, so that it may become warmed. Support the plants with neat stakes until the shoots reach the trellis. A further sowing should be made, putting the seeds singly in small pots. Raise the plants in a brisk heat, and immediately they appear elevate the pots near to the roof-glass.

VEGETABLE MARROW.—Few vegetables are more highly appreciated than the Vegetable Marrow, and few lend themselves more readily to forcing. A small sowing should be made as advised for Cucumbers. The seedlings should be potted in 6-inch pots before they have made their second leaf. After the plants have become well established, they may be planted out in well-prepared, mild, hot-beds in portable frames. If proper attention is given to the plants they will yield good crops of fruit during April and May, and, when it is safe to do so, the lights and frames may be removed, and the plants will continue to yield an abundance of fruits till late in the autumn. Where space is available Marrows may be planted out or grown in large pots and trained up any spare trellis in cool houses. Excellent varieties for the purpose are Moore's Cream, The Sutton, and Perfection.

PEAS. — Plants raised from early sowings and intended to produce crops under glass should now be making good progress. Strictly avoid undue forcing, but endeavour to promote a steady, robust, natural growth. Provide supports as the plants require them. Further sowings of early wrinkled varieties should be made in boxes for transplanting the seedlings in the open at a later period.

MINT, TARRAGON, AND CHERVIL. — Green Mint is generally in demand during the spring. A supply of leaves may easily be obtained by lifting the roots and placing them in well-drained shallow boxes in an early vinery or Peach house. Tarragon may be treated in the same manner as advised for Mint. Make a sowing of Chervil in shallow boxes, and immediately the plants are large enough to handle, prick them out into other boxes. Chervil should be grown in a temperature of about 50°.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Local News.—*Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, FEBRUARY 19—
Nat. Chrys. Soc. Executive Com. meet.

TUESDAY, FEBRUARY 20—
Roy. Hort. Soc. Coms. meet. (Lecture at 3 p.m. by Mr. W. Cuthbertson on "New Sweet Peas.") Horticultural Club Ann. Meet. 5.15 p.m., and Dinner 6 p.m. N. of England Hort. Soc. meet. at Leeds. (Lecture by Mr. Pulham, Junr., on "The R.H.S. Rock Garden.")

WEDNESDAY, FEBRUARY 21—
Roy. Meteorological Soc. meet.

THURSDAY, FEBRUARY 22—
Manchester & N. of England Orchid Soc. and N. of England Hort. Society's joint show at Manchester.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—39·6°.

ACTUAL TEMPERATURES:—
LONDON.—*Wednesday, February 14* (6 P.M.): Max. 46°; Min. 42°.
Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—*Thursday, February 15* (10 A.M.): Bar. 29·4°; Temp. 46°; *Weather*—Dull.
PROVINCES.—*Wednesday, February 14:* Max 49° Ireland, S.W.; Min. 39° Yorkshire.

SALES FOR THE ENSUING WEEK.

MONDAY AND WEDNESDAY—
Rose Trees, Fruit Trees, Perennials, &c., at 12.30, at Stevens's Auction Rooms, 38, King Street, Covent Garden.

MONDAY AND FRIDAY—
Hardy Bulbs, Herbaceous, and other Plants, at 12; Roses and Fruit Trees, at 1.30; at 67 & 68, Cheapside, E.C., by Protheroe and Morris.

WEDNESDAY—
Perennials and Border Plants, Hardy Bulbs, &c., at 12; Roses and Fruit Trees, at 1.30; Palms and Plants, at 5; trade sale of Bulbs, &c., at 12; Japanese Liliums, at 2.30; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

FRIDAY—
Orchids, at 12.45, at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

The Present Distribution of Wart Disease of Potatos.

It is satisfactory to learn from the Annual Report (1910-11) of the Intelligence Division of the Board of Agriculture that wart disease of Potatos has spread but little from the main centres of infection, and that there are still large areas of the country which are exempt from this pest.

The infected areas are fairly well defined, and the chief of these areas comprises the group of counties embraced within a line drawn from Warwickshire in the south, roughly parallel with the eastern coast line to Cumberland in the north. A second area lies in South Wales, and a third in Scotland in and about the counties of Stirlingshire, Fife and Kinrossshire. The very active enquiries which the officers of the Board of Agriculture have pursued have led to the discovery of certain outlying infected areas. The chief of these are in Durham, where the disease makes its first appearance on the eastern side of England; in West Ham, in Huntingdonshire, Berkshire and Gloucestershire. The admirable maps which accompany the Board's report enable the reader to see at a glance the restricted and apparently capricious distribution of the disease. Nor can it be doubted that the energetic action of the Board has had distinct effect in arresting the spread of the wart disease. Special officers have been employed to give effect to the Board's regulations for securing the destruction of diseased plants and tubers, and also to advise the planting in allotments and elsewhere of varieties of Potato which are resistant to the disease.

It is satisfactory to learn that further trials of immune varieties, which include Langworthy, Conquest, and Golden Wonder, Aberlady Early, Sutton's Discovery, and others, show that they maintain in large measure their resistant powers, and that where they suffer at all, they suffer but slightly from the disease.

Having regard to the fact that no progress has been made in the devising of remedial measures, it is particularly important that a knowledge of what varieties resist the disease should be dessiminated as widely as possible. This the Board is endeavouring to do, both by its leaflets and by itinerent instructors. In furtherance of this object we print below some of the results of trials made in various districts.

The lists of Potatos grown at the several centres, namely, at Chorlton-cum-Hardy, Blakeley Hill, and Peplow, do not all contain the same varieties. We print, therefore, those varieties which proved to be immune at all three places:—

Potatos immune to wart disease:—

Aberlady Early	Snowdrop
Conquest	Southern Queen
Dobbie's Laird	Sutton's Abundance
Golden Wonder	The Crofter
Langworthy	The Provost
Schoolmaster	White City.

The results of trials at Holmes Chapel showed the following to be immune or almost so:—

Sutton's Discovery
Golden Wonder
Langworthy (very slightly attacked)
What's Wanted ,,

In these trials certain of those found immune in the Lancashire trials were attacked to a certain extent, namely:—

Aberlady Early	The Crofter
Snowdrop	The Provost
Southern Queen	White City.
Sutton's Abundance	

PROFESSOR BATESON ON GENETICS.—In comparing the patterns formed by the living organism, with those produced by mechanical agencies, it must be remembered that, generally, in the former, pattern arises as the result of periodicity of growth. Sometimes pattern in the organism may be formed by differentiation of preformed material, and in this case it is very comparable with mechanically-produced repetitions. But, generally speaking, organic repetitions are due to a continuous series of divisions. There is no direct analogy for this to be found in any vibratory repetitions, but some curiously close parallels exist in the periodic heterogeneity which occurs in osmotic growths developing in colloid solutions, especially those recently described by LEDUC: "As illustrating stability which is almost certainly mechanical, the work of F. LUDWIG is of great significance. He made large counts of the numbers of flowers of Cowslip umbels. It might seem improbable that these numbers should show any regularity, but, working on a large scale, LUDWIG found that certain numbers, and their simple multiples, are common, and others rare. He found that the most frequent numbers are 5, 8, 10 and 13. The intervening numbers are rare. These numbers are related to one another in a definite way; each number is the sum of the two preceding, following the so-called Fibonacci series, common to a large number of plant structures. For instance, the study of phyllotaxis shows that, though there is much variation, still, on the whole, the Fibonacci series is followed. The same rule is followed in Chrysanthemums for the number of florets on each flower-head. No satisfactory explanation has been suggested of the occurrence of these favoured numbers, but the subject has been well discussed by A. H. CHURCH in his book on *Relation of Phyllotaxis to Mechanical Laws.* Very little is known about the inheritance of meristic characters. It seems probable that the lower number is dominant over the higher. For instance, in the Tomato, the variety with a two-celled fruit is dominant over the four or five-celled form, which suggests a limiting factor in the two-celled variety." The representation of organic repetition as mechanical in origin is also an assistance when the inter-relation between a series of repeated parts comes to be considered. Their resemblance to each other, as that of the hand to the foot, or that of the leaves of a tree to each other, is then comparable with the likeness of waves in a series. That a series of such parts, whether leaves, petals, segments of a worm, or any similar structure can in variation all change simultaneously in the same way, ceases to be surprising. The lecturer proceeded to give illustrations of the relationship subsisting between members of such a series, and pointed out that differentiation among such repeated parts is what variation is among brethren.

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the Royal Horticultural Society will take place on Tuesday in the Vincent Square Hall, Westminster. In the afternoon a lecture on "New Sweet Peas" will be delivered by Mr. W. CUTHBERTSON, J.P.

HORTICULTURAL CLUB.—The annual general meeting of the members of the Horticultural Club will take place in the club room at the Hotel Windsor, on Tuesday next, the 20th inst., at 5.15 p.m. The chair will be taken by the President, Sir JOHN T. D. LLEWELYN, Bart. The annual dinner will take place at 6 p.m. on the same date, at the Hotel Windsor. Sir FRANK CRISP will preside. After dinner the proceedings will be interspersed with a musical programme kindly provided by Sir FRANK CRISP. Members intending to be present are asked to write to the hon. secretary, Mr. R. HOOPER PEARSON, without delay. Ladies are specially invited.

MR. E. H. WILSON.—At a meeting of the Board of Trustees of the Massachusetts Horticultural Society, held on January 13, it was decided to award the Society's Gold Medal to Mr. E. H. WILSON in recognition of his work as a plant collector in Western China.

THE SURVEYORS' INSTITUTION.—The next ordinary general meeting, being the second of the two afternoon meetings arranged for the convenience of country members, will be held in the Lecture Hall of the Institution on Monday, February 26, when a paper will be read by Mr. LESLIE S. WOOD, entitled "The Tendency Towards Uniformity in Compensation for Agricultural Improvements." The chair will be taken at 5 p.m.

L.C.C. PARKS EMPLOYEES.—In November last the London County Council approved a scheme for the classification and promotion of boy labourers and improvers in the parks department. Certain arrangements have still to be made in connection with the proposed scheme, but it is intended that the new scheme shall become operative at the beginning of next April.

Photograph by Donald Massey.

YUCCA WHIPPLEI (NITIDA), IN ALDWICK MANOR GARDENS, SUSSEX.

Printed by Temple Press Ltd., London, E.C.

MR. GEORGE FORREST.—This intrepid traveller has just left England by the s.s. "Martaban" for China in search of new and rare plants; on this occasion in the interests of Mr. P. D. WILLIAMS, an enthusiastic amateur, whose beautiful garden in Cornwall is well known to our readers. It has been our privilege to reproduce many beautiful photographs of Chinese plants taken by Mr. FORREST during his previous travels. In wishing Mr. FORREST a successful trip, we may in the interests of our readers express the hope that he will be able to send us further contributions illustrative of the rich flora of Western China.

CONTINENTAL VISITORS TO THE LONDON INTERNATIONAL SHOW.—At the request of our contemporary, *La Tribune Horticole*, of Brussels, the Belgian State Railway and the South-Eastern and Chatham Railway Companies have determined to issue cheap tickets (50 per cent. under the usual price) to Belgian visitors to the London show in May. These tickets will be issued from all the leading towns of Belgium direct to London, viâ Ostend or Calais, from May 18 up to May 26, and will be available for 14 days. We congratulate our colleague, Monsieur L. GENTIL, editor of *La Tribune Horticole*, on the success of the negotiations on behalf of visitors to the International Exhibition.

"THE BOTANICAL MAGAZINE."—The following plants are described and illustrated in the February number:—

STANHOPEA PERUVIANA, tab. 8417.—We are indebted to Messrs. SANDER & SONS for the introduction of this beautiful Orchid to cultivation, their collector, Mr. FORGET, having discovered the plant in Peru. The flowers are a golden-yellow colour, with a few purple spots; the basal portion of the lip is suffused with dark purple, the terminal portion of the column being spotted with that colour. A specimen presented by Messrs. SANDER & SONS to Kew was grown in the Cattleya house, where it flowered in January, 1910. The blossoms are fragrant, but somewhat fugitive.

STRANVÆSIA UNDULATA, tab. 8418.—The Chinese Stranvæsias, though differing in certain characters, appear to be mainly forms of S. undulata, which now includes S. Davidiana and S. Henryi. The plant figured in the *Botanical Magazine*, is an intermediate form, having leaves like the typical S. undulata, but an inflorescence resembling that of S. Davidiana. The plant forms a tree or shrub with lanceolate or oblanceolate leaves, each from 1½ to 4 inches long. The flowers, which only last for a day or two, are developed in corymbs, being succeeded by berries of orange-scarlet colour. The species is hardy, and may provide a pleasing substitute for Cratægus Pyracantha, so commonly employed as a wall plant for its red berries in winter. Stranvæsia undulata is one of Mr. WILSON'S introductions whilst plant-collecting for Messrs. JAMES VEITCH & SONS.

LEPTOSPERMUM SCOPARIUM VAR. NICHOLLII, tab. 8419.—An account of this plant was given in *Gardeners' Chronicle*, June 20, 1908, p. 398, by Capt. A. A. DORRIEN-SMITH, who brought specimens from New Zealand in that year. L. scoparium is a tender shrub, but it has survived the winters at Kew planted against a south wall, and the variety may be expected to succeed in warm districts out-of-doors.

OLEARIA CHATHAMICA, tab. 8420.—In a list of New Zealand plants brought to Tresco in May, 1908, by Capt. A. A. DORRIEN-SMITH, published in *Gardeners' Chronicle*, January 2, 1909, p. 2, Olearia chathamica is mentioned with 13 other species of Olearia. O. chathamica is endemic to the Chatham Islands, where it grows in masses on the edges of cliffs, or scattered amongst upland bogs. The illustration in the *Botanical Magazine* shows the flowers to be something like a mauve-tinted, single-flowered, Chinese Aster, with a dark centre. A specimen grown at Ludgvan Rectory, near Marazion, Cornwall, has so far proved hardy. Olearia chathamica forms a shrub 3 to 7 feet high. The serrated, bright-green leaves have a white, woolly reverse.

CRASSULA BARKLYI, tab. 8421.—This is an old but uncommon garden plant, specimens having been received at Kew, in 1875, from Little Namaqualand. The plants which furnished the material for the *Botanical Magazine* illustration were sent by Professor PEARSON from Cape Town, having been collected during the Percy Sladen expedition (see *Gardeners' Chronicle*, vol. I., p. 61). The stems are only 1 or 2 inches in height, and the white flowers are produced in terminal heads. The plant appears to have but little value from a garden point of view.

SMALL HOLDINGS (CHEAPER BUILDINGS) COMMITTEE.—The Rt. Hon. WALTER RUNCIMAN, M.P., President of the Board of Agriculture and Fisheries, has appointed a Departmental Committee: (1) To enquire and report as to the nature and character of the buildings which should be provided for use in connection with small agricultural holdings in England and Wales, regard being had: (a) to the convenience and requirements of the occupiers; (b) to considerations of economy, and also the possibility of the reduction of cost by the use of materials and methods of construction different from those ordinarily employed at present; (c) to the special agricultural and building conditions of the different parts of the country; and (d) to the various requirements of the Public Health Acts and any Orders or Regulations made thereunder. (2) To submit a series of plans and specifications likely to be of assistance to local authorities and landowners for the purpose.

DRESDEN BOTANICAL AND HORTICULTURAL SOCIETY.—We have received from the secretary of this Society a list of the rules and particulars of the administration. The scope of the society is an extremely wide one, and covers every aspect of horticulture. Special committees are appointed to deal with the different branches; one is concerned entirely with research; another with higher education; a third with the interests of market gardeners; while a fourth makes all arrangements for the monthly shows, and for the excursions which are a feature of the Society. The secretary is HERR FRIEDRICH BOUCHÉ, Grosser Garten, Dresden-A, Germany.

COMPLAINT FROM RHUBARB GROWERS.—Growers of forced Rhubarb in the Leeds district are complaining of the damage to their produce in transit by the railway companies. It is the custom to send the Rhubarb by passenger trains in Orange boxes or large hampers, and the growers say that, instead of these being carried, they are rolled end over end, with the result that the stems become broken.

GAMES IN THE L.C.C. PARKS.—The Parks Committee of the London County Council has prepared a return showing the extent to which advantage has been taken during the year ended September 30 last of the facilities afforded for the playing of games in the parks and open spaces under the control of the Council. A complete record is kept of the number of games played on reserved pitches, and there are as many games of cricket and football played on unreserved pitches that are necessarily unrecorded. The statistics show that 15,558 games of bowls were played on 100 greens; 24,728 of cricket on 470 pitches; 1,120 of croquet on 32 lawns; 13,395 of football on 317 pitches; 2,086 of hockey on 48 pitches; 77 of lacrosse on 7 pitches; 134,405 of lawn tennis on 493 courts; and 3,114 of quoits on 38 pitches. These pastimes, however, by no means exhaust the list for which the Council provides facilities. There is a golf course at Hainault Forest, and facilities for playing golf are provided free of charge at Blackheath, Clapham Common, Streatham Common, and Tooting Common. Games of Rugby, net ball, Badminton, basket ball, hurling, and shinty are also permitted at a few places under the Council's control.

CLEISTOGAMIC FLOWERS.—As is well known, not a few plants produce, in addition to their ordinary flowers, others which do not open, though they may bear seed. Experiments made by M. MOLLIARD (C. R. Ac. Sc., Paris C.L.I., p. 990) indicate that the formation of such cleistogamic flowers is due to the insufficiency of sugar manufactured by the leaves. In his experiments with plants grown in mineral solutions only and others grown in mineral solutions to which glucose was added and all exposed to feeble light, those with mineral salts only produced cleistogamic flowers, whereas those supplied with glucose produced normal flowers.

EXPEDITION TO FORMOSA.—Mr. H. J. ELWES, F.R.S., of Colesbourne, Gloucestershire, has just started on an expedition to the Island of Formosa, for the purpose of studying the trees for which the island is famous. Mr. ELWES lately presented a large part of his magnificent collection of polæ-arctic butterflies to the Natural History Museum. His present expedition will probably extend over the best part of the year, and the result should be of considerable interest for botanists and zoologists.

"AGRICULTURAL BULLETIN OF THE STRAITS AND FEDERATED MALAY STATES."—With the retirement of Mr. H. N. RIDLEY, F.R.S., from the Directorship of the Botanic Gardens, Singapore, the publication of the *Agricultural Bulletin of the Straits and Federated Malay States* ceases. The announcement is made by Mr. RIDLEY in the last issue of the journal, where he gives an account of the excellent work done by the periodical in informing planters in those remote parts what is going on in the world of agriculture generally. Mr. RIDLEY gives credit to the *Bulletin*, which is not a Government publication, as having made the first records and observations on Termes gestroi, Fomes Diplodia, Hymenochœte, Eutype, the Coffee locust, the Coffee caterpillar, and many of the Sugar pests. It is to be regretted that the Malay planters will lose this useful medium of knowledge for the value of the correlation of ideas and practices in agriculture and horticulture is more and more recognised. But the planters are not to blame, for they have made a handsome grant annually towards the expenses of the periodical.

PUBLICATIONS RECEIVED.—***Everyday Uses of Portland Cement.*** (London: The Associated Portland Cement Manufacturers, Ltd.) Price 1s. 6d. and 2s. 6d.—***Present-Day Gardening Series,*** by R. Hooper Pearson: ***Irises,*** by W. Rickatson Dykes. (London and Edinburgh: T. C. and E. C. Jack.) Price 1s. 6d.—***Perpetual Carnations,*** by Laurence J. Cook. (London: Cassell & Co.) Price 1s. and 1s. 6d.—***One & All Gardening, 1912,*** by Edwd. Owen Greening. (London: The Agricultural and Horticultural Association, Ltd.) Price 2d.—***Myths and Legends of Flowers, Trees, Fruits, and Plants,*** by Charles M. Skinner. (London: J. B. Lippincott Company.) Price 6s.—***The Agricultural Journal of the Union of South Africa for January.*** (Pretoria: The Government Printing and Stationery Office.) Price 2s. per annum.

YUCCA WHIPPLEI (NITIDA).

(See fig. 47 and Supplementary Illustration.)

We are indebted to Mr. Fletcher, Aldwick Manor, Bognor, Sussex, for the photographs of Yucca Whipplei represented in fig. 47 and the Supplementary Illustration. Our correspondent has also contributed the following note:—

"In the article on Yucca gloriosa var. Ellacombei, published in *Gardeners' Chronicle*, October 21, 1911, Mr. Elwes states, so far as he knows, Yucca Whipplei has not yet flowered in this country. I have the pleasure of forwarding herewith photographs of a plant of that species which flowered in my garden in the summer of 1910, and was an object of great beauty for several weeks. The plant attained a height of about 10 feet; the flower-stem, when cut down, measured 8 feet 10 inches in length, and, at the base, 1 foot in circumference. I believe the plant was sent to me by the Royal Horticultural Society some six or eight years ago. It has been planted out for practically the whole time, being protected over its roots by a carpet of a prostrate Veronica, and, in the winter, by a hand light, so long as its size allowed. I am afraid the plant is dying after flowering, as but few leaves now retain any green colouring, and no suckers appeared from the base last year as I had hoped would have been the case."

FIG. 47.—FLOWERS OF YUCCA WHIPPLEI (NITIDA).

(See also Supplementary Illustration.)

It may be pointed out that there is a close resemblance between Mr. Fletcher's plant and that figured in *Gardeners' Chronicle*, 1902 (i.), p. 153, as Y. nitida. But it is not by any means certain that Y. Whipplei is not a sufficiently variable species to include this as well as other forms. Dr. Trelease, who has paid special attention to Yuccas, states that the mountain and valley forms of Y. Whipplei vary greatly in amplitude of panicle, &c. His description of it is as follows:—"Simple, or, in the mountains, frequently cæspitose. Leaves ascending, rigid, .3 to 1 m. long, about 15 mm. wide, plano-convex, sub-triquétrous, or keeled on both faces, sometimes falcate, striate, glaucous, keenly but finely denticulate, with very slender, pungent end spine. Inflorescence 2 to 5 m. high, oblong, long peduncled, glabrous. Flowers Yucca-like, pendent, fragrant. It forms one of the most striking and beautiful features of the coast-range vegetation of Southern California." According to Mr. J. G. Baker, in *Gardeners' Chronicle*, 1876 (2), p. 196, Y. Whipplei flowered in the collection of the late Mr. Peacock in 1876.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

FRUIT TREES IN GRASS LAND.—The following method of planting and tending fruit trees will be found to be free from any of the defects which Mr. Spencer Pickering ascribes to the method of planting trees in grass land. The trees should be planted in properly prepared holes, say, about 3 feet in diameter, and nearly the same depth, the natural soil, where lacking in fertility, being improved by a small quantity of short manure incorporated with it, relaying the top 3 inches of the grassy turf to within 1 foot of the stems of the individual trees. Instead of trenching over the entire area of land to be planted with fruit trees, I should, two years after planting, open a circular trench 2 feet wide at 18 inches from the stems of the trees, and the same depth as the holes in which the trees are planted. Afterwards filling up the trench with the good portion of the excavated soil to which has been added one-fourth its bulk of well-rotted stable manure, decomposed vegetable matter or wood-ashes. Repeating this operation, say, every third year, until the whole intervening ground space has been practically trenched, the grass turves being relaid after each trench extension had been completed. It will be obvious to all practical horticulturists that trees thus treated have a decided advantage over trees which have been planted in ground which had been trenched all over previous to planting, inasmuch as there is little, if any, chance of the soil becoming sodden or sour before the roots reach it. In addition to the beneficial advantage derived by the trees, by doing the trenching in the manner indicated the work can be more conveniently done in places where a limited number of men is employed. I have had to do with the planting and management of orchards in England, Ireland, and Scotland which had been treated on the lines indicated above, and which yielded most satisfactory results. Of course the trees were duly attended to in the matter of pruning, so as to allow plenty of light and air to reach the branches; the latter being washed overhead with hot liquid lime applied by the garden engine on a calm day, at intervals of two or three years to keep the trees free from lichen and moss growth, and to destroy any insect pests or their larvæ that might have effected a lodgement thereon. I fail entirely to see in what possible way grass-surfaced land can be injurious to root and branch growth of fruit trees, or any other kind of tree for the matter of that, provided the soil in which the trees are growing is in the matter of depth and fertility congenial to their requirements. Abundance of conclusive evidence showing that this is not the case may be found in most private and public gardens and parks throughout the United Kingdom. The deplorable condition of the trees in many orchards in various parts of the country must not be attributed to the fact that the trees are growing in "grass land," but simply and wholly to continuous neglect on the part of the owners of such orchards. Perhaps an examination of the soil would reveal insufficient depth and fertility in which the young trees referred to in the *Report* are planted, thus accounting for the stunted growth of wood, foliage, and fruits. *H. W. Ward.*

SPRAYING FOR BIG BUDS.—I have often read with pleasure the very practical articles from the pen of *A Southern Grower* in your pages, but I must take exception to his remarks under the above heading in your last issue. What he says about the results of the spraying experiments undertaken by the Board of Agriculture is quite correct, but he fails to point out that the experiment loses all value from the fact that the spraying was commenced at least a month too late, and that consequently a large proportion of the mites leaving the old buds would be safely ensconced in their new quarters before the spraying commenced. I also hear from the inspectors that some of the trials were left in the hands of private growers, and that the sprayings were not conducted with any regularity. I do not know where "scorching of foliage" comes in with spraying with soft soap and quassia, but I do know that if properly carried out it is a safe cure for the mite. I have had two inspectors through a plantation treated under my supervision for

two seasons, and they failed to find a single big bud in the whole plantation. In 1904 I first wrote in the *Gardeners' Chronicle* a description of how to cure big bud by spraying, and during the years that have passed since then I have often at the R.H.S. Fruit Shows been accosted by perfect strangers who have thanked me for having enabled them to rid their plantations of this pest. Seeing that these are facts, I think it is somewhat late in the day to question the efficacy of spraying, and the trifling cost is amply repaid in the clean, healthy growth of foliage and fruit and freedom from the filthy aphis which curls up the leaves and disfigures the fruit, besides often crippling the young wood. As at all times during the past eight years, I shall be pleased to give full particulars to anyone still suffering from Black Currant mite in their plantations. *A. H. Pearson, Lowdham.*

HABENARIA CONOPSEA ALBA.—I have read with great interest the correspondence in your columns concerning Habenaria (Gymnadenia) conopsea alba. I have studied the British Orchids both at home and abroad somewhat carefully, and find that nearly all the purple and mauve kinds, including the Bee Orchis, may occasionally be found with white flowers near Dover. I myself have found the white Gymnadenia conopsea in yet another county, namely Sussex, where it grows in two far distant localities. I have also found white specimens of Orchis maculata in Sussex and in Scotland, and of O. Morio in Oxfordshire and in Italy. I have also come across very pale blossoms of O. militaris and O. mascula. *W. Herbert Cox.*

SCOTLAND.

GLASGOW AND WEST OF SCOTLAND HORTICULTURAL SOCIETY.

As a result of an application to the Highland and Agricultural Society of Scotland, the directors have agreed to give six medals as prizes at the Glasgow and West of Scotland Horticultural Society's centenary show in the autumn.

MARKET GARDENING ON THE MURIESTON ESTATE, EDINBURGH.

THE operations of the Edinburgh Distress Committee on the Murieston Estate, Edinburgh, have so transformed this poor land that it has been rendered of the most fertile character. A considerable portion of the land has been disposed of for allotments, and the committee have now approached the Local Government Board for power to dispose of these allotments for market gardens on payment by instalments.

SOCIETIES.

ROYAL HORTICULTURAL.

ANNUAL MEETING.

FEBRUARY 13.—The annual general meeting of the Royal Horticultural Society was held on Tuesday last in the large hall of the Society, Vincent Square, Westminster. The President, Sir Trevor Lawrence, Bart., presided. There was only a small attendance, and the lecture-room would have provided a more suitable place for the meeting, as the speeches were heard only with difficulty. At the outset, Sir Trevor Lawrence referred to the absence of the secretary, the Rev. W. Wilks, who was prevented from attending owing to an attack of influenza. After the minutes were read by the assistant secretary, and 30 new members elected without opposition, Sir Trevor Lawrence submitted the Report (see *Gardeners' Chronicle*, February 10), several items of which he referred to in detail. He said that the rock-garden at Wisley was being furnished with suitable plants, many of which had been contributed by the Fellows, to whom he expressed thanks on behalf of the Council. The Wisley school of horticulture was making good progress. The Society's shows, said Sir Trevor Lawrence, had been, with one exception, better than ever, but the Olympia show was, unfortunately, held during the exceptionally hot weather of July, and even early in the morning of the first day the flowers had commenced to flag. In his opinion Olympia was not suited to the holding of a flower show. With regard to the library, a sum of nearly £1,000 had been spent in purchasing books, which included a number of volumes of remarkable quality and beauty. In the Lindley library they should endeavour to secure one of the finest botanical and horticultural libraries in the world. He regretted that the name of Mr. Harman Payne had been omitted in the report from the list of those who had given the Library Committee most valuable help. Baron Bruno Schröder had provided new oak shelving to accommodate the increasing number of books, and thus the name of Schröder would be further linked in association with the Lindley library.

A paragraph in the report refers to the appointment of a plant collector, but Sir Trevor Lawrence said that no definite steps had yet been taken in this matter. It was one which the Society could not well overlook, especially when it was considered that there is scarcely a park or garden which is not ornamented by plants introduced by collectors sent out by the Society in former years. Sir Trevor called attention to the special Orchid exhibition arranged for November 5 and 6. He said that some of the more beautiful of the winter-flowering Orchids, such as Calanthes and Dendrobiums, appeared to be passing more or less out of favour and the exhibition would be fully justified if it were the means of giving a fresh popularity to these flowers. Referring to the losses which the Society has sustained through death, the President made special reference to Sir Joseph Hooker and M. Victor Lemoine, of Nancy. Sir Joseph Hooker, said Sir Trevor Lawrence, was not only a great botanist, but an eminent man of science generally, and had acted as chairman of the Scientific Committee for more than half a century. Reference was made to the debt which horticulture owes to M. Lemoine, and it was only last spring that he, Sir Trevor Lawrence, had the honour of receiving the Society's First-class Certificate for a beautiful variety of Syringa sent out by the firm of M. Lemoine. The financial position of the Society was such as would give every satisfaction, and a surplus of over £8,400 on the year's working was one of the most remarkable circumstances in the history of the Society. He, the speaker, could remember the time when the Society was not in the position to pay its ordinary tradesmen's bills. On behalf of the Council, he wished to express a high appreciation of the services of all the Society's employees. Their work was done not only with energy, but with an intelligence amounting to perspicacity. The work of their secretary, Rev. W. Wilks, was well known to all, and Sir Trevor proposed, with the sanction of the meeting, to send a telegram of condolence to Mr. Wilks, a proposal that was warmly approved. Sir Trevor Lawrence had also a word of praise for the members of the several committees.

Mr. Gurney Fowler seconded the adoption of the Report, and, as treasurer, took the opportunity to refer to some details of the financial statement. He said that the expenditure, as was to be expected, showed certain increases. The receipts from exhibitions show a decrease, the hall lettings were down £316, owing to the building being closed for repainting; the cost of the *Journal* had gone up £452, whilst the provision for staff pensions and expenditures on the Lindley library and Wisley gardens all showed increases.

Sir Trevor Lawrence invited criticism, but there were only two speakers. A Fellow referred to the President's appreciatory remarks upon the services rendered by the staff, and gave personal testimony to the kindness and courtesy he had always experienced from Mr. Hutchinson, the librarian.

The Rev. George H. Engleheart, M.A., criticised the number of awards made during the past year. He said that the number was becoming very large indeed, and although it must be expected that, as the Society progresses, the number of exhibits will increase accordingly, they should be very jealous of their awards. He said that the Gold Medal should never be cheapened; but he was sorry, in the course of last summer, to notice a case when it was cheapened. A collection of Chinese plants deservedly received this high award, and at the next meeting an exhibit of Gourds was equally honoured. Mr. Engleheart could not admit that the value of these exhibits was equal. If it is necessary to give a Gold Medal, say, to a collection of Apples, it might be advisable to split the Gold Medal, making a large and a small medal. Then, again, with regard to the First-class Certificates, the awarding of these appeared to present certain anomalies. The award was seldom made to what are known as florists' flowers, and then, generally, only after an Award of Merit had been obtained first. But with regard to Orchids, in 1911, out of 45 First-class Certificates awarded, 37 were given to Orchids. This showed that there was something amiss in relation of the awards given by the different committees.

Sir Trevor Lawrence, in reply, said that they endeavoured to secure the best men on the Committees, and, unless some definite rules were laid down, the Council could only leave the question of awards to the judgment of the men who were appointed. With regard to the exhibit of Gourds mentioned by Mr. Engleheart, he (Sir Trevor Lawrence) considered they were the finest examples he had ever seen.

At this stage of the proceedings the report was put to the meeting and carried unanimously. The new councillors, whose names appeared on the list of nominations, were elected; whilst the president, Sir Trevor Lawrence, the secretary, Rev. W. Wilks, and the vice-presidents were all re-elected.

Sir Trevor Lawrence announced that the Victoria Medal of Honour in Horticulture had been awarded to Colonel Prain and Mr. E. H. Wilson, neither of whom was present to receive the distinction personally. A vote of thanks to the president, proposed by Sir John Llewelyn and seconded by the Rev. G. H. Engleheart, brought the proceedings to a close.

PLANTS OF THE FIJI ISLANDS.

FEBRUARY 6.—Sir Everard F. im Thurn, K.C.M.G., C.B., delivered a lecture on this date at the Royal Horticultural Hall. The distinguished lecturer, without the aid of diagrams or lantern slides, held the attention of his appreciative audience for over an hour. As is well known, the Fiji Islands embrace a group of some 200 volcanic islands in the South Pacific. The largest of these islands are Viti Levu and Vanu Levu, and in a great measure the lecturer confined his remarks to the former as being fairly characteristic of the whole, prefacing his discourse with the intimation that, as his large collection of plants, especially of Orchids, was at Kew being identified, he did not intend to submit full botanical names of the trees and plants mentioned. The lecturer debated the theories of other authorities as to the reason why the vegetation of Fiji is less luxuriant than that of many other tropical regions, and set forth the convincing explanation that this want of stature in the Fijian vegetation is largely due to the frequent hurricanes which sweep over the islands. Probably the root-disturbing effects of the frequent earthquakes for which this region is noted, may also be partly responsible. The gardens of Suva, the chief town of Viti Levu, were described as being luxuriant—too luxuriant—and ill-kept; such plants as Hibiscus, Ixora, Croton, and Coleus riot in a tangled confusion. Roses and Carnations also find places in many street gardens. The visitor to Suva, said Sir Everard, could not fail to be impressed with two trees, the Rain tree of South America and the native Chestnut. The former tree, which was planted as an avenue, forms widespreading specimens of great size, affording a refreshing shade. Humboldt mentions one single tree of this species, the famous Zamang-del-Guayre, which had a head 576 feet in circumference. The Chestnut of Fiji quickly becomes a venerable tree with gnarled branches, densely covered with small Orchids, many Ferns and other epiphytes.

The débris of the seashore indicates the preponderating vegetation of the island, and an examination of high-water line showed that the débris is largely composed of the large, square, box-like fruits of Barringtonia (a coast tree bearing large, shiny leaves and big, white flowers); the round seeds of the Dilo tree (which is used by the natives as a substitute for cocoanut oil for anointing their bodies); and the cone-like fruits of the Sago-Palm. These are the trees which preponderate in the flat coastland. The undergrowth is composed largely of Hibiscus ciliatus, which the lecturer aptly described as an

ugly bush bearing beautiful flowers. A mass of creepers ramble at will over the undergrowth and up the timber trees. The commonest of these is the beautiful pale-blue Morning Glory; whilst the Moonflower (Ipomœa Bona-nox), which opens its large, pure-white flowers at night, forms an interesting feature. Here and there the commonest Fern in the islands, Acrostichum aureum, forms a fitting groundwork for the scented flowers of Crinum asiaticum.

Leaving the coastland, the higher ground, which years ago had been cleared for cultivation and allowed to pass back to nature, is filled to overflowing with wildly-luxuriant shrubs. Immense thickets of the wild Orange—always in flower and fruit, but useless—mixed with wild Guavas—also unused—vie for supremacy with Lantanas. The lecturer cited the interesting fact that whilst elsewhere in the tropics, and especially in Ceylon, the indigenous Lantanas have but little range of colour, here in Fiji all possible shades of colour are present, which points strongly to these plants being garden escapes. The "Mile-a-Minute" (a species of Mikania) is overpoweringly present. The Sensitive Plant (Mimosa pudica), grown in small flower-pots in English hothouses, here becomes a dense shrub 5 feet to 6 feet high, and in spite of its stout spines, is valued as a fodder plant.

The natural forests on the mountain sides contain nearly the same species as on the lower ground and coastline. A species of Podocarpus is typical of the mountains; the Nettle tree (Laportea gigas), with large, heart-shaped, poisonous leaves, attains a great size. Medinillas flourish beneath the shade, and Hoyas twine around the trunks of the large trees, while many epiphytes find a congenial home on the branches. A graphic word-picture was drawn of other desirable flowering shrubs; some of them, for example, a Carruthersia with beautiful flowers varying from white to a deep red, are as yet unknown to our glasshouses. Ferns, with rich-green fronds, and many terrestrial Orchids, thrive in the dense shade, whilst in the moister places a huge Moss, often 2 feet high, occurs in great patches.

This, in brief, is the story told by the lecturer of the vegetation of the coast and steep, rugged southern hillsides of the island. On the northern slopes, where the rainfall is much less, the vegetation is very different: trees are fewer and smaller, Casuarinas and Pandanus (the Screw-Pines) are much in evidence. The Bottle-brush tree (Metrosideros) flourishes, and the brushes bear gorgeous flowers of scarlet or yellow. A Bracken, very like our British species, abounds, and many introduced plants are gradually creeping up the mountain side, slowly but surely driving before them the native plants, and so changing the character of the vegetation of that region.

Scientific Committee.

FEBRUARY 6.—*Present:* Mr. E. A. Bowles, M.A., F.L.S. (in the Chair); Sir Everard im Thurn, Messrs. J. O'Brien, A. Worsley, G. Massee, W. Hales, R. A. Rolfe, G. Wilson, W. T. Ledger, A. D. Michael, and F. J. Chittenden (hon. secretary).

Abnormal Cattleya.—Mr. MANDER, of St. Albans, sent a Cattleya bearing several flowers, every one of which was abnormal, some much more markedly than others.

Catasetum Randii.—Mr. Rolfe drew attention to a Catasetum shown by Messrs. CHARLESWORTH, which he recognised as Catasetum Randii, Rolfe (*Bot. Mag.*, t. 7470, where both male and female flowers are shown). This species differs from C. barbatum and its few allies in having the crest of the lip shortly truncate and broken up into many short filaments, not forming a single horn-like tooth. It is a native of the Amazons.

Floral drawings.—Miss MASSEE showed some excellent coloured drawings of various types of plants, faithfully coloured and showing dissections of the essential parts very clearly.

New Hippeastrum.—Mr. WORSLEY showed a new Hippeastrum, for which he proposed the name of Hippeastrum Forgetii in honour of the collector. The bulbs had been received by Messrs. Sander from Monsieur Forget, their collector in Bolivia, and the plant is closely allied to H. pardinum, but without spots. A full description will appear in the Society's *Journal*.

Chrysophlyctis endobiotica.—Mr. H. T. Güssow, of the Central Experiment Farm, Ottawa, wrote:—"From Mr. Horne's paper on 'Tumour and Canker in the Potato' in the Society's last *Journal* we may conclude that all efforts to secure confirmation as to the identity of the Potato disease with Schilberszky's from the discoverer himself were futile, and that 'it is necessary, therefore, to rely upon Schilberszky's original, somewhat meagre, description.' Early in 1905 I wrote to Professor Schilberszky, submitting a diseased tuber to him, but received no reply. Again in 1909, when I discovered the disease in Newfoundland, I wrote to Professor Schilberszky, and received a letter from him, which I very carefully kept. The following is a translation:—'Budapest, 12 March, 1910. I have the honour to inform you that I have already sent you a little time ago a statement regarding the Potato tuber which you sent me. I am now appealed to by Dr. v. Degen to write you again in the same connection. I beg to inform you that the Potato tuber was infected by Chrysophlyctis endobiotica. The diseased portions alone made the identification very easy by their external characteristic appearance. I may say that in one of the infected foci I found masses of bacteria, which I have not examined any closer. It would interest me to have your observations on the spread of this disease in your country. (Signed) Prof. Dr. K. Schilberszky.'" In reference to the foregoing, Mr. A. S. Horne wrote:—"It is interesting to find that Professor Schilberszky has identified the disease which was recorded by Dr. Güssow, of Newfoundland, as that described by himself in Potatos derived from Upper Hungary. There were two points at issue in Britain, concerned both with the disease and the organism: (1) Professor Schilberszky stated in his published description that crater-like depressions were formed in some tubers. Symptoms of this kind were not found in Potato tumour in this country. (2) At first spores of only one kind were found in this country. It is a well-known fact that tumours of a similar form may be caused by different organisms. There was confusion between the tumour in Beetroot, caused by Urophlyctis leproides, and Potato tumour. It was possible, therefore, that the tumour in the British disease might have been due to a different organism, or perhaps to more than one organism. For these reasons investigators in England desired the personal assurance of Professor Schilberszky that Potato tumour was due to his Chrysophlyctis endobiotica."

SCOTTISH HORTICULTURAL.

FEBRUARY 6.—The first monthly meeting of the above association for the current season was held in the Goold Hall, 5, St. Andrew Square, Edinburgh, on this date. Mr. Massie, the President, occupied the chair, and there was an attendance of about 80 members.

The President delivered his opening address, taking as his subject "Garden City Problems." We make the following extracts:—

"I have taken as my subject Garden City Problems, not only on account of its national importance, but also because I consider it is one about which an association such as ours ought to have something to say. If the slums in our cities were wiped out, and the dwellers therein placed in a suitable environment, it would have such a marked influence in the diminution of poverty and crime, and probably also in the diminution of the burden of taxation, and on the improvement of the physical and moral condition of the people generally, that we ourselves would be astonished at the result; and, further, I believe it is a subject in which we, as horticulturists, must take the deepest interest. For it is largely to horticulture that we must look as the great ameliorating and refining agent which will raise to a higher moral plane the masses of our fellows who are, perforce, compelled at present to live under conditions which are not only a menace to public health but a disgrace to our civilisation and which is rapidly deteriorating the race. When we read that in Liverpool alone (the only city in the United Kingdom whose municipality has made a systematic survey of insanitary dwellings in its area) 500 insanitary houses are cleared out every year, and the inhabitants rehoused, and that a street-to-street examination of the whole of the city in September, 1902, revealed the fact that, notwithstanding that some 8,000 houses had been dealt with, there still remained nearly 10,000 insanitary dwellings, we get some idea of the state of affairs in our great cities. The case of Liverpool is only one out of hundreds of the same kind.

"But all this may in time be changed, for with the passing three years ago of the Housing and Town Planning Act, there has now been placed in the hands of local authorities a system of administrative machinery which can do away with slums.

"The second part of the Act deals with town planning, and it is to this that I wish more particularly to draw attention. The object of this part of the Act is to prevent a recurrence of the conditions which have done so much in the past to disfigure our cities and towns, more especially our manufacturing towns. Under this part of the Act municipalities may have the power conferred upon them to prevent haphazard building, and to control the widths of streets and roads, the number of houses to the acre, the height of houses, and the provision of open spaces, gardens, etc. All that is necessary by way of procedure is for the local authority to place before the Local Government Board a *prima facie* case for the preparation of a town plan, after which a preliminary enquiry is held regarding the need for action, followed by the authorisation of the local authority to prepare a detailed plan; the issue of provisions relating to co-operation on the part of the local authority with the owners and other persons interested in the land, and the formation, if necessary, of a joint body of local authorities, where the land to be planned is in the area of more than one local authority; the holding of a local and public enquiry to fully consider the plan when prepared: and, finally, the placing of the plan as approved by the Local Government Board on the table of both Houses of Parliament for 30 days and its formal authorisation and publication. Hitherto, the only control exercised over the planning of new areas has been by means of local by-laws. In the event of the plan being adopted, the Local Government Board may suspend the ordinary by-laws."

(To be continued.)

HEREFORDSHIRE FRUIT, ROOT, GRAIN AND CHRYSANTHEMUM.

JANUARY 31.—The 21st annual meeting of the above society was held at the Town Hall, Hereford, on this date. The Secretary presented the statement of accounts, showing total receipts during the year amounting to £208 1s. 3d., and expenditure £207 2s. 6d. The society has now a balance in hand of £46 13s. 10d. Sir Geoffrey Cornewall, of Moccas Court, was elected president for the ensuing year. The Mayor of Hereford (Mr. E. L. Wallis) was elected vice president. Mr. T. Carver was re-elected chairman of committee. Mr. R. M. Whiting, vice-chairman; Mr. A. C. Harmer, hon. treasurer; and Mr. E. S. Jones, secretary. The committees were also elected.

HEREFORDSHIRE FRUIT GROWERS' AND HORTICULTURISTS.

THE members of this association recently witnessed a spraying demonstration at Warham Court. Petrol and oil engine and hand-pumped sprayers of various kinds were seen at work in an orchard extending over five acres, and the company were hospitably entertained by Mr. and Mrs. C. W. Powell.

A dinner was afterwards held at the Mitre Hotel, the president of the association, Mr. George Marshall, of Breinton, occupying the chair.

Mr. Pewtress, Tillington, said that the Herefordshire growers have had a most successful season from an exhibition point of view. More and more attention was paid by growers to spraying, manuring, washing and pruning, also to good packing.

The president said they wanted legislation to compel people to spray for the ordinary diseases in order to keep their trees reasonably healthy.

Mr. Everall spoke of the loss English fruit growers sustained by the importation of foreign fruit—about £4,000,000 a year—and said this was incurred because the majority of British growers worked on the methods of their grandfathers.

ROYAL GARDENERS' ORPHAN FUND.

(ANNUAL MEETING.)

FEBRUARY 9.—The annual meeting and election in connection with the Royal Gardeners' Orphan Fund took place on the above date, at Simpson's Restaurant, Strand, London. The Chairman of the Executive Committee, Mr. Henry B. May, presided over a moderate attendance. After the minutes of the last meeting had been confirmed, the Chairman submitted the Report of the Executive Committee, which read as follows:—

REPORT OF THE EXECUTIVE COMMITTEE.

The committee, in presenting its report on the operations of the fund during the past year, has again great pleasure in congratulating the subscribers on its steadily-increasing prosperity and enhanced usefulness. The accounts presented herewith will be found to show an appreciable increase in general subscriptions and donations, a remarkable advance in the proceeds of the collection made in connection with the annual festival, and a still further increase in the total yearly amount disbursed among the beneficiaries. The total sum received in the form of annual contributions still, however, remains much below what it should be to enable your committee to meet the pressing claims for assistance constantly made upon the fund, and it again appeals for a larger measure of support, from gardeners especially, with the assurance that the smallest contribution will be most thankfully received.

At the commencement of the year the number of children receiving the full benefits of the fund was 118, and 27 candidates waiting for election were receiving temporary assistance. At the annual meeting 16 children were elected, 15 by the direct votes of the subscribers and one by special resolution. This was the very sad case of a boy, 14 years of age, who (with five younger brothers and sisters) was left to the mercy of the world through the death of both parents within three days of each other, and at a time when such a lad most needs control and guidance. Your committee was able to provide a home for him in the School of Handicrafts at Chertsey, where he will be maintained and instructed in the rudiments of gardening until he is 16 years of age. Your committee thankfully acknowledges the readiness with which its action was confirmed.

During the year 18 children ceased to receive the benefits of the fund, 15 under the operation of the age limit and three by retirement on leaving the country with their mothers, two of whom have joined friends in the Colonies and one in the United States. The committee has carefully selected a list of 23 candidates to appeal to the subscribers at the ensuing annual meeting, and much regrets its inability to prudently recommend the election of more than 18. The total amount disbursed in allowances during the year exceeded by over £50 the sum expended in 1910, and is the largest amount distributed in any one year since the fund was established. Since the first election, which took place in 1888, the total sum distributed in allowances amounts to over £24,746.

The annual festival, on May 4, presided over by Mr. Sherwood, one of the earliest of the vice-presidents, for several years the treasurer, and from its foundation one of the fund's most constant and most generous supporters, proved by far the most successful that has yet been held, the chairman's list exceeding all previous efforts by nearly £350. Your committee has in the past been constantly indebted to Mr. Sherwood for innumerable acts of kindness and generosity, and once more invites the supporters of the charity to unite with it in expressing to him its deep gratitude for the splendid services rendered in the sacred cause on this occasion. Most cordial thanks are also given to all who so enthusiastically helped Mr. Sherwood in making the festival such a splendid success, socially and financially, and in this connection the committee especially recognises the valuable help rendered by the stewards, and by such warm-hearted supporters as the members of Mr. Sherwood's family, Messrs. Hurst & Son, Messrs. Sutton & Sons, Mr. Arthur W. Sutton, the Messrs. Rothschild, Messrs. James Veitch & Sons, Mr. Anthony Waterer, Mr. W. Atkinson, Mr. T. Smith, Messrs. James Carter & Co., the Messrs. Cuthbert, and many others.

One of the most gratifying contributions to the chairman's list was made by Mr. George E. Messer, Hyde Side Nursery, Lower Edmonton, who, in recognition of the warm interest taken in the charity by his late parents, and as a lasting memorial to their memory, gave £100 in Consols. Your committee the more keenly appreciates the filial affection which prompted this gift from the fact of both the late Mr. and Mrs. Messer having been personal and highly-esteemed friends of most of its members. To their worthy son most grateful thanks are accorded.

Your committee again acknowledges with deep gratitude the valued contributions of Sir Frank Crisp and others who so kindly open their gardens to the public in aid of this and other charities. It also most heartily thanks the members of the Chislehurst Gardeners' Society, the Bradford Chrysanthemum Society, the Altrincham Gardeners' Society, the Leeds Professional Gardeners' Club, the Reading Gardeners' Society, the Spen Valley Gardeners' Society, and the Sevenoaks Gardeners' Society, &c., who by means of concerts, flower shows, and the sale of flowers at their local exhibitions, have greatly benefited the fund. The honorary local secretaries are also specially thanked for their valued assistance and continued interest in the welfare of the fund.

Your committee with deep regret records its sense of the heavy losses which the fund has sustained during the year by the deaths of old and greatly-valued supporters. In the late Mr. James Douglas and Mr. Alfred W. G. Weeks two most esteemed colleagues have passed away. Mr. Douglas was a member of the original committee, and Mr. Weeks joined the committee on the death of its first chairman, Mr. George Deal, both being earnest workers on the fund's behalf. The late Mr. A. J. Brown, of Chertsey, also for several years worked hard in the cause as a local secretary. The kindly efforts of one and all will long be remembered.

The retiring members of the committee are Mr. W. Bates, Mr. G. L. Caselton, Mr. C. Dixon, Mr. H. B. May, Mr. J. W. Moorman, Mr. W. Nutting, Mr. G. Reynolds, and Mr. J. H. Witty. All being eligible, offer themselves for re-election.

Through the much-lamented death of Mr. M. Rowan, who had professionally audited the accounts of the fund for the past 18 years, it is essential that a new auditor should be elected, and the committee has much pleasure in recommending the election of Mr. Frank Reader to that office.

The Chairman described the year 1911 as a year of general progress in so far as it related to the Fund. The receipts and expenditure were both higher than in any previous year. The amount raised in connection with the festival dinner, over which Mr. N. N. Sherwood presided, was £350 more than had ever been obtained in connection with previous events of the kind. Many friends had helped the Fund a very great deal, and certain societies had also made successful efforts to collect money for the purposes of the Fund. At the same time there was still room for further efforts on the part of gardeners. There were still too few subscriptions, the amount from this source forming only a very small proportion to the total receipts.

They had to mourn the loss of many who had helped them in previous years. These included Mr. James Douglas, one of the founders of the Fund; Mr. A. W. Weeks, who was a member of the Committee for many years; Mr. A. R. Brown, of the Chertsey School of Handicrafts; and Mr. Rowan, one of the auditors. The Chairman could assure those present that the objects that the Fund had in view were in every way objects that merited their support. Could those who at present abstained from giving practical help attend the meetings of the Committee and listen to the pathetic letters which were frequently received from the mothers of children to whose support the Fund had contributed, he was perfectly sure that they would receive such impressions as would make them active workers in the future.

The resolution was seconded by Mr. George Gordon, who corroborated the remarks made by the Chairman, and supported his appeal for an increased number of subscriptions and a greater measure of support generally. The report was adopted unanimously.

Mr. R. Hooper Pearson proposed a vote of thanks to Mr. N. N. Sherwood for presiding at the festival dinner in 1911. He said that the Chairman had just stated that the amount raised at that dinner was £350 better than was the case at any previous festival. When they remembered that 1911 was a year in which efforts on behalf of charitable institutions were made in less favourable circumstances than usual, it would be realised that the personal efforts made by their friend Mr. Sherwood, who had always contributed with great liberality to the Fund, were worthy of their heartiest thanks. The resolution was seconded by Mr. Alexander Dean and adopted.

The chairman next proposed the re-election of Mr. Edward Sherwood as honorary treasurer, and, when the motion had been seconded by Mr. George Caselton, it was adopted. On the proposition of the Chairman, seconded by Mr. J. F. Macleod, Mr. Frank Reader was elected auditor in the place of Mr. Rowan, deceased. The retiring members of the committee were re-elected, and Mr. Brian Wynne re-appointed secretary at the salary of £200. At this point the proceedings were adjourned, and scrutineers were appointed to count the ballot. Just before 5 o'clock the meeting re-assembled, and Mr. W. Bates read out the names of the fortunate candidates. These were as follow:—

	Votes.
Gertrude Annie Riley	461
Edward Dodd	376
Evelyn Marie Stokoe	336
Annie Steptoe	295
John E. G. King	290
Thomas Lister Rainey	278
Hugh Gunn Fraser	270
Alice Lee	260
Dorothy Gladys Edwards	258
Reginald Austin Powlesland ...	257
Marjorie Ethel Billings	213
William Sprackling	210
Ralph George Deadman	206
Winifred Grace Lockyer	205
Ernest James Wright	199
Winifred S. Potter	148
Ethel Elsie Pretty	132
Thomas Richard Rudge	117

The unsuccessful candidates were:—

Wallace Titheridge	114
Bertha Beatrice Mason	93
Edna May Holloway	91
Eric Arthur Lindekvist	71
Dorothy Mildred Mitchell	66

The members of the committee met again in the evening at the usual friendly supper. Mr. Henry B. May presided, and the proceedings were interspersed with vocal and instrumental music.

CASH STATEMENT FOR THE YEAR ENDING DECEMBER 30, 1911.

RECEIPTS.

	£ s. d.	£ s. d.
To Subscriptions: General	291 3 6	
Local Secretaries ...	81 11 10	
		372 15 4
„ Donations: General	133 3 0	
Local Secretaries ...	20 8 1	
		153 11 1
„ Receipts from Annual Festival		1,330 0 5
„ Advertisements in List of Subscribers ...		26 17 0
„ Dividends on Stock and Interest on Deposit		376 1 5
„ Income Tax returned		7 0 4
		2,266 5 7
„ Balance last Account		807 8 4
		£3 073 13 11

EXPENDITURE.

	£ s. d.	£ s. d.
By Allowances to Orphans	1,581 15 0	
„ Grants in Aid	189 15 8	
„ "Emma Sherwood Memorial" ...	13 0 0	
„ "Maybud Campbell Grant" ...	13 0 0	
		1,788 10 8
„ Secretary's Salary		200 0 0
„ Printing and Posting List of Subscribers		39 16 8
„ Rent, Insurance, Firing, Lighting, &c.	38 3 0	
„ Printing and Stationery	49 11 9	
„ Advertising	6 1 8	
„ Annual General and Committee Meetings	23 19 9	
„ New Furniture and Cost of Removal	18 9 9	
„ Postages	28 0 1	
„ Bank Charges	2 11 1	
„ Petty Cash: Sundries	7 13 10	
		174 10 11
		2,202 18 3
„ Balances: Cash at Bank	420 5 5	
Cash on Deposit ...	450 0 0	
Cash in hand ...	0 10 3	
		870 15 8
		£3,073 13 11

NOTE.—INVESTMENTS.

3 per cent. London and County Consolidated Stock	£7,240 15 10
3 per cent. Canada Stock	2,000 0 0
L. and N.-W. Railway 4 per cent. Preference Stock	340 0 0
Great Indian Peninsula Ry. Guaranteed 3 per cent. Stock	514 0 0
2½ per cent. Consols	1,100 0 0
"Thomson Memorial Trust"—	
East Indian Railway B. Annuity of £14, cost..	430 11 0
"Emma Sherwood Memorial"—	
Metropolitan Water (B) 3 per cent. Stock ...	516 15 11
"Maybud Campbell Grant"—	
Metropolitan Railway 3 per cent. Preference Stock	391 0 0

Having inspected the Securities and examined the Books and Vouchers supplied to us, we hereby certify the above account to be correct.

P. RUDOLPH BARR
FRANK READER } *Auditors.*

January 10, 1912.

BOURNEMOUTH HORTICULTURAL.

JANUARY 24.—At a meeting of this society, held on the above date, the President, Sir Daniel Morris, delivered an address entitled "A City of Gardens." This was followed by an exhibition of photographs in colour of gardens in and around Bournemouth, by Mr. G. G. Hamilton, hon. sec. of the society, and Mrs. Hamilton, of Boscombe Place.

Sir Daniel Morris said that Bournemouth is in many respects a remarkable city. It occupies what was once almost an uninhabited country covered with pine woods, heather and sand. Unfortunately, there is now a danger that the pine-country is getting too crowded with houses large and small, and it is not impossible that there will follow here, as elsewhere, an undesirable reconstruction of town life, with eventually the loss of some of the special amenities that have made Bournemouth practically unique amongst English health resorts.

Speaking of the Horticultural Society, Sir Daniel Morris said that it was started in a modest way some 20 years ago for the purpose of holding annual flower shows and demonstrating the possibility of producing, even in this region of pine-woods and sand, beautiful flowers to delight those with taste and fancy in that direction.

As the season in Bournemouth is in winter, said Sir Daniel Morris, this naturally suggests

that more attention might be devoted, both in public and private gardens to winter flowering plants. This would relieve the monotony of the Pines, Laurels, Hollies, and other evergreen trees and shrubs so commonly met with. The subject is capable of considerable development. Next to Hellebores, or Christmas Roses, I would give the first place to the hardy heaths. There are about twenty attractive varieties that commence to bloom in autumn and flower during nearly every month in the year. Erica codonodes, the bell-bearing Heath, with its beautiful soft green foliage and pure white flowers, is truly a winter plant. It is in bloom from December to March. Erica carnea, the red winter Heath, when in bold masses, or in well-placed borders, diffuses on the coldest and bleakest days a warm glow of colour, and helps us to forget it is winter. There are also white dwarf and rosy-pink varieties of this winter Heath. The tree Heath, with its Asparagus-like foliage and fragrant flowers, blooms early in March. Other winter-flowering plants that may be mentioned are the Holly-leaved Barberry, the glaucous Coronilla, Daphne Mezereum, the yellow-flowered Forsythias, the Balearic Clematis in beautiful flower just now at Southbourne, and Garrya elliptica, a singular plant with graceful drooping tufts of pale green catkins. The Japanese Witch Hazel (Hamamelis) is an interesting plant for borders. Its bright yellow spider-like flowers give a charming effect if several plants are placed in a clump. The yellow winter-flowering Jasmine (J. nudiflorum), the fragrant Honeysuckle, the Cornelian Cherry (Cornus Mas), vie with Magnolia stellata with its pure white waxy flowers, with the Japanese Quince (Cydonia japonica), an old winter favourite, and Chimonanthus fragrans, another Japanese winter flower. There are at least four good winter-flowering Rhododendrons, namely, R. dahuricum (March), Early Scarlet (January to March), R. nobleanum (January to March), and R. præcox (March).

MANCHESTER AND NORTH OF ENGLAND ORCHID.

JANUARY 25.—*Committee present:* Rev. J. Crombleholme (in the Chair); and Messrs. R. Ashworth, W. R. Lee, C. Parker, H. Thorp, Z. A. Ward, J. C. Cowan, J. Cypher, J. Evans, W. Holmes, A. J. Keeling, D. McLeod, F. K. Sander, and H. Arthur (secretary).

Silver-gilt Medals were awarded to W. R. LEE, Esq., Heywood (gr. Mr. Branch), for a group of plants; Z. A. WARD, Esq., Northenden (gr. Mr. Weatherby), for a group, composed principally of Odontoglossums. *Silver Medals* to S. GRATRIX, Esq., Whalley Range (gr. Mr. Brown), for a small group of choice plants; Col. J. RUTHERFORD, M.P., Blackburn (gr. Mr. Lupton), for a mixed group in which Odontoglossums were well represented in species and hybrids; J. MCCARTNEY, Esq., Bolton (gr. Mr. Holmes), for a varied group; and J. CYPHER & SONS, Cheltenham, for a group of Cypripediums. *Bronze Medals* to W. J. HARGREAVES, Esq., Burnley, for a group of Cypripediums; G. H. PEACE, Esq., Monton Grange (gr. Mr. C. Mace), for a small group of Cypripediums; Rev. J. CROMBLEHOLME, Clayton-le-Moors (gr. Mr. Marshall), for a small group. Other exhibitors were: O. O. WRIGLEY, Esq., Bury (gr. Mr. Rogers); J. J. HOLDEN, Esq., Southport (gr. Mr. Johnson); J. H. CRAVEN, Esq., Keighley (gr. Mr. Corney); H. J. BROMILOW, Esq., Rann Lea (gr. Mr. Morgan); R. ASHWORTH, Esq., Newchurch (gr. Mr. Gilden); F. A. HINDLEY, Esq., Bradford; Messrs. CHARLESWORTH & Co., Hayward's Heath; Messrs. HASSALL & Co., Southgate; Messrs. STUART LOW & Co., Enfield; Mr. J. EVANS, Congleton; Mr. W. SHACKLETON, Bradford.

AWARDS.

FIRST-CLASS CERTIFICATES.

Odontoglossum "Harmac" (Odontoglossum crispum Graireanum × Odontoglossum Vulystekei), *Odontoglossum "Miranda," Sophro-Cattleya Wellesleyi "Lee's" variety* (*C.* labiata × Sophronitis coccinea), a good round flower, all from W. R. LEE, Esq. *Cypripedium Alcibiades "Gratrix's" variety,* from S. GRATRIX, Esq. A Silver Medal was awarded to Mr. GRATRIX, in addition to the First-class Certificate.

AWARDS OF MERIT.

Cattleya Lady Dillon magnificum (nitens "Ball's" variety × Mrs. Mostyn), from W. R. LEE, Esq. *Cypripedium Black Knight* (Mrs. Mostyn × Thompsonii), and *Cypripedium Princess Wilhelmina* (Salleri aureum × Leeanum giganteum), both from S. GRATRIX, Esq. *Odontoglossum × Prince Edward "Ward's" variety, Odontoglossum crispum variety "Eric,"* and *Odontoglossum ardentissimum variety "Norman,"* all from Z. A. WARD, Esq. *Odontoglossum Luci-Masereel* (Luciana × Franz Masereel) and *Brasso-Cattleya Rutherfordii* (Gaskelliana alba × B.-C. Queen Alexandra), both from Col. RUTHERFORD, M.P. *Cattleya Purity* (Warneri alba × intermedia alba) and *Odontoglossum × George V.*, both from J. J. HOLDEN, Esq.

BIRMINGHAM HORTICULTURAL.

FEBRUARY 5.—With the object of obtaining increased financial support towards the prize fund of this recently-formed society, a public meeting was held at the Council House, Birmingham, on the above date.

The Treasurer (Mr. T. Silver) explained the present financial position of the society. The old Handsworth Horticultural Society at the end of the year showed cash in hand, which had since been placed to the credit of the new society, to the amount of £237 9s. 7d., in addition to which there were properties to the value of £100. In the past the Handsworth society had given prizes to the value of £296 6s. 1d., and that sum would have to be increased to make the society worthy of the city it would represent. Some effort had been made to raise donations to a special prize fund, and up to that moment the amount received was as follows: From private gentlemen wishing to give donations of various amounts, £59 2s. 6d., two silver cups valued £11 11s., special trade prizes £36 10s., making a total of £107 3s. 6d. They could not attempt to hold a big show with a smaller prize fund than that of Wolverhampton, and he thought there should be no difficulty in raising the sum required.

Councillor W. R. Bromley said he had spoken to the officials of several local shows in the suburbs, and they thought it would be more in the nature of a local show glorified than one representing the whole city. It was necessary to hold it in a more central position, say at Cannon Hill or Calthorpe Park. There was also a feeling among the secretaries of local shows that they should have been asked to join and make the proposed exhibition one large show.

The Chairman proposed the following motion:—"That this meeting pledges itself to do its best to raise a prize fund of at least £500 so that the committee of the Birmingham Horticultural Society may offer prizes to the value of £1,000." Sir George said he did not know if they could get the sum together for the present year; in fact, he was rather doubtful. It was not necessary to abolish the local shows. On the contrary, he inclined to the belief that local shows should exist in order to foster interest in horticulture and make the larger show a success.

The motion was unanimously carried.

In announcing a gift of £50 from Sir George Kenrick and £25 from himself, Mr. Griffiths said the committee were already in a position to offer a prize list to the value of £400, but they desired to enlarge it as much as possible. Up to the present donations towards the prize fund amount to a total of £193 0s. 6d.

ROYAL SCOTTISH ARBORICULTURAL.

FEBRUARY 9.—The fifty-ninth annual business meeting of this Society was held in the Goold Hall, 5, St. Andrews Square, Edinburgh, on this date. The President, Sir John Stirling Maxwell, Bart., occupied the chair.

The report by the council showed that the members number 1,411, a net increase of 42, while the financial statement showed that, after providing for ordinary expenditure, a sum of about £470 for the publication of the Glen Mor Forest survey and the expense of the Society's Forestry exhibit at the Scottish National Exhibition at Glasgow, there was a credit balance of the revenue account of £51 3s. 1d. The funds on December 31, 1911, amounted to £1,822 18s. 4d.

In moving the adoption of the report, the chairman referred to the useful work done by the Aberdeen branch, and said it would be a good thing if there were more of such branches. Continuing, he said that the Glen Mor survey had been carried out by Lord Lovat and Captain Stirling, and had cost the Society a considerable sum of money, but it was extremely well spent money, and when the Highland hills came to be covered with forests, as no doubt they would be within the next half century, it would be a great satisfaction to the Society to know that it had taken the lead in the matter. Lord Pentland, said the chairman, had announced that there was to a Department of Forestry attached to the Board of Agriculture in Scotland.

Sir John Stirling Maxwell was re-elected President; Lord Lovat and Mr. Chas. Buchanan, vice-presidents; and the new councillors chosen were Messrs. A. T. Gillanders, F.E.S., Alnwick, Jas. Whitton, Glasgow, Wm. Davidson, Panmure, W. H. Massie, Edinburgh, Lord Balcarres, M.P., Captain Archibald Stirling, of Keir, and Mr. A. D. Richardson, Edinburgh. The Right Hon. R. C. Munro Ferguson, M.P., of Raith and Novar, was re-elected hon. secretary, and Mr. Robt. Galloway, S.S.C., secretary and treasurer.

On the conclusion of the business, an address (illustrated by lantern views) was given by Mr. John F. Annand, Lecturer in Forestry, Armstrong College, Newcastle-on-Tyne, on "Some Uses of Demonstration Forests in Forestry Education."

KENT COMMERCIAL FRUIT SHOW.

FEBRUARY 8.—A general meeting of the Kent Commercial Fruit Show Association was held on this date at Maidstone. The chairman of the committee, Mr. M. J. R. Dunstan, Principal of Wye College, presided. The accounts of the fruit show held in connection with the fat-stock show at Ashford on December 11 and 12, showed a balance of £2 18s.

It was decided to hold a show at Maidstone during the last week in October, and to throw open the majority of the larger classes to fruit-growers in Great Britain, and to introduce several fresh classes, especially for Pears.

Mr. F. S. W. Cornwallis was elected president in succession to Lord Northbourne, who was cordially thanked for his services, as were also Messrs. Lobjoit, Martin, and Poupart, the judges, Mr. R. Jacobs, the auctioneer, whilst a special vote of thanks was accorded the secretary, Mr. Wellington, to whom much of the success of the show was due.

THE WEATHER.

THE WEATHER IN WEST HERTS.

Week ending February 14.

A return to mild and wet weather.—For the past eight days and nights the weather has remained very warm for the time of year. On three consecutive days during the past week the temperature in the thermometer screen rose to or above 50°, and on one night the exposed thermometer did not fall below 39°—the average for February being 26°. The ground is now at about an average temperature at 2 feet deep, but 8° warmer than is seasonable at 1 foot deep. Rain has fallen on all but one of the last nine days, and to the total depth of 1¼ inches. Of that amount 6 gallons, or virtually the whole of the rainfall, has come through the bare soil gauge, and 4½ gallons through that on which short grass is growing. The sun shone on an average for 1 hour 28 minutes a day during the week, which is three quarters of an hour a day short of the average duration for the second week in February. Light airs prevailed during the week, and they came almost exclusively from some point between south and east. Yesterday, however, the atmosphere remained calm throughout the whole day and following night. The mean amount of moisture in the air at 9 p.m. exceeded a seasonable quantity for that hour by seven per cent. A selected patch of double Snowdrops came first into flower in my garden on the 9th inst., which is its average date of blooming for the previous 25 years, but a fortnight later than last year. *E. M., Berkhamsted, February 14, 1912.*

SCHEDULES RECEIVED.

Cheadle and Cheadle Heath (Stockport) Horticultural Society's ninth annual show, to be held on Friday and Saturday, July 26 and 27, in a field near Cheadle Heath Station. Hon. secretary, Mr. L. C. Lake, Bank House, Gatley, Cheadle, Cheshire.

Killarney Sweet Pea Society's second annual show, to be held in Killarney, on Thursday, July 25. Particulars may be obtained from Miss Godfrey, Aghadoe Cottage, Killarney.

MARKETS.

COVENT GARDEN, February 14.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—EDS.]

Cut Flowers, &c.: Average Wholesale Prices.

	s.d.	s.d.
Arums (Richardias)	2 6	3 6
Azalea, doz. onchs.	4 0	—
Camellias, per box of 18's and 24's	2 6	—
Carnations, p. doz. blooms, best American var.	1 6	2 0
— smaller, per doz. bunches	18 0	21 0
— Carola, crimson, extra large	6 0	—
Eucharis, per doz.	2 6	3 0
Freesia refracta alba, p.dz. bun.	1 6	2 0
Gardenia, per doz.	6 0	9 0
Helleborus (Christmas Roses), p. dozen	1 6	2 0
Hyacinth (Roman), pr. doz. bnchs.	4 0	6 0
Lilac, per bunch white	2 6	3 0
— mauve	3 0	3 6
Lilium auratum, per bunch ...	4 0	5 0
— longiflorum, long, per doz.	3 6	4 0
— short, per doz.	3 0	4 0
— lancifolium alba, long ...	2 6	3 0
— — short ...	2 0	2 6
— speciosum rubrum, dz. blooms:		
— long	2 6	—
— short	0 9	1 0
Lily of the Valley, p. dz.bunches:		
— extra special ...	15 0	18 0
— special... ...	10 0	12 0
— ordinary ...	8 0	—
Marguerite, per doz. bunches:		
— Yellow... ...	2 0	2 6
Narcissus, per doz. bunches:		
— Double Van Sion	4 0	6 0
Narcissus, per doz. bunches:		
— Emperor ...	4 0	5 0
— Empress ...	4 6	6 0
— Golden Spur...	3 0	4 0
— Henry Irving	2 6	3 0
— Paper white ...	4 0	4 6
— Poeticus ...	2 0	2 6
— Princeps ...	2 6	3 6
— Sir Watkin ...	4 0	5 0
— Soleil d'Or ...	1 3	1 6
— Victoria ...	4 6	5 0
Orchids, Cattleya, per doz. ...	12 0	—
— Odontoglossum crispum ...	3 0	4 0
Pelargoniums, p. dz. bunches:		
— Double Scarlet	8 0	12 0
Roses, 12 blooms,		
— Bridesmaid,	4 0	5 0
— C. Mermet ...	4 0	5 0
— Liberty ...	5 0	8 0
— Mme. Abel Chatenay ...	5 0	8 0
— Niphetos ...	2 6	3 6
— Richmond ...	4 0	8 0
Snowdrops, p. doz. bunches ...	1 0	2 0
Tuberose, gross ...	9 0	10 0
— long, p. bunch	2 0	—
Tulips, per bunch:		
— double pink ...	1 0	1 6
— — yellow ...	1 0	1 6
— — scarlet ...	1 3	1 6
— pr. doz. bnchs:		
— white	8 0	9 0
— yellow	7 0	8 0
— scarlet ...	8 0	10 0
— bronze	6 0	8 0
— pink	9 0	12 0
Violets, per dozen bunches ...	1 3	2 0
— Princess of Wales, per doz. bunches ...	3 0	4 0
— Parma	2 0	2 6

Cut Foliage, &c.: Average Wholesale Prices.

	s.d.	s.d.
Adiantum Fern (Maidenhair), best, dz. bnchs.	7 0	8 0
Agrostis (Fairy Grass), per dz. bunches ...	2 0	4 0
Asparagus plumosus, long trails, pr. ½doz.	1 6	2 0
— medium, doz. bunches ...	12 0	18 0
— Sprengeri ...	10 0	12 0
Carnation foliage, doz. bunches...	4 0	—
Croton foliage, various, per dozen bunches ...	12 0	15 0
Cycas leaves, artificial, per doz.	3 0	12 0
Eulalia japonica, per bunch ...	1 0	1 6
Moss, per gross ...	6 0	—
Myrtle, dz. bchs. (English), small-leaved ...	6 0	—
— French ...	1 0	—
Smilax, per bunch of 6 trails ...	1 0	1 3

Plants in Pots, &c.: Average Wholesale Prices.

	s.d.	s.d.
Aralia Sieboldii, p. dozen	6 0	7 0
Araucaria excelsa, per dozen ...	18 0	21 0
Asparagus plumosus nanus, per dozen	10 0	12 0
— Sprengeri ...	8 0	9 0
Aspidistra, p. dz., green	21 0	30 0
— variegated ...	30 0	60 0
Azaleas, per doz.	36 0	42 0
Cinerarias, pr. dz.	8 0	9 0
Cocos Weddeliana, per dozen:		
— 60's	6 0	12 0
— larger, each ...	2 6	10 6
Croton, per dozen	18 0	30 0
Cyperus alternifolius, per doz.	5 0	6 0
— laxus, per doz.	4 0	5 0
Daffodils, per dozen	6 0	8 0
Dracæna, green, per dozen ...	10 0	12 0
Ericas, per dozen:		
— hyemalis ...	10 0	12 0
— alba	10 0	12 0
Ferns, in thumbs, per 100... ...	8 0	12 0
— in small and large 60's ...	12 0	20 0
Ferns, in 48's, doz.	6 0	—
— choicer sorts per dozen ...	8 0	12 0
— in 32's, pr. doz.	10 0	18 0
Ficus elastica, per dozen	9 0	12 0
Genistas, 48's, doz.	10 0	12 0
Geonoma gracilis, 60's, per dozen	6 0	8 0
— larger, each ...	2 6	7 6
Hyacinths white & clrd., p. dz. pots	10 0	12 0
Kentia Belmoreana, per dozen	5 0	42 0
— Fosteriana, 60's, per dozen	4 0	6 0
— larger, per doz.	18 0	60 0
Latania borbonica, per dozen ...	12 0	30 0
Lilium longiflorum, p. doz.	20 0	24 0
— lancifolium rubrum in pots, per dozen ..	15 0	18 0
— lancifolium alba	15 0	18 0
Marguerites, white, per dozen ...	8 0	10 0
Pandanus Veitchii, per dozen ...	36 0	48 0
Phœnix rupicola, each	2 6	21 0

Fruit: Average Wholesale Prices.

	s.d.	s.d.
Apples (English cookers) bushel	5 0	9 0
— Nova Scotian, per barrel ...	17 0	22 0
— Californian Newtowns, pr. case	9 0	12 6
Apples (Canadian), per barrel ...	20 0	—
— Oregon (Hood River), per case	16 0	23 3
— American, per barrel	20 0	32 0

Fruit: Average Wholesale Prices *(continued)*.

	s.d.	s.d.
Bananas, bunch:		
— Doubles ...	10 0	12 0
— No. 1 ,, ...	8 0	10 0
— Extra	10 0	12 0
— Giant ,, ...	14 0	18 0
— Loose, per dz.	0 6	1 0
— Red coloured...	5 6	6 6
— Jamaica Giants, per ton ...	£10	£12
— Jamaica Ordinary, per box (9 doz.) ...	4 0	5 0
Cranberries, per case (30 qts.)...	10 0	11 0
— Cape Cod, per case (30 quarts)	9 6	—
Dates (Tunis) doz. boxes	4 6	5 6
Grape Fruit, case:		
— 96's	18 0	24 0
— 80's		
— 64's		
— 54's		
Grapes (English), per lb.:		
— Black Alicante	1 9	2 0
— Gros Colman...	1 0	2 6
— (Belgian), Gros Colman, p. lb.	0 9	1 3
— Almeria, p. brl.	11 6	15 6
Per dozen lbs.	3 0	4 6
— (Cape) per case	7 9	8 6
Lemons:		
— (Naples), case	26 0	30 0
— Messina, per case	6 0	15 0
Limes, per case ...	4 0	—
Mangoes, per doz.	4 0	6 0
Nuts, Almonds, per bag	52 6	—
— Brazils, new, per cwt. ...	85 0	100 0
— Spanish, per sack	40 0	42 0
Nuts, Barcelona, per bag ...	35 6	36 6
— Chestnuts, per bag	3 6	19 0
— Cocoanuts (100)	18 0	23 0
— English Cobs per lb.... ...	0 3	—
— Walnuts (Naples) kiln dried, cwt. cases	54 0	—
— French Grenobles, per bag	6 6	7 0
— Boeris, per bag	6 0	7 0
Nectarines (Cape) per box ...	7 6	10 0
Oranges, Jamaica per case ...	9 0	10 0
— Californian ...	20 0	22 0
— Denia, case ...	14 0	33 6
— Valencia ...	10 0	12 0
— Jaffa, per case	9 6	—
— Mandarins, per box ...	0 6	3 6
— Bitter, per ½ chest	16 0	18 6
— Seville Sour ½ chest ...	15 0	18 0
Peaches (Cape), pr. case	6 0	12 0
Pears (Californian), per case ...	10 6	16 6
— Glou Morceau	11 6	12 6
— Easter Beurré	8 6	—
— Winter Nelis	12 6	13 6
— (American) per barrel, 180 lbs.	25 0	26 0
— cases	7 0	—
— (Cape)	3 6	4 6
Pineapples, St. Michael ...	2 6	4 0
Plums (Cape), per case	2 0	4 0
— Apple, per box	4 0	8 0

Vegetables : Average Wholesale Prices.

	s.d.	s.d.
Artichokes (Globe), per dozen ...	3 0	4 0
— Ground, per ½ bushel ...	1 0	1 3
Asparagus, Sprue..	0 9	—
— Cavaillon ...	3 0	—
— Paris Green ...	4 6	5 0
Beans, Madeira, per basket	6 0	—
— Guernsey, Dwarf, per lb.	4 0	4 6
— French, per packet, lb. ...	2 0	2 6
Beetroot, p. bshl.:		
— Long	2 6	3 0
Brussel Sprouts, per ½ bushel ...	1 0	1 6
— half bags ...	1 6	2 6
Celeriac, per doz.	2 6	3 0
Cabbages (English), per tally ...	3 0	6 0
Cauliflowers, p. dz.	2 6	3 6
— (Italian), p. pad	2 0	3 0
— (Cornish), per crate	7 0	9 0
Celery, doz. bndls.	10 0	14 0
— (washed), per dozen bundles	12 0	18 0
Carrots (English), pr. doz. bun....	1 6	2 0
— per cwt. ...	3 6	4 6
— (washed) p. bag	4 0	5 0
Chicory, per lb. ...	0 4	—
Cucumbers, p. doz.	9 0	15 0
Endive, per dozen	2 0	—
Greens, per bag ...	1 6	2 0
Herbs (sweet), pkts., p. gross	7 0	—
Horseradish, 12 bundles ...	11 0	12 0
Leeks, per doz. ...	3 0	4 0
Lettuce (French), per doz. ...	1 6	2 0
Mint, per dozen bunches ...	6 0	7 0
Mushrooms, cultivated, p. lb. ...	0 10	1 3
Mustard and Cress, pr. dz. punnets	1 0	1 6
Onions (Dutch) per bag	8 0	8 6
— English ...	9 0	9 6
— (Spanish), per case	8 0	9 0
Parsley, ½ sieve ...	2 6	3 0
— per doz. bun.	3 6	4 0
Parsnips, per bag	6 0	6 6
Radishes (English), per dozen ...	1 0	1 3
Rhubarb, forced, per 12 bundles	1 0	1 3
Savoys, per tally...	7 0	10 0
Spinach, per bushel... ...	5 0	7 0
Seakale, p. punnet	0 9	1 0
Tomatos (Canary Islands), per bundle... ...	12 0	14 0
Turnips (English), per dz. bunches	2 0	2
— bags (washed)	6 0	7 0
— (unwashed) ...	5 0	6 0
Turnip Tops, per bag	2 6	3 0
Watercress, p. dz. bunches ...	0 6	0 6½

REMARKS.—English hothouse Grapes have met with a very moderate demand. The first shipment of black Grapes from the Cape arrived this week, the variety being Hermitage. Consignments of various fruits from Cape Colony, per s.s. "Braemar Castle," amounted to about 20,000 cases, consisting of Pears, Plums, Nectarines and Peaches. Many of the Peaches were in a very bad condition. There are moderate supplies of home-grown fruits of Bramley's Seedling, Dumelow's Seedling (Wellington) and Newton Wonder Apples. Importations of fruits per s.s. "Auapa" totalled 36,129 barrels Apples, and per s.s. "Minnewaska" 2,941 boxes and barrels, consisting of Oranges, Apples, Grape Fruit, Cranberries, &c. New season's Brazil Nuts are due to arrive this next week. Teneriffe Tomatos continue a fairly good supply. The market is well supplied with forced vegetables and salads, with the exception of French Beans, which have been very scarce. Outdoor vegetables continue a good supply. *E. H. R., Covent Garden, February 14, 1912.*

Potatos.

	per cwt. s.d.	s.d.
Kents—		
Queen's	4 0	4 6
Up-to-Date ...	4 0	4 6
Lincolns—		
Up-to-Date ...	3 9	4 6
British Queen ...	3 9	4 3
King Edward ...	4 0	4 6
Epicure	3 0	3 6
Northern Star ...	2 9	3 6
Evergoods ...	3 0	3 9
Lincolns—		
Maincrops ...	4 3	4 6
Blacklands ...	2 9	3 3
Bedfords—		
Up-to-Date ...	3 9	4 0
Puritan	4 0	4 3
Dunbars—		
Up-to-Date ...	5 0	5 3
Maincrop ...	5 3	5 6

REMARKS.—Trade still remains steady, and supplies are equal to the demands, with the exception of best quality tubers. *Edward J. Newborn, Covent Garden and St. Pancras, February 15, 1912.*

Obituary.

LORD LISTER.—Lord Lister, who died last week at an advanced age, was one of the greatest Englishmen of his time. There is scarcely a home throughout the civilised world that is not indebted to Lister, for the revolution which he effected in surgery has spared humanity endless suffering and saved innumerable lives. Hence it is fitting that we join in the national tribute to his memory. But there is an added reason why we should not allow the occasion of Lord Lister's death to pass without acknowledgment of his achievements, for the great reform on which his glory rests consisted in the clear-sighted application of biological discovery, and has an immediate bearing on the physiology of the lower plants. Pasteur had proved that putrefactions are the outcome of the activity of plant-like micro-organisms, and that these micro-organisms are ubiquitous. Lister applied this idea in surgery. The diseases which at that time were the almost inevitable sequels of surgical operations might, he reasoned, be also due to micro-organisms which gain access to wounds. If this be so, Lister argued, the micro-organisms must be excluded. He excluded them, and proved by the enormously reduced mortality in surgical cases, that his hypothesis was true. Thus arose the practice of aseptic surgery. The essence of that practice is the institution of a new order of cleanliness only possible when it is recognised that to keep a wound clean micro-organisms must be prevented from living in the wounds made by the surgeon.

GEORGE MAW.—We learn with deep regret of the death of Mr. George Maw, who was distinguished as botanist, geologist, and traveller. Mr. Maw, who was 79 years of age, died on Wednesday, February 7, at Kenley, Surrey, having survived by less than two months his old friend and fellow-traveller, Sir Joseph Hooker. Mr. Maw's greatest contribution to botanical science was undoubtedly his classical monograph of the genus Crocus, to which he devoted no less than 10 years. The older generation of readers of this journal will remember the series of articles on Crocus which Mr. Maw contributed to the *Gardeners' Chronicle* in the years 1877 to 1881. Mr. Maw, in preparing his monograph, both studied deeply and travelled widely, visiting the countries of Southern Europe, the Levant, and Asia Minor. The extensive collections of members of the genus Crocus which he made were cultivated at Benthall Hall, Broseley, Shropshire, where Mr. Maw resided till the year 1886. His great work appeared in the same year, and was illustrated by 67 plates, prepared from original drawings which Mr. Maw made for the purpose. He accompanied Sir Joseph Hooker and Mr. John Ball in their journey to Morocco, and contributed a sketch of the geology of that country to the volume in which the travellers described their experiences of what was then a "new" country. The 30th volume of the *Botanical Magazine* was dedicated by Sir Joseph Hooker to Mr. Maw, as a tribute to his exertions in introducing new plants to English gardens.

M. L. MORTENSEN.—The American *Florists' Review* reports the death of Mr. M. L. Mortensen, of the plant pathological experimental department of the Co-operating Danish Agricultural Societies. Mr. Mortensen was only 30 years of age; he had made a special study of certain diseases in cereals caused by attacks of fungi.

THOMAS MOLDEN.—Mr. Thomas Molden, a well-known gardener of Newport, Rhode Island, U.S.A., died on January 10, aged 74 years. Mr. Molden was born at Fermanagh, Ireland, in 1855. He settled in Newport in 1863.

THOMAS SWIFT.—We regret to record the death of Mr. Thomas Swift, for many years in the service of Messrs. Hurst & Son, Seedsmen, on the 6th inst., at his residence at Reigate. Mr. Swift was a native of Huntingdon, and commenced his business career with the old firm of Messrs. Wood & Ingram, Huntingdon. He removed to London and entered the firm of Messrs. Hurst & Son, in 1869, and remained with them up to the time of his retirement, Christmas,

1909, rising from quite a junior position to that of principal book-keeper. On his retirement he was presented with a silver centre-piece and two silver vases by the past and present members of the staff and was entertained to a complimentary dinner. Mr. Swift was one of the auditors of the Gardeners' Royal Benevolent Institution.

TRADE NOTICES.

MESSRS. W. CUTBUSH & SON.

Mr. Leonard Cutbush, son of Mr. Herbert J. Cutbush, has entered as one of the partners of this firm. The principals now include Messrs. Herbert J. Cutbush, William H. Cutbush and Leonard Cutbush. Mr. Leonard Cutbush has been connected with the firm for some years, and has travelled as its representative in Holland, Belgium and France.

CONWAYS, LTD.

The above named company has been registered with a capital of £2,000 in £1 shares, to carry on the business of florists, nurserymen and seedsmen, lately conducted by Wm. Conway & Sons, Ltd., at 16 and 18, Bull Green, and Heath Nursery, both in Halifax, and at Bank End Farm, Greetlands, Yorks. Private company.

FARNORTH FRENCH GARDEN AND NURSERY, LTD.

This company has been registered, with a capital of £1,000 in 950 cumulative preference shares of £1 each, and 1,000 ordinary shares of 1s. each. The new company will control the business at Grange-over-Sands, Lancaster, as the Farnorth French Garden and Nursery. It is a private company, with registered office at Allaithwaite Lodge, Grange-over-Sands, Carnforth.

GARDENING APPOINTMENTS.

Mr. RICHARD D. GREENHAM, for the past 3½ years General Foreman at Joyce Grove, Henley-on-Thames, Oxfordshire, and previously at Ashtead Park, Surrey, Copped Hall, Essex, and Powerscourt Gardens, Wicklow, as Gardener to ANDREW R. MOTTON, Esq., Upton House, Banbury, Oxon.

Mr. T. GREEN, Headley, Epsom, as Gardener to Major LLOYD, Byams, Marchwood, Hampshire.

Mr. C. DRANE, previously Foreman at Burwarton Hall, Bridgnorth, Salop, and at Wootton Hall, Ashbourne, Derbyshire, as Gardener to E. STACEY, Esq., Audley House, New Barnet. (Thanks for contribution to R.G.O.F. box.—EDS).

ANSWERS TO CORRESPONDENTS.

ARTIFICIAL MANURES FOR POTATOS: *J. E.* In view of the fact that you have used heavy dressings of horse manure for many years, the soil is now doubtless well supplied with well-rotted organic matter. This being the case, the soil, unless a very light one, should be capable of holding sufficient water for the needs of the crop in average seasons. We are, therefore, of opinion that good results will be obtained for the next few years by the use of less horse manure provided the fertilising ingredients are supplied by means of a well-balanced mixture of artificial manures. If some horse manure is available, only one average cart-load (12 cwt. to 15 cwt.) to each 12 rods of ground, supplemented by a dressing for each 40 square yards of :— 1, ½-1 lb. sulphate of ammonia (20 per cent. nitrogen); 2, 2 lbs. superphosphate (26 per cent. soluble); 3, 2 lbs. sulphate of potash (50 per cent. pure potash). Sow in the rows at the time of planting, and where the soil is deficient in lime, replace the sulphate of ammonia by 1 lb. of nitrate of soda. On very light soils, good results have been obtained by replacing half the superphosphate by 2 lbs. of rape meal. If no dung is available, good crops, though somewhat deficient in quality, can be obtained by the use of twice the artificial dressing recommended above, but it must be remembered that artificials alone are not as a rule suitable for more than about two seasons. Most agree that Potatos of the best cooking quality are obtained by the combined dressing of dung and artificial manures, besides which it is the cheapest.

ARUM (RICHARDIA AFRICANA): *A Reader* and *E. P. & Son.* There is no disease present in the plants, the decay is due to some cultural error.

BEGONIA GLOIRE DE LORRIANE: *Plato.* The injury to the Begonias is caused by the Begonia mite. Spray the plants thoroughly, or, if practicable, dip them, including the soil, in a solution of soft-soap and quassia.

BOWLING GREEN: *F. T. H.* If you add more fine loam, the dressing you suggest would be a suitable one for your bowling green, but the lime should be used with caution. You might try the effect of a small quantity of the lime applied at intervals. A suitable manure to apply later would be sulphate of ammonia, mixed with fine soil or sand. The turf should be dressed at the rate of about ½ ounce of the ammonium salt to the square yard. Sulphate of ammonia will favour the growth of the grass rather than the clovers. Do not apply lime at the same time as the ammonium salt.

COW MANURE FOR ROSES AND POTATOS: *L. S. T.* ROSES: As the soil is somewhat light, try and hasten the maturing of the manure by turning the heap once or twice during the next month. If possible mix a little horse dung with it to give warmth and aid its drying. Regarding the time to apply it to Roses, much depends on the soil, climate, season and condition of the manure. Essex is, as you know, famous for its Rose soils, but there are so many variations in climate within the county that it is difficult to advise. Speaking generally, however, the manure should be put on as soon as possible; that is, as soon as it has mellowed down a little more. In fact, we trust that a surface dressing of stable manure was applied in the late autumn so as to have been a protection during the late frosts. POTATOS: There is much difference of opinion as to the most effective time and method of applying dung to Potatos, which depend, to a very great extent, on the district and soil. If the soil available is light, the manure will act primarily as a water-retaining agent. In these circumstances we think it best that it should be applied at the time of planting, or a few weeks previous to planting. It should be in a well-rotted condition, and if put in at planting time we advise its being mixed with the loam at the bottom of the trench. By this means the apparent loss occurring from the non-breaking-down of the lumps, which are so often dug up at the end of a dry summer will, to a large extent, be avoided. An even more effective means of aiding the manure to decompose and at the same time act as a water reservoir for the plant, is to mix one part of manure with two parts of loam some days before planting, and to apply this mixture at the bottom of the trench.

EMPLOYMENT IN PUBLIC PARKS: *Parks.* Write to the respective superintendents of the parks for a form of application, or apply personally.

HARDY SHRUBS TO FLOWER DURING JULY, AUGUST AND SEPTEMBER: *J. V.* The following plants will be suitable for your purpose:—Æsculus parviflora, sometimes met with under the name of Pavia macrostachya, grows freely in damp soils, and produces great quantities of fragrant white flowers, with long stamens and red tipped anthers, from the middle of July onwards. Hedysarum multijugum, a pea-flowered shrub from South Mongolia, is of rather straggling habit. Its purple flowers are produced in axillary racemes during August and September. Hypericum Hookerianum, a vigorous-growing Nepaul St. John's Wort, displays its clear, yellow flowers towards the end of August, at which time those of H. patulum are on the wane. H. Moserianum continues to flower throughout September. Olearia Haastii, the New Zealand Daisy-bush, forms a neat evergreen, with small box-like leaves and white, fragrant flowers in July and August. Of Escallonias, E. Philippiana from Valdivia is remarkable for the abundance of small, white flowers, borne in long, arching shoots, clothed with narrow, pale-green leaves. The hybrid—Langleyensis (E. Philippiana × E. sanguinea) is effective, and its rose-pink flowers are borne with great freedom. Leycesteria formosa, an easily-grown, perfectly hardy shrub, should not be omitted. It has drooping racemes of white flowers, suffused with purple, and the plant flourishes in poor soils. Spiræa Douglasii, a well known free-growing shrub, produces terminal racemes of rose-coloured or purple flowers. The undersides of the leaves are white, and have a pleasing effect when disturbed by wind. S. Lindleyana, a tall-growing species, bears an abundance of cream-coloured flowers when planted in a sunny position. One of the most dependable of late-flowering Spiræas is S. discolor (S. ariæfolia), whose graceful panicles of whitish flowers hang from the apex of practically every well-ripened shoot. Philadelphus Gordonianus, a strong-growing Mock Orange, bears large white, almost scentless, flowers with great freedom. Clerodendron trichotomum will succeed in a warm situation. It bears large heads of white flowers, with reddish-coloured calyx-lobes. The best of the late-flowering Hydrangeas is H. paniculata grandiflora, which has sterile flowers borne in long panicles. In order to get the best results, the previous year's shoots should be spurred back in February to within one or two eyes of the old wood. Clethra acuminata, a floriferous North American shrub, is effective in August. The small, white sweet-scented flowers are borne in racemes. Catalpa bignonioides, the Indian Bean, forms a medium-sized tree, and bears large quantities of white flowers, suffused with puce, and dotted with purple in the yellow throat. Eucryphia pinnatifolia must have a sunny position, perfect drainage, and rich soil. Its deep-green glossy leaves and pure-white single flowers with golden anthers, are effective. The Genistas furnish several July-flowering shrubs, of which G. hispanica pumila, G. Æthnensis and G. radiata are good examples. Ligustrum sinense and L. Quihoui are summer-flowering Chinese Privets. The flowers are white. Indigofera Gerardiana, a free-growing Himalayan species, bears axillary racemes of rose-coloured, pea-shaped flowers towards the end of August. Amorpha canescens (Lead plant) has grey leaves, and bears slender panicles of bluish-purple flowers in autumn. Cytisus austriacus bears clusters of yellow flowers from July to September. Zenobia speciosa pulverulenta, Veronica Traversii and V. La Seduisante are other good autumn flowering shrubs.

HYPERTROPHIED GROWTHS ON GOOSEBERRY: *J. H. W.* The outgrowths are dense tufts of roots, usually the result of an excessively damp situation, although certain plants produce such outgrowths in all conditions.

LILY-OF-THE-VALLEY FAILING: *Valley.* No disease is present in the plants. The cause of failure must be looked for in some wrong cultural treatment.

NAMES OF FRUITS: *E. C.* 1, Tower of Glamis; 2, French Crab; 3, Minchull Crab.—*J. R. G.* Annie Elizabeth.

NAMES OF PLANTS: *C. Stapler.* 1, Picea Morinda; 2, Thuya canadensis; 3, Abies nobilis; 4, Cryptomeria japonica; 5, Cupressus pisifera var. plumosa; 6, Thuya plicata.—*H. T.* 1, Oncidium oblongatum; 2, Brassia verrucosa; 3, Cœlia triptera; 4, Oncidium sphacelatum.—*E. Tull.* Cœlogyne speciosa. (This was overlooked last week.)—*C. S. & Co.* Genista hispanica.—*H. W.* Both specimens are forms of Buxus sempervirens, the common Box.—*D. M.* The specimen is insufficient for purposes of identification. Send a better shoot when in flower.

NECTARINE AND VINE ROOTS: *L. E. C.* There is no fungus disease present on the vine roots, which are rotten, probably due to bad drainage. The Nectarine roots are infected with crown gall, a bacterial disease. A thin sprinkling of superphosphate should be placed over the roots, and the roots covered with soil.

SHEEP POISONED BY RHODODENDRONS: *C. H.* In *Gard. Chron.*, January 31, 1885, p. 150, it was stated that "a well authenticated case of the poisoning of 10 sheep is reported from West Middlesex: these, with some 200 others, having broken down a fence in Whitton Park, near Hounslow, and eaten freely of the Rhododendron foliage, which was abundant in the shrubberies." A local veterinary surgeon who examined the dead sheep found the stomachs full of partly-digested Rhododendron leafage, and he expressed opinion that the Rhododendron leaves were the cause of death.

Communications Received.—A. W. G. (thanks for enclosed for the R.G.O.F.)—T. S.—G. M. T.—J. H.—W. F.—H. H. R., Lancs.—F. W. J.—W. A. L.—W. P. R.—H. S.—J. C.—J. C. & Co.—E. W. & Sons—L. A., Letchworth—J. C.—W. P. H.—J. S., Durham—W. B. L.—H. R. D.—J. G. W.—F. J.—S. F. N.—W. G. C.—M. W.—H. Barker—D. M.—A. E. R.—J. W. B.—C. C. W.—Chas. Sharp & Co.—H. W.—F. R. H. S.—R. I. L.—E. O. B.—W. Emptage.

THE GARDENERS' CHRONICLE

ESTABLISHED 1841 — No. 3713

No. 1,313.—Vol. LI. {THIRD SERIES.} SATURDAY, FEBRUARY 24, 1912. {Registered as a Newspaper.} {PRICE 3d. POST-FREE, 3½d.

SUBSCRIPTION—Inland, 15/-; Foreign, 17/6 [22fr. 10c.] [$4 26c.] per annum. Entered at the New York Post Office as second-class matter.

Postal Address—41, Wellington Street, Covent Garden, W.C. Telegraphic Address—"Gardchron, London." Telephone—Gerrard, 1543.

☞ For CONTENTS see page 113.

Floral Novelties for 1912.

WEBBS' "PERFECTION PINK" ASTER.—A mid-season variety of a distinct new beautiful blush pink colour. Height 2 to 2½ feet. Per packet, 2s. 6d.; smaller packet 1s., post free.

WEBBS' "SCARLET QUEEN" ANTIRRHINUM.—A fine new colour in the class of the tall, large-flowering Antirrhinums. Flowers of a bright cinnabar red, with a yellow blotch on the under lip. Per packet, 1s., post free.—WEBB & SONS, Wordsley, Stourbridge.

GARDEN PESTS.—Cross's "Clubicide" is the Gardeners' Insurance against damage by Eelworm, Wireworm, Slugs, Maggot, and all Disease Germs and Insect Pests. Kills all harmful Bacteria, reinvigorates the soil, stimulates plant life. In 1s. flasks and ½-gall. and 1 gall. drums. From all Seedsmen. Sole Manufrs.: A. CROSS & SONS, Ltd., Glasgow.

AUTO SHREDS FUMIGANT kills Leaf-mining maggot, insects in greenhouses, frames. For 1,000 cubic feet, 6d.; 10,000, 3s. 6d. No apparatus. WM. DARLINGTON & SONS, Patentees, Hackney, N.E.

New Phloxes.

GUNN & SONS were Awarded a Silver Cup at the Great Show at Olympia. New Lists now ready. Address: Olton, Warwickshire.

ALPINES & HERBACEOUS PLANTS, —Himalayan and other rare Rhododendrons, rare Shrubs, Construction of Rockeries. Catalogues ready. G. REUTHE, Keston, Kent.

LISSADELL ALPINE & HERBACEOUS PLANTS.—Write for our new illustrated and enlarged List, containing many beautiful novelties at moderate prices. Also List of Seeds collected from above in 1911. J. A. COOPER, Lissadell (No. 2), Sligo, Ireland.

DOUGLAS'S CARNATIONS & PINKS, border and perpetual, are noted all over the world. 5 Gold Medals, R.H.S., 450 Medals and Cups. Newest and best varieties at most reasonable prices, all ready for planting or potting on. Finest hand fertilized seed only sold. Carnation and Picotee seed, all types, 1s. 6d. to 2s. 6d. packet. Auricula, Pink, Polyanthus, finest strain in existence, all 1911 fine crop, now ready for sowing. Send for catalogue, Edenside, Gt. Bookham.

CLARK'S GARDEN SHEARS (Patent). —The most ingenious garden invention. Holds in position the object to be cut, and stops it slipping away. Marvellous value at 5s. per pair. Send P.O. to-day to W. CLARK, Limited, 2, Stourcliffe Street, London, W.

LANDSCAPE GARDENING.—W. INNES STUCKEY, Landscape Gardener, Piccadilly Mansions, Piccadilly Circus, W. (With the late Mr. H. E. Milner).

DICKSONS Horticultural Manure & other high-class Fertilizers; also Dicksons Improved Mushroom Spawn. Priced Circulars free on application to DICKSONS, Royal Seed Warehouses & Nurseries, Chester

ORDER TRELLIS-WORK NOW.—Get our book on Trellis-work, showing Screens, Wall Panels, Window Surrounds, Arches, Arbours, &c., post free. BOULTON & PAUL, Ltd., Norwich.

THE COMING OF THE SPRING reminds you of the importance of sowing the Best Seeds. These are John K. King & Sons', grown on their great Essex Seed Farms.

THE COMING OF THE SPRING.—Send for John K. King & Sons' Manual of Gardening for 1912, the best Seed Book of the year, replete with cultural instructions, charming illustrations, and correct descriptions—post free on application. JOHN K. KING & SONS, Seed Growers to H.M. The King, Coggeshall, Essex.

SUTTON'S EARLY GEM CARROT. Per packet, 1s., post free. Mr. A. Hobbs, Gardener to E. Woodward, Esq., writes:—"I have had a beautiful crop of your Early Gem Carrot, and consider it one of the best for table use."

SUTTON & SONS, The King's Seedsmen, READING.

FIDLER'S NEW ILLUSTRATED CATALOGUE of CHOICE GARDEN SEEDS will be sent post free to any address on receipt of postcard. Write at once for a copy; it may help you to save 50 per cent. on your seed bill this season. FIDLER & SONS, Royal Berkshire Seed Stores, Reading.

BATH'S SELECT SEEDS.—New Illustrated Catalogue of Choice Vegetable and Flower Seeds, with full cultural notes, is now ready, and will be sent post free on application. (Dept. A), R. H. BATH, Ltd., The Floral Farms, Wisbech.

AVENUE TREES, large girth, 10 by 12, 12 by 14 feet. Chestnuts, Sycamore, Limes, Birch, &c. Enquiries solicited. HARGREAVES, Sunnyside, Lancaster.

WM. DUNCAN TUCKER & SONS, Ltd., 27, Cannon Street, London, E.C.; Works, Tottenham. Conservatories, Winter Gardens, Vineries, Peach-houses, Portable Buildings, etc. Catalogue gratis.

CHRYSANTHEMUMS.—Descriptive Catalogue of choice up-to-date varieties and novelty list for 1912, sent free. Apply H. W. THORP, Durrington, Worthing.

FRUITING VINES IN POTS.—Muscat of Alexandria, and leading Market varieties. We make Vines a speciality. G. COLEMAN, The Vineries, Burgess Hill, Sussex.

HUTS FOR THE GARDEN.—Fruit Rooms, Potting Sheds, Workshops, Cycle Houses, Boot Rooms, Servants' Mess Rooms, Children's Playrooms, &c. Send for Illustrated Catalogue, free. BOULTON & PAUL, Ltd., Norwich.

Roses and Herbaceous Plants.

GUNN & SONS were awarded the 25 Guinea Challenge Cup in each collection at the Leamington Show. Up-to-date List for each now ready. Address: Olton, Warwickshire.

LAVENDER.—Common, Giant and Dutch, 3s. per dozen, 21s. per 100; also the dwarf Compact variety, 5s. per dozen, 35s. per 100, and the White-flowered, very sweet-scented, 7s. 6d. per doz., 55s. per 100.—THE GUILDFORD HARDY PLANT NURSERY, Guildford.

GREENHOUSE PAINTING & GLAZING "Vitrolite" superior to White Lead Paint, 9/- per gall. "Plastine" supersedes Putty, 16/- per cwt. Full particulars from W. CARSON & SONS, Grove Works, Battersea. Agents throughout the country.

BARR'S VEGETABLE AND FLOWER SEEDS of finest selected strains and tested growth. Descriptive Catalogue, with Cultural Notes, free.

BARR'S BEAUTIFUL LILIES, GLADIOLI, MONTBRETIAS, CANNAS, TIGRIDIAS, etc. for Spring planting. Special Catalogue free. BARR & SONS, 11, 12 & 13, King St., Covent Garden, London.

BARR'S REMOVAL SALE OF HARDY PLANTS.—Clearance List of surplus plants at greatly reduced prices (prior to removal of nurseries from Surbiton to Taplow), post free. BARR & SONS, 11, 12 & 13, King St., Covent Garden, London.

GISHURST COMPOUND is harmless in use; its soluble Sulphur, &c., has for 40 years cured Blights and Fungus on Plants, and is good for washing unhealthy dogs. Gishurstine keeps boots dry in all weathers; they will polish. Good for Harness. Wholesale from— PRICE'S PATENT CANDLE CO. Ltd., London.

For Advertisement Charges see page viii.

KELWAY'S "Manual of Horticulture" is the best of all Garden Books, 2s., post free. From ——, Esq., Northwood, Middlesex, September 28th, 1911: "I find that I have never forwarded 2s. for your lovely Catalogue you sent me some weeks since. It would be cheap at five times the price, and I sincerely regret the oversight."—KELWAY & SON, Langport, Somerset.

THE MODERN HERBACEOUS BORDER.—Full particulars and prices of Kelway Borders packed, arranged for planting, to flower in tasteful schemes of colour, from—KELWAY & SON, The Royal Horticulturists, Langport, Somerset. From Mr. ——, Bridge of Weir, N.B.: "I desire to inform you that the lot of Herbaceous Plants got from you last Autumn have turned out splendidly, and in every way superior to the much advertised so-called cheaper sorts."

NOW is the time to plant Kelway's Delphiniums—fine, bold upstanding plants with a wealth of bloom in all shades of blue and purple. They are from strong country-grown stocks, and flourish under almost all conditions. From ——, Worcester, Mass.: "Your Delphiniums have proved to be the finest we ever grew, and for variety of beautiful shades they cannot be excelled." Choice named collections, 15s., 24s., 34s., 56s. a dozen. —KELWAY & SON, The Royal Horticulturists, Langport, Somerset.

BUNYARD'S CATALOGUES, free on application.

FRUIT TREES AND VINES.

SHRUBS AND CONIFERS.

ROSES AND OTHER CLIMBERS, in Pots.

HERBACEOUS & AQUATIC PLANTS for present planting.

GEORGE BUNYARD & CO., Ltd., Royal Nurseries, Maidstone. Established 1796.

TO NURSERYMEN.—THE NEW PATENT MULTI-DIBBER. Indispensable to all who raise seedlings in boxes, frames, or in the open ground. Send for special list with prices. BOULTON & PAUL, Ltd., Norwich.

WALTERS & CO., Morland Rd., Croydon, Makers of Lath Roller Greenhouse Blinds; Trellis Screens and Fences, Arches, Arbours, Rose Pillars. Established over 20 years. Catalogues free.

OSMUNDA for Orchids.—Consignments arrive fortnightly. 2s. 6d. per bushel; per bag, 8s. 6d. SANDER & SONS, St. Albans.

THE Popularity of "XL ALL" Specialities increases every year. All gardeners proclaim that nothing equals these celebrated preparations. "XL ALL" NICOTINE VAPORISING COMPOUND, the gardeners' favourite Fumigant, both Liquid and Cake. "XL ALL" NICOTINE INSECTICIDE WASH for Syringing, Dipping and Dressing Fruit Trees and Plants; Mealy Bug, Scale, etc., cannot exist where this is used. "XL ALL" INSECTICIDE WASH B (*sine* Nicotine), best non-poisonous Wash on the Market. No licence required to sell this. Other preparations of great renown, both poisonous and non-poisonous, are:—"XL ALL" WEED KILLER, "XL ALL" FERTILISER, "XL ALL" ROSE MANURE, "XL ALL" WINTER WASH for Fruit Trees, etc. Don't forget to ask your Nurseryman, Seedsman or Florist for Richards' small pink list.—G. H. RICHARDS, Manufacturer, 234, Borough High Street, London, S.E.

RITCHIE'S SWEET PEAS.—Universally acknowledged to be the best procurable; Exhibition collection, containing the best 12 Spencers, viz., Asta Ohn, Clara Curtis, Edna Unwin, Elsie Herbert, Gladys Burt, Jno. Ingman, Marj. Linzee, Maud Holmes, Mrs. Sykes, Mrs. Breadmore, Prince Asturias, Tennant Spencer, 30 seeds each, 2s. 6d., post free; Sweet Pea list free on request.— A. S. RITCHIE & CO., Seedsmen, Belfast.

SALES BY AUCTION.

Monday, Wednesday and Friday next.

MONDAY and FRIDAY NEXT, February 26th and March 1st, at 12 o'Clock.—Choice Hardy Perennials and Herbaceous Plants, Lily of Valley, Spiræas, Iris, Pæonies, &c., Japanese Liliums, Gladiolus, Begonias, and other Hardy Bulbs.

At 1.30 o'Clock.—1,500 ROSES, Standard, Dwarf, Climbing, &c., also Fruit Trees in variety.

WEDNESDAY NEXT, February 28th, at 12 o'Clock.—Japanese Liliums in large variety, Begonias, Gloxinias, Gladiolus, Tuberoses, Lily of Valley, Iris, Carnations, Pinks, &c., Herbaceous and Rock Plants, and Perennials. Peat and Leaf Mould.

At 1.30 o'Clock.—3,000 ROSES, English, French and Dutch grown, Standards, Dwarfs, Climbers, &c., Standard, Pyramidal, and other Fruit Trees.

At 5 o'Clock.—100 lots of Ornamental and Decorative Palms and Plants, Azaleas indica and mollis, Rhododendrons, Aspidistras, Standard Bays, &c., from Belgium, also Stove and Greenhouse Plants.

MESSRS. PROTHEROE & MORRIS will SELL the above by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, E.C. On view mornings of Sale and Catalogues had.

Friday Next, March 1st, at 12.45 o'Clock.

By order of Messrs. Mansell and Hatcher, Ltd.,

A consignment of Cattleya Trianæ in fine condition, together with choice cool, intermediate, and hot-house Orchids, from various sources. Orchids in flower and bud.

MESSRS. PROTHEROE & MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C. On view morning of sale and Catalogues had.

Bristol.

MR. JOHN COWAN, of Liverpool, will SELL by AUCTION in the Grand Hotel (front Stock Room), Broad Street, Bristol, on Thursday, February 29th, 1912, at 12.30, a large and grand collection of Orchids, including numerous specialities and many in flower and showing for flower, also many lots of newly-imported Orchids. On view morning of Sale. Catalogues may be had at the Hotel, or post free from the Liverpool Orchid and Nursery Co. (Cowan's), Ltd., Gateacre Nurseries, Gateacre, near Liverpool. Telephone: 70 Gateacre. Telegrams: "Cowan, Gateacre."

ROSE TREES.—Sales every Tuesday, Wednesday, and Friday of Roses, Shrubs, Lilies, Gladioli, &c., at Moorgate Auction Rooms, 23 and 25, Moorfields, E.C. (near Moorgate Street Station). Catalogues post free.

STEVENS' AUCTION ROOMS. ESTAB. 1760.

MONDAY AND WEDNESDAY NEXT.

MR. J. C. STEVENS will SELL by AUCTION at his rooms, 38, King Street, Covent Garden, London, W.C. At 1.15.—Standard, Dwarf and Climbing Roses, Liliums, &c. At 3 o'clock.—Standard and Half-standard Roses, Standard, Pyramid, and Espalier-trained Fruit Trees, Standard and Pyramid Bay Trees, Box Trees, also Latanias, Kentias, Aspidistras, &c. At 3.45.—Splendid consignment of Hybrid Tea and Hybrid Perpetual Roses, including many of the latest varieties. On view mornings of Sale. Catalogues on application. Goods purchased, packed and forwarded to all parts.

ROSE TREES, FRUIT TREES, PERENNIALS, LILIUMS, etc.

Mr. J. C. STEVENS begs to announce that his

SALES by AUCTION

are held every **MONDAY** and **WEDNESDAY at 12.30.**

Catalogues post free.

Lots purchased, packed, and forwarded to all parts.

STEVENS' AUCTION ROOMS
(ESTABLISHED 150 YEARS),
38, King St., Covent Garden, London, W.C.

BUSINESSES FOR SALE, &c.

WILLIAM AUBREY & CO., Nurserymen's Agents, 10, Duke Street, Charing Cross, London, offer NURSERY, Surrey; about acre land, four glasshouses, packing sheds, &c.; good house and cottage let off, leaving rent only £8 9s.; price complete, £350.

WILLIAM AUBREY & CO. also offer prosperous FLORIST'S BUSINESS in busy coast resort, Essex; doing £2,000 yearly; two shops in grand positions; very suitable to add Fruit and Vegetables; price complete, £375, or would be sold separately.

EXCEPTIONAL OFFER TO GARDENERS and others.—Splendid FRUITERERS; well situated centre of town; same hands 15 years; good home; sound living; only £65.—AICHARD, 22, Caversham Road, Reading.

BUSINESSES TO LET.

TO BE LET OR SOLD.—Compact FREEHOLD NURSERY; cottage; about one acre land; five glasshouses, each 60 feet, all fully heated; Rochford's tubular boiler; large potting shed; within easy distance Reigate, Redhill.—Particulars, THOMPSON, Hookwood, Horley, Surrey.

BUSINESS CARDS.

AGENCY in the U.S. and Canada.—Mr. H. YOUILL, Financial Secretary, American Gladiolus Society, solicits correspondence from a reliable house wishing to establish an Agent in the U.S. and Canada.—Address, 538, Cedar Street, Syracuse, N.Y.

PARTNERSHIPS.

IMPROVER. — GENTLEMAN, one year and six months' training in large Nursery under Glass, would like place as above; Floral work; might entertain Partnership.—E. R. M., Box 16, 41, Wellington Street, Covent Garden, W.C.

PUBLISHERS' NOTICES.

KYNOCH'S "Wild Flowers of Barmouth," fourth edition, including Salwey's Scarce List, Habitats and Notes, published 1863, pp. 50, price 6d.—J. KYNOCH, 8, College Road, Brighton.

Present-Day Gardening.

Edited by R. HOOPER PEARSON, Managing Editor of the GARDENERS' CHRONICLE. Now Ready. Post free, **1/9** each.

Numerous Beautifully Coloured Plates are contained in Each Volume.

1.—**Sweet Peas.** By HORACE J. WRIGHT, late Secretary and Chairman of the National Sweet Pea Society. With Chapter on "Sweet Peas for Exhibition," by THOS. STEVENSON.

2.—**Pansies, Violas, and Violets.** By WILLIAM CUTHBERTSON, J.P., and R. HOOPER PEARSON.

3.—**Daffodils.** By the Rev. J. JACOB.

4.—**Orchids.** By JAMES O'BRIEN, V.M.H., Secretary of the Orchid Committee of the Royal Horticultural Society.

5.—**Root and Stem Vegetables.** By ALEXANDER DEAN, V.M.H., Chairman of the National Vegetable Society.

6.—**Carnations and Pinks.** By T. H. COOK, Head Gardener at Sandringham; JAMES DOUGLAS, V.M.H., and J. F. MCLEOD, Head Gardener to Mr. Pierpont Morgan. Contains 8 full-page coloured plates.

7.—**Rhododendrons and Azaleas.** By W. WATSON, with preface by Sir F. W. MOORE, M.A. (the first popular volume published on this subject). Contains 8 full page coloured plates.

8.—**Lilies.** By A. GROVE, F.L.S., with preface by H. J. ELWES, F.R.S. Contains 8 coloured plates.

9.—**Apples and Pears.** By GEORGE BUNYARD, V.M.H. Contains 8 coloured plates.

10.—**Roses.** By H. R. DARLINGTON, with 8 full-page coloured plates. A double volume, price **2/10**, post free. Special presentation edition, with beautiful cover design, in cloth gilt, gilt top, price **3/10**, post free

THE PUBLISHER,
"Gardeners' Chronicle" Offices, 41, Wellington St., Covent Garden, London, W.C.

TENDERS.

County Borough of St. Helens.

THE Corporation of St. Helens are prepared to receive Designs, Specifications and Tenders from specialist firms for the erection of a new Conservatory at the Victoria Park within the borough. Particulars and site plan may be obtained on application to Mr. Arthur W. Bradley, M.Inst.C.E., the Borough Engineer, on payment of £1, which sum will be returned upon receipt of a bona fide tender and return of drawings and particulars. Tenders must be delivered not later than 12 o'clock noon on the 13th March, 1912, addressed to the "Chairman of the Parks and Public Buildings Committee, Town Hall, St. Helens," and endorsed "Tender for Conservatory, Victoria Park." The Corporation do not bind themselves to accept the lowest or any tender.

W. H. ANDREW,
Town Clerk.

Town Hall, St. Helens.

THE Corporation of Grimsby invite Tenders by the 1st March for the laying out of a Bowling Green, 2,100 square yards in area.—Particulars may be obtained from the undersigned.

H. GILBERT WHYATT, A.M.Inst.C.E.,
Borough Engineer and Surveyor.

Municipal Buildings, 170, Victoria Street, Grimsby. 20th February, 1912.

PLANTS, &c., WANTED.

WANTED, large KENTIA PALMS, from 5 feet to 25 feet in height; large, well-coloured Dracænas and Crotons, also Aspidistras; for cash or exchange.—ROBERT GREEN (1911), LTD., 28, Crawford Street, London, W.

WANTED, 3,000 Black Champion Currant Bushes two year, 5,000 one year; to be properly packed for export.—Address, J. S., care of Street's, 30, Cornhill, E.C.

WANTED, CUTTINGS, rooted or unrooted, of Chrysanthemum "Mrs. J. Drabble"; small or large quantities.—Offers to JOHN PEED & SON, Nurserymen, West Norwood, S.E.

WANTED, ORANGE TREES, in tubs or pots; state price and size.—GARDENER, Watermouth Castle, Berrynarbor, N. Devon.

WANTED, a few good Cypripediums, Odontoglossums, Vandas Cœrulea, Oncidiums, &c.—Particulars and prices to E. DYSON, Cherryhinton Hall Gardens, Cambs.

WANTED, BOOK on CARPET BEDDING; second-hand or otherwise.—GEO. W. HAGON, 33, Granville Street, Leamington Spa.

PLANTS, &c., FOR SALE.

PERPETUAL CARNATIONS.—Our 1912 Illustrated Catalogue free. Read our "Cultural Treatise," 1s.—YOUNG & CO., Carnation Specialists, Hatherley, Cheltenham.

CUTHBERT'S SPECIALITE MUSHROOM SPAWN.—NEW SPAWN NOW READY. We continue to receive the most gratifying testimonials as to the productiveness and good quality of our Spawn. Per bushel, 5s.—R. AND G. CUTHBERT, Seed and Bulb Merchants, Southgate, Middlesex.

PERPETUAL FLOWERING CARNATIONS; strong, established plants in pots, from 4s. per doz., carriage paid; 20s. per 100, carriage forward; illustrated catalogue, describing 75 leading varieties with cultural hints, post free.—C. F. A. VAN DER SLUYS, F.R.H.S., Ramee, Guernsey.

BEGONIAS, choice Liliums, named Achimenes, Cannas, Iris, Montbretias, Arums, Gladioli, Gloxinias, Spiræas, Tritomas, Hippeastrums, Kerr's strain, 15s. doz.; choice named ditto, 5s.; catalogue free.—ELLISON, 45, West Bromwich.

AURATUM LILY, special shipment, large bulbs, 11 inches to 13 inches round, 1s. 3d each, 6s. for six, 10s. doz., £4 100; Lily Valleys, fine crowns, 2s. 6d. 100, 21s. 1,000; Tuberoses, 1s. 6d., 2s. doz., 10s., 12s. 6d. 100.—ELLISON, 45, West Bromwich.

PEDIGREE VEGETABLE SEEDS, choice flower seeds, English grown Sweet Peas recommended by N.S.P. Soc., all at reasonable prices. I give you the value in seeds, not in elaborate catalogues and large adverts.—ELLISON, 45, West Bromwich.

FERNS! FERNS!!—Tree, Climbing, Basket, Stove, Greenhouse, and Garden Ferns; catalogues free.—SMITH, London Fern Nurseries, Loughboro' Junction, London, S.W.

CUT FLOWERS AND FOLIAGE.—A. W. REDFORD, Wholesale Bulb Grower, Stevenage, offers choice Daffodils, Narcissus, and Tulips in variety daily; boxes free; price lists forwarded on application.

VERBENAS.—The best sorts are Miss Willmott (pink), Princess of Wales (deep blue), Queen of Whites, King of Scarlets, and Lovely Blue (light blue); clean, healthy, strong young plants; carriage paid; 10s. per 100, cash.—H. DUDDERIDGE, The Dorset Nurseries, Blandford.

GARDEN FERNS, 20s. 100.—Cyclamen, Genistas, Acacias, Ericas, Palms, Begonias, Crotons, Dracænas; catalogues free.—SMITH. London Fern Nurseries, Loughboro' Junction, London, S.W.

ODONTOGLOSSUM CRISPUM.—The finest type obtainable; fine, healthy, beautiful-grown plants, of which we hold a stock of one hundred thousand; owing to their natural increasing size, and the want of space requisite thereby, we are offering a few thousands at the following specially low prices, packing included:—Fine plants, flowered and unflowered (of which a large proportion are in spike), in 60's, from £5 to £10 per hundred; ditto, in 48's, £7 10s. to £15; ditto, in 32's, £12 10s. to £20 per hundred. Intending purchasers are invited and would be afforded every facility for a thorough inspection.—H. WHATELEY, Spring Gardens, Kenilworth.

PERPETUAL TREE CARNATIONS, best varieties, strong young plants out of small pots, 20s. 100; good flowering plants in 5-inch pots, 10s. 6d. doz.—G. S. EVANS, F.R.H.S., Carnation Specialist, Bexley Heath.

THE
Gardeners' Chronicle

No. 1,313.—SATURDAY, February 24, 1912.

CONTENTS.

Alpine garden, the—
Anthemis Cupaniana 117
American notes—
Carnations 116
Sweet Peas 116
Apples, the colouring of 124
Beech, a fine weeping .. 114
Big bud in Black Currant, spraying for ... 124
Books, notices of—
Gardening Year Book 123
Lawns 123
Types of British Vegetation... 114
Brambles and Roses, new Chinese 123
Bulbs in the L.C.C. parks 123
Cinerarias seeding ... 124
Cole, Mr. Silas, testimonial to 123
Florists' flowers—
The Ranunculus ... 117
Flowers in season ... 123
Gardeners' dinner, abandonment of ... 123
Genetics, Prof. Bateson on 120
International Exhibition 124
Lady Grey and the gardens at Rideau Hall, Ottawa 123
Nursery notes—
Primulas and Cyclamens at Reading ... 115
Obituary—
Mathias, Hayward ... 128
Parasitic fungi, the losses caused by ... 123
Pear trees, Kainit and 125
Peas, culinary, high price for 123
Plants, new or noteworthy—
Epidendrum Stallforthianum 114
Potash, the world's supply of 120
Potatos instead of grafting wax 123
Public parks, games in 124
R.H.S. annual general meeting 124
Rosary, the—
New Roses of the N.R.S. "Catalogue" 116
Rose Irish Elegance ... 123
Societies—
Ancient Society of York Florists ... 127
Ghent Hort., Agricultural and Botanical 127
Horticultural Club .. 124
Leeds Gardeners' Friendly Benefit ... 127
Manchester & North of England Orchid 128
National Auricula ... 123
National Chrys. ... 128
Royal Horticultural.. 125
Scottish Horticultural 127
Soils, partial sterilisation of 118
Solanum tuberosum ... 124
Sweet Pea disease ... 124
Toxic excreta of plants 124
Week's work, the—
Apiary, the 119
Flower garden, the... 118
Fruits under glass ... 118
Hardy fruit garden ... 118
Kitchen garden, the... 119
Orchid houses, the ... 118
Plants under glass ... 119

ILLUSTRATIONS.

Anthemis Cupaniana 117
Beech, a fine specimen of a weeping 115
Epidendrum Stallforthianum 114
Rose Irish Elegance 121
Tomato plants growing in partially-sterilised soil ... 118

PARTIAL STERILISATION OF GLASS-HOUSE SOILS.

(Concluded from p. 98.)

CONSIDERABLE attention has been devoted to the case of the so-called "sick soil" thrown out from commercial Cucumber and Tomato houses. The Cucumber soils were extraordinarily rich, richer even than farmyard manure, but they contained numbers of eel-worms and fungi. All the eel-worms, including the dangerous Heterodera, were killed by heating the soil to 140° Fahr., but not by treatment with toluol or carbon disulphide. Fig. 48 shows how badly the soil was infested with Heterodera, and how completely steaming removed the pest. The authors were not able to make many observations on fungous diseases as none appeared on the plants on the untreated soils, but from their experiments they conclude that steaming kills the disease spores. It does not, however, kill all fungi; indeed, it gives rise to some substance particularly favourable to certain harmless species which are apt to develop rapidly, especially if the soil is rather dry, but they soon disappear, and are not seen again.

The present treatment of sick soils is in the majority of cases merely to throw them out and substitute fresh soil often purchased and carted from a distance. The authors' experiments show that this method, which entails the sacrifice of the enormous manurial residues, is unnecessary, for after partial sterilisation the sick soil again becomes capable of producing healthy, vigorous crops. However, from the grower's point of view, the question resolves itself into a matter of cost, and unless the new method can be shown to be cheaper than the old, the grower is not likely to adopt it, in spite of the economy of manurial substances. The question of expense must therefore be considered in some detail. The cost of wheeling out the old borders in a Cucumber house, dumping the soil, and purchasing and carting new soil, is put by experienced growers, with whom the authors discussed the subject, at 2s. to 3s. 6d. a ton in a crowded district. In such a case the grower would still be in pocket if he paid 2s. a ton to have his old soil treated, because, by so doing, he would recover some of its manurial residues. As a matter of fact, sick soil was sterilised in a large nursery at 1s. 6d. a ton, so that, even on the present method, the process is economical. In smaller nurseries, where it is not necessary to work at a great speed, the process can be effected much more cheaply.

For a variety of reasons, the authors consider that partial sterilisation by heat is the most effective method at present available. The soil should reach a temperature of 200° Fahr., but need not pass 210° Fahr. It should be maintained for an hour or more at a temperature exceeding 180° Fahr. It is immaterial, so far as present results go, whether dry heat or moist heat is used, that is, whether the soil is baked or steamed, but if steam is used, it must blow through at a sufficient rate to prevent complete condensation, or the soil will become too wet. After sterilisation the soil should not be exposed more than necessary to the rain, as plant-food begins rapidly to form and is very liable to be washed out.

Where steam heat is used, probably the best plan is to blow high-pressure steam through a harrow-like instrument with jets corresponding to tynes buried in the soil. The implement was arranged to deal with a yard of soil at a time; steam was blown through at a pressure of 80 to 90 lbs., and raised the temperature of the soil in two or three minutes to 212° Fahr., without materially wetting it. The heating was continued for 15 minutes only, and the soil was then thrown into a heap, but so slowly did it cool that even after five hours the temperature remained at 160° Fahr. The total cost, including the hire of the engine, wages, fuel, and all other charges, was 1s. 6d. a cubic yard. The engine dealt with 40 yards of soil per day. Slower methods are cheaper; indeed, one grower put up a steriliser, utilising the waste heat from his flues, and claimed that the cost is only 5d.

FIG. 48.—TOMATO PLANTS GROWN IN PARTIALLY-STERILISED SOIL.

(A) Soil heated to 130° Fahr.; (B) Soil untreated; (C) Soil heated to 200° Fahr.

a ton when three tons are dealt with in the 24 hours. As the calculated fuel requirement for 100 per cent. efficiency is only 1d. per ton of soil, it is obvious that there is considerable possibility of reducing the present cost.

Chemical treatment is, however, much the simplest in principle, and has obvious advantages in that it requires no special apparatus and no carrying out of the soil. The two liquids used by the authors, toluol and carbon disulphide, are not suitable for commercial work, although they have given good results in small glasshouses. The authors are at present investigating a number of commercial waste products which would be available to the grower in case they gave satisfactory results. *E. J. Russell.*

NEW OR NOTEWORTHY PLANTS.

EPIDENDRUM STALLFORTHIANUM KRANZ. (§ EUEPIDENDRUM.)*

EPIDENDRUM STALLFORTHIANUM is most nearly related to E. exasperatum Reich., a native of Costa Rica, a species that has never been introduced to cultivation. As will be seen on reference to fig. 49, E. Stallforthianum has the habit of E. nutans, and can be grown in the same conditions as that species. It is, however, easily distinguishable from E. nutans and its affinities by the rough rhachis of the panicle, rough ovaries, and the characteristic flower-stalks. Moreover, the sepals show some small external protuberances, but these are not so marked as Reichenbach would seem to indicate in E. exasperatum. The flowers in both species are brown and white, the sepals being of a dull brown; the thin, narrow petals and the lip are pale brown, and contrast pleasingly with the column, which is ivory-white. The colours displayed by this species are somewhat rare among Epidendrums, which adds much to its interest.

The flowers have, unfortunately, a rather disagreeable odour, difficult to describe and very peculiar. The inflorescence branches at the base, and thereafter is simple to the top, a character of some botanical interest. In one or two specimens which I have seen the principal rhachis was more or less abortive, and the two side branches seemed to spring laterally from a stem terminating in two or three sheaths. Reichenbach, in describing E. exasperatum, draws attention to the peculiarities of the inflorescence in this species, which differed more or less in all the three specimens which he had under observation.

E. Stallforthianum is a plant of considerable interest, though perhaps hardly a "thing of beauty," and is no less worthy of notice than E. nutans and E. floribundum. It has a slender, graceful stem, and produces its long, showy leaves in plenty.

The species was sent to me by Herr Ehinger, gardener to Mr. Stallforth, of Wiesbaden. Mr. Stallforth discovered it at the foot of the Orizaba, in Mexico, and brought it over to Europe with a collection of other Orchids. *F. Kränzlin.*

* EPIDENDRUM STALLFORTHIANUM, *Kränz.* (§Euepidendrum.)—Caules 60 ad 70 cm. alti, infra teretes supra subanoipites, foliati infra cataphyllorum vaginis albidis tecti; internodia inferiora cauli adpressa, lineari-lanceolata v. lanceolata, acuminata, laete viridia, subtus carinata, supra sulcata, ad 15 cm. longa, ad 2 cm. lata, folium supremum pedunculum vaginans, vagina propria basin pedunculi arcte ringens, brunnea, acuminata, panicula nutans v. deflexa oligoclada, uniramosa v. ramis 2 tantum, rhachis ceterum plus minus abortiva, rhachis ut etiam ovaria scaberrima, bracteae brevissimae v. subnullae, quam ovaria multo breviores. Sepala oblonga obtuse acuta, dorsale rectum, lateralia subobliqua, 1 cm. longa, 2 mm. lata, sub anthesi convexa, extus sparse et minute papulosa, brunnea. Petala filiformia, apice paulum dilatata. Labelli basi subcordati lobi laterales valde varii, plerumque crenulati, interdum trilobuli v. tridentati, lobo intermedio lineari, antice in lobulos 2 triangulos acutos exiente; calli per discum 3 intermedius humilior, latior ad apicem (rectius sinum labulorum) decurrens, laterales basi altiores quam intermedius, sensim decrescentes, totum labellum 8 ad 9 mm. longum, pallide brunneum, cum gynostemio albo, semilongo arcte connatum, androcliniei margo non denticulatus. Flores maleolentes.

Mexico—the Environs of Orizaba (Mr. Stallforth, of Wiesbaden, Germany).

NOTICES OF BOOKS.

TYPES OF BRITISH VEGETATION.*

BRITISH botanists are indebted to Mr. Tansley and to the members of the "Central Committee for the Survey of British Vegetation" for a first attempt to present a comprehensive account of the types of vegetation met with in the British Isles.

Although the work of observing and describing these vegetation-units is far from complete, yet, as the editor observes, enough is known to justify the attempt at a preliminary sketch of the subject, which, it is believed, will interest botanists and lovers of nature, as well as students of scientific geography.

The book is not a work on ecology, but a description of vegetation from the ecological point

FIG. 49.—EPIDENDRUM STALLFORTHIANUM: FLOWERS WHITE AND BROWN.

of view, in so far as detailed surveys of detached areas make a complete account possible.

The study of vegetation from this point of view leads inevitably to a study of the relations of the individual plant to its environment, a branch of botany which evidently comes into close touch with plant physiology.

In this country the work of observing, analysing and recording the vegetation is making rapid progress, but very little work has yet been done in the domain of experimental ecology. Obvious difficulties arise in describing the vegetation of a country such as this, in which a large proportion of the surface is under cultivation and only comparatively small areas exist under natural or even semi-natural conditions. Taking this into account, and also the amount of exact information available, the analysis of vegetation expressed in the diagram at the end of the book serves a most useful purpose in showing, not only the chief types of vegetation which occur, but their affinities and possible relationships.

As knowledge increases, modifications will no doubt be introduced into this scheme, and it is apparent that nothing so complex as the natural vegetation of a country will yield analytical results so precise that they can be fully expressed in a diagram; yet it seems clear that it is only by applying the conception of vegetation in relation to habitat that any scheme of classification is possible.

The objection that it is premature to generalise about plant-communities until a fairly complete knowledge of the relations of the individual plant to its environment is available hardly appears to be valid, since a classification of vegetation forms a natural framework into which the results of experimental work can be fitted, and affords a starting point from which problems may be attacked.

Much discussion has taken place as to the nomenclature to be adopted in describing the plant-groups which can be recognised in a phytogeographical survey. The plan adopted in this book has the great merit of logical simplicity and the terms employed are used with a definite meaning.

Ecological botany has been heavily handicapped by the cumbrous nomenclature employed and by the confusion resulting from lack of precision and uniformity in the terms "formation," "association," &c., employed by authors.

In the present work "plant-formation," "plant-association," and "plant-society" are used to describe units of vegetation in a descending series, and are defined provisionally as follow:—

The "plant-formation" is the natural vegetation occupying a habitat with constant natural characters. Some formations, e.g., that of a salt marsh, are easily determined; others are less well defined.

The "plant-asscciation" is the unit next below the formation. If a given formation included woodland, grassland, and scrub, for instance, each of the latter forms a definite association.

The "plant-society" is a group of plants of one species or of small groups of species which occur sometimes as local developments of the plant-association.

The subject-matter of the book is arranged in two parts.

Part I. deals with the conditions of vegetation in the British Isles and gives a summary of the chief climatic and soil factors concerned.

Part II., comprising the main part of the book, gives an account of the existing vegetation. Fourteen formations are recognised and are classified according to the soil conditions with which they are correlated. A summarised account is given of the natural features and distribution of each formation and the characteristic species of its plant-associations, and, where information is available, a more-detailed description is given of special cases.

The book is illustrated with 36 plates of excellent photographs and 21 text figures and is extremely well indexed. *M. C. R.*

* *Types of British Vegetation*, by members of the Central Committee for the Survey and Study of British Vegetation. Edited by A. G. Tansley, M.A. (Cambridge: University Press).

A FINE WEEPING BEECH.

THE accompanying illustration (fig. 50) shows a remarkably fine specimen of the Weeping Beech (Fagus pendula), which may be seen in the home section of Messrs. John Waterer & Sons' nursery at Bagshot, Surrey. This tree is probably 60 to 70 years old, and is still growing vigorously. Its height is from 45 feet to 50 feet, its main leader having recurved until it reaches within 12 feet of the ground. An annual clearance of other growth has to be made for its ever-expanding needs. The space occupied by the tree at the present time has a diameter of 80 feet.

NURSERY NOTES.

PRIMULAS AND CYCLAMENS AT READING.

MESSRS. SUTTON & SONS have made a speciality of Primula sinensis for many years past, and the number of plants they cultivate has increased very considerably. For example, in 1876 only 4 ounces of seed was saved, whilst in 1911 the quantity reached 120 ounces, and the number of plants grown in pots was about 15,000. Not so many years ago the range of colour in the Chinese Primula was very limited; at the present day the colours and shades are almost infinite in their variety. One object of the crosses which are now being undertaken at Reading is to eliminate the yellow eye and replace it by a pure white centre. The effect would be very beautiful in the case of, say, Crimson King or Reading Scarlet; and there seems no reason to suppose that such novelties will be long delayed.

In the case of single-flowered varieties, there are no fewer than 20 types or colours; in the double-flowered section the number is about 10.

FIG. 50.—WEEPING BEECH IN MESSRS. WATERER AND SONS' NURSERY.

(See p. 114.)

Single-flowered varieties are naturally the most popular. "The Duchess" takes the first place in this section; it is very charming, being pure white, with a clear zone of rosy-carmine surrounding a yellow eye. Immense quantities of this variety are grown in order to supply the demand for seed, and the effect is most pleasing when 400 or 500 plants are seen growing in one clump, all in full flower. Hybrids produced from numerous crosses with Duchess vary in colour from blush-white to crimson. They are all interesting, though they differ in merit, and they retain the zone in the centre.

Of those with characteristic foliage we may mention the Duchess ivy-leaved form. Among giant forms there is one of a crimson colour with blossoms 3 inches in diameter! Of the white flowers, "Royal White" may be said to be the best; it is an extremely handsome type, the purity of the blossoms seeming to be intensified by the dark foliage. Another white variety is "Giant White," which has green stems and the Fern type of leaves; and we also saw some very pretty lavender and pink shades. On the occasion of a recent visit to the London Road nurseries at Reading a batch of 300 or so plants of "Crimson King" in flower made a very brave show. This variety is very valuable during the dull days of autumn and winter, as it blooms quite early in the season; "Brilliant King" is another handsome flower, with blossoms even larger than those of "Crimson King."

"Lord Roberts," with its large-fringed flowers of a soft salmon shade, made a very pretty display, and "Firefly" or "Reading Scarlet" and two shades of blue in another variety made quite a striking colour combination. The "Czar" is a variety of a rich violet blue with a yellow eye and dark stems. It has an excellent habit of growth and a most pleasing appearance. It is hoped that in time it will be possible to produce this colour with light stems, and also in double flowers.

"Reading Blue," with its bold, upright trusses of blossom, is a very handsome flower, and "Reading Pink" is a pretty variety, with dainty, elegantly-fringed blossoms. "Coral Pink" is one of the best to use for decoration at night; artificial light seems to set off to the best advantage its rich, creamy hue.

"The Pearl" is one of the oldest varieties, but is still extremely popular. It has the great advantage of flowering very freely, and the blossoms—a delicate tint, almost white—are very ornamental.

"Snow Queen" and "Silver King" are some of the few varieties without the yellow eye. The leaves are respectively pale green and a rich bronze, the latter, especially, forming an excellent foil for the pure-white flowers.

"Rosy Queen" is a charming pink-flowered variety with Fern-like leaves. The pure-white "Snowdrift" and the pale-hued "Lavender" may also be mentioned as Fern-leaved varieties; and there are many others equally attractive. We have by no means mentioned all the attractive varieties which are to be found in this section; but we must now leave the single-flowered plants, having said enough to show how wide is the range of colour and form to be obtained.

Double flowered varieties are becoming popular, chiefly on account of their ease of cultivation, especially as compared with the older types of double-flowered Primulas which could be grown only from cuttings or by division. The "Duchess" type can now be had in double-flowered form as freely as in single, and with a wide range of choice in colour. Perhaps the most useful of all is the double white; it is free in flowering and close in growth, a most suitable Primula for cutting. "His Majesty" is the finest form at present obtainable, and Messrs. Sutton find it difficult to supply the demand for seed. There are many coloured varieties—blue, salmon-pink, Carnation-flaked, and pink with moss-curled foliage—all attractive and ornamental. A conspicuous variety is the improved double scarlet; great pains have been bestowed upon the colour, and it is now almost as rich in this respect as the single "Crimson King."

We next visited the Stellate or "Star" section, and found that here much progress had been made. At least a dozen specified varieties are now obtainable, and many of them are extremely attractive, notably the giant forms of ruby, white and carmine, as well as the Fern-leaved and Carnation-leaved forms. The "White Queen" star has the true stellate habit, both in flower and foliage; the colour of the flower is particularly pure and clear. The blue varieties, both pale and dark, are very pleasing, and we especially liked a salmon-pink variety named "Lord Roberts." Ruby star is a striking form, with the darkest colour of all.

In the case of Primula obconica considerable advance had been made. The habit of growth is very much improved; the stiff flower-stems now carry much finer flowers than formerly, and the colours are good and clearly defined. The pure-white, pale-blue, crimson, and pink are especially attractive, and many of the blossoms measure 2 inches across.

Cyclamens.—The houses devoted to the cultivation of these flowers were a perfect blaze of colour, and as each section contained large quantities of plants the effect was striking. As many as 4,000 plants are grown in one season.

Immense progress has been made with Cyclamens since the first introduction of C. latifolium from Palestine; some few plants of the original type were brought by Mr. Arthur Sutton in 1906 from Mount Carmel, and are still growing at Reading. The flowers are 1 inch deep, with narrow petals, shapely and distinctly pretty, but the original type, although useful and freely-flowering, can scarcely be compared with the numerous giant forms, which retain the best characteristics of the old form. We saw a clump of 600 plants of "Giant White," many bearing flowers 3 inches deep, with petals 1 inch wide: a most imposing display. Among coloured forms giants are numerous. Crimson, salmon-pink, rose-pink, salmon-scarlet—all these were there in profusion, the masses of colour producing a marvellous effect. "Vulcan," a rich crimson variety with marbled foliage, is deservedly popular.

Flowers with fringed petals are increasing in variety and find many admirers. A new type of foliage seems to be developing—marbled, with a silver edging, and a glaucous green centre.

Our tour of inspection was now over, and we turned regretfully from the bright, warm houses to the cold air outside; glad, however, to think that, through the untiring efforts of horticulturists, it is possible at all seasons of the year to forget the inclemency of the weather in the contemplation of a profusion of bright flowers. Glad, also, to see that the possibilities of improvement of Primula and Cyclamen are by no means exhausted, and that the future has in store many novelties of these beautiful creations of nature and florists' art. *M.*

AMERICAN NOTES.

CARNATIONS.

AMONG the new Carnations introduced by American specialists, Benora, a superb variegated variety sent out by Mr. Peter Fisher, Ellis, Mass., holds first place. Sales of rooted cuttings of these varieties several months ago were over 100,000. People have great confidence in anything Mr. Fisher sends out; he has given us Enchantress, Mrs. T. W. Lawson, Beacon, Mrs. Patten, and other noteworthy varieties. He secured the Gold Medal recently at the Carnation Convention and Exhibition in Detroit, Mich., with Gorgeous, a magnificent cerise variety, which will probably be placed on the market a year hence. Other fine novelties are Wodenethe, being sent out by Charles H. Totty, Madison, N.J., an immense, pure-white flower, and St. Nicholas, an excellent scarlet, from Messrs. Baur and Steinkamp, Indianapolis. Of the disseminated varieties, Beacon leads as a scarlet, but Scarlet Glen and Victory each have admirers. In whites, White Enchantress is undoubtedly the most largely grown; White Wonder has proved very popular, while there are many who still grow White Perfection. In light pinks, which are the best sellers on the markets, Enchantress still leads in numbers grown, but Pink Delight is pushing it hard for supremacy, and is, perhaps, the most popular sort we have to-day. Gloriosa, sent out in 1911, a little darker than Pink Delight, will be more grown next year. Princess Charming, a little darker than Enchantress, will also be popular. May Day is not being so much planted, and Fair Maid merely for summer flowering. In dark pinks, Dorothy Gordon, hardly distinguishable from rose-pink Enchantress, is considerably grown, also Sangamo. Nothing has yet displaced Harry Fenn as a crimson. In yellow we have practically nothing but Golden Ray, a novelty which gives promise of being a valuable acquisition.

SWEET PEAS.

SWEET PEAS outdoors are of very poor quality here when compared with the flowers grown in Britain. This is not surprising when our intensely hot and dry summers are considered. Last July we had shade temperatures of 100° to 106° for nearly a fortnight. It is difficult to obtain good flowers under such climatic conditions. Our best flowers are produced at Bar Harbour, U.S., and other shore resorts, where the night temperatures are lower, and where the atmosphere is more humid. Our new National Sweet Pea Society is doing a grand work towards popularising the Sweet Pea. The president, Mr. William Sim, is an energetic Scotchman, who has a large commercial establishment at Cliftondale, Mass., where the highest-grade single Violets and Sweet Peas in the eastern States are produced in immense quantities under glass. The secretary of the society, Mr. H. A. Bunyard, is an Englishman from Maidstone, Kent, and is the right man in the right place. A summer show is arranged for, to be held in Boston on July 13 and 14 next. We have no individual prize of £1,000 for 12 sprays, but $2,500 are offered, which should bring out a grand exhibition, unless some protracted heat-wave should greatly injure the plants.

Our markets here in winter are really better supplied with Sweet Peas than in summer, and the quality now is very much better than in the hot months. The special forcing strains of Burpee and Zvolanek are chiefly used, and big, light, airy houses devoted to their culture. The Spencer varieties seen now are used for spring and early summer flowering. Some growers will this year endeavour to grow Sweet Peas under glass through the summer, in order to secure better flowers; with very large and well-ventilated houses this should prove successful. *William N. Craig, North Easton, Mass. U.S.A.*

THE ROSARY.

NEW ROSES OF THE N.R.S. "CATALOGUE."

ROSES INTRODUCED IN 1909.

(Concluded from p. 100.)

ENTENTE CORDIALE, Austrian Hyb.—This is Guillot's Rose of that name, and is quite distinct from that of Pernet Ducher, which is creamy-white, while Guillot's Rose is coppery-yellow edged rose or pink, a very soft and pretty colour. It is a strong grower, but scarcely a semi-climber; in my garden it seems likely to make a fair-sized bush; the flowers are produced in little clusters at the ends of the shoots. It is only semi-double, but quite attractive. So far I have not found it very free flowering, but it may improve in this respect when it gets established.

EXCELSA, Wich.—This Rose seems now finally settled among the Wichuraianas, to which class its lax and sinuous stems seem properly to refer it, though at first it was often classed as a multiflora. It is of the late-flowering section, and the flowers are semi-double and a good bright-crimson colour. When it was first shown on plants grown under glass and in pots, everyone was saying, "Shall we get this grand colour out-of-doors?" Well, I think we do, or something very near it. Anyway, it is the best double Rose of its class and colour as yet.

HIS MAJESTY, H.T., is a strong-growing Rose. I am using it as a pillar Rose, but I am afraid it is something of a disappointment. It is not a bad colour (crimson carmine) or shape, but the flowers are rather thin, and not altogether satisfactory, while the plant is somewhat subject to mildew; some of my friends say very subject to that disease.

JESSIE, Poly. Pom., is a charming little Rose. It is very dwarf, so is useful on the rockery or for edging. The flowers are double and very freely and continuously produced: when first opened they are bright crimson, and they fade to a rosy crimson. It is the best Rose of its class and colour as yet, and makes a good very dwarf bedding plant. Its weakness, which it shares with many other red Roses, is the dull tint of the fading flowers, so when it is grown in a bed frequent removal of the fading flowers should be practised if the bed is to be kept bright and cheerful.

JONKHEER J. L. MOCK, H.T., is a bicolor variety, the outside of the petals being carmine, the inside a rose-pink colour. It is a well-set-up flower, rather on the lines of Farben-Königin, squarely built on strong, erect stems, and should make a useful exhibition Rose. Perhaps it is by reason of its name that I think there is something rather Dutch and solid in its appearance, and that for garden purposes it should be treated on rather formal lines.

JULIET, Austrian Hyb., is another bicolor Rose, the combination of colour being old gold on the outside of the petals and the inside a rosy red. The contrast of colour is novel and startling, and the flower is delightfully fragrant. The plant is a very strong grower, with good, strong foliage, and seems well adapted for making a hedge or a large bush in the open shrubbery, where it will grow up to 6 feet high.

LADY ALICE STANLEY, H.T.—Again a bicolor, the outside of the petals being rosy-pink, the inside silvery-blush, and the general impression given by the flower being a pale-pink Rose with a deep pink centre. Great hopes were entertained of this Rose when it first appeared as one likely to give us a first-class exhibition Rose, but so far they have hardly been fulfilled. The Rose has not yet found a footing in Mr. Mawley's analysis of exhibition Roses, and the flowers are apt to come rather rough and ragged. It is, however, a well-shaped flower, easily grown, with plenty of substance, and it may be the Rose has not yet found its year. It is certainly one of the most fragrant of Roses, and is worth growing for its perfume.

MARGARET, H.T., is described as soft apricot rose, but hardly with accuracy; at least, this description does not quite recall the colour as I have seen it, which I should prefer to call a delicate pink with just a little yellow at the base of the petals. The flowers are of good form and substance, with stiff petals, and the couple of plants in my garden seem strong and good growers.

MARGARET MOLYNEUX, H.T.—I only know from its appearance at the shows it is a pretty semi-double saffron yellow flower.

MARQUISE DE GANAY, H.T., is a good, if not very distinct Rose, silvery pink, of fair size and fragrant, and the plant is a strong grower.

MURIEL JAMISON, H.T., is a single-flowered Rose, cadmium orange in colour. It is said not to be a very strong grower, but I have not tried it in my garden.

ROSA MOYESII is a species which makes a beautiful and distinct shrub for the garden. The foliage is a good dark green, and the closely-set leaflets give the shrub an Acacia-like appearance, which is quite decorative even when the plant is not in flower. The blossoms are produced about the first week in June, and are a wonderful colour, brownish crimson the *Catalogue* describes them, but I think they are rather a deep strawberry and chamois. The special point about the blossom is the thick cluster of very numerous anthers in the middle of the flower. The only fault this beautiful Rose has is that the flowering season is all too short, but, like Altaica, it makes an occasional flower in autumn. The plant in my garden has made a thick, graceful bush about 5 feet high, and as much, or rather more, in diameter.

MRS. ARTHUR MUNT, H.T., is a very pretty Rose of neat habit, the flowers cream, with a pale peach tint in the centre, not altogether unlike the flowers of Mrs. Foley Hobbs shown as grown under glass.

MRS. HUBERT TAYLOR, T., is generally supposed to be either a sport or seedling from Mme. Cusin, but the growth is longer and more vigorous, and the flowers are a pale-rose colour.

MRS. WAKEFIELD CHRISTIE MILLER, H.T.—This flower is another bicolor Rose, the outside of the petals deep-rose colour, and the inside a soft blush. It has the property of retaining its colour into late autumn, and the brilliant pink quite lights up the garden on a dull day in November. Though fine exhibition flowers of this variety have been shown, it is far too thin and fleeting to be likely to be of much use for this purpose, but its bright colour will make it a useful garden Rose: probably it will look its best in a dull season, when the blossoms can open slowly. The plant is of rather upright and sturdy growth.

ORLEANS ROSE, Poly. Pom., is a bushy little plant with a very large truss of flower. It is rather taller than Mrs. Cutbush and a good deal deeper in colour, almost a rosy red. It is bright and pretty when the flowers first open, but the colour goes rather dull as they fade. Though a useful Rose, I think the colour is not equal to Mrs. W. H. Cutbush.

SÉNATEUR MASCURAUD, H.T., ought to make a useful garden Rose of the Prince de Bulgarie type. The flowers are creamy-white shaded yellow, often with a deep-orange centre.

SIMPLICITY, H.T., is a large-flowered, white, single Rose, very pretty when the yellow stamens are fresh. It grows about the height of Pharisaer, and several of the large single flowers are carried at the top of each stalk. It is rather a difficult Rose to show really well, because the flowers open successively, and the anthers of the older flowers get brown before the later ones open. It is best to pick it just as the first flowers are ready to open and to allow flowers to come out indoors. It is quite worth growing, hardy and vigorous.

SOLEIL D'ANGERS, Austrian Hyb., is said to be a sport from Soleil d'Or. The colour scheme of

this Rose is very similar to that of Juliet, which in other respects it much resembles, the outside of the petals being yellow and the inside a reddish tint, not quite so pink as those of Juliet. Down to the present I have not seen quite such well-formed flowers as Juliet can produce, but then I have not seen so many of them.

TIP TOP, Poly. Pom., is orange-yellow, edged carmine. The weakness of most of the dwarf Polyanthas, except those of the Cecil Brünner type, is a deficiency of form in the flowers. The special point of this Rose is that each flower makes a perfectly-formed little Rose. It is very dwarf and suitable for edging or bedding.

WALTER SPEED, H.T.—This is a lemon-yellow Rose, and has often been well shown. It seems likely to make a fair garden Rose, often giving a flower for exhibition.

WHITE KILLARNEY, H.T.—This is a white sport from Killarney, which it resembles in habit of growth and freedom of flowering. The colour is a creamy white, and one that shows up well from distant parts of the garden. It is fragrant, and seems to do well both in pots under glass and in the open garden. *White Rose.*

FLORISTS' FLOWERS.

THE RANUNCULUS.

RANUNCULUS ASIATICUS is one of the most charming garden flowers, esteemed for its dazzling beauty and so well cultivated in every garden half a century ago. Thomas Hogg, who cultivated most of the old florists' flowers, early in the last century, writes thus of the Ranunculus: "If you are fortunate enough to meet with a bed of the choicest sorts, growing in full health and vigour and bearing a profusion of splendid blossoms of all colours, you will be forced to admit that it is an admirable sight, and one of the grandest displays of Nature in vegetable life. A bed of Ranunculus is esteemed by many in no degree inferior to a bed of the richest Tulips." A Dutch gardener, of Leyden, Henry Van Oosten, writing early in the eighteenth century, says: "This flower is admired for its beautiful and lively colours, which dazzle the sight when the sun shines upon them." He gives minute directions for culture, which are excellent, except in so far as he recommends too much manure, and that his advice as to the time of planting (October) does not suit our English climate. The instructions as to culture given by the florists of 50 years ago are elaborate and unnecessary if not positively injurious. It is unnecessary to go into the history of the Ranunculus. It is sufficient for our purpose to note that it is an old-established favourite and that numerous single and double-flowered varieties were cultivated about the middle of the seventeenth century. Mr. John Rea gives the best account of them in his *Flora*. There were several shades of yellow with both single and double flowers. The double red had flower stems a foot high, and Rea adds: "There are several other nobler sorts of Ranunculus of Asia with gallant double flowers much excelling the old kind described, the which we will insert under those names received, distinguished and known by." About 24 single and double varieties are named and described; the names reveal their foreign origin, even if we had not been informed that they came from Paris and Flanders. One named the Great Monster of Rome had immense double scarlet flowers. The prevailing colours were scarlet and yellow, scarlet striped yellow, &c. But the greater variety of colour was in the single-flowered varieties. Aurora deep yellow marked on the outside with scarlet; Rosa friz, white within and rose without; Pass Rose, white within and damask rose and white without; Nilidore, pale Isabella within and crimson bordered with Isabella without.

Sidonian is buff within and marked with red without. There are many others described of these single forms. The modern florists throw away the single-flowered seedlings, as they used to throw away the single-flowered Dahlias and Chrysanthemums. They were more tasteful florists in the seventeenth century. When I began to cultivate the Ranunculus I read up the culture of it in the *Floricultural Cabinet*, *Gossip for the Garden*, and other books of the mid-Victorian Era. I found planting was advised at various periods from October to March, and considering that the Ranunculus flowers in April and May it did not give them much chance if not planted till March. Rea gave the best advice. He says: "Set them towards the end of December or early in January, the roots may be parted and set 6 inches asunder and three fingers deep." The fact is the leaves show above ground in March. Although the tubers were sent over from the Continent in the first place, the flower itself was brought up to the highest point of perfection in England. A. W. Joseph Tyso, of Wallingford, made a speciality of this flower, and raised many beautiful varieties, many of them of colours the most uncommon, and the flowers of the perfect form of a small pompon Dahlia. This type of the Ranunculus, like some others of the family, prefers a moist medium clayey loam, and a moist climate rather than a dry one. My florist friends in Lancashire and Yorkshire could get better results with less trouble than I could in Essex. The tubers are very small, and some care is necessary in planting, though for the preparation of the soil nothing is necessary beyond moderately rich garden soil that will grow good Cabbages. The bed may be marked out, and the surface made quite level, all stones being raked off. Draw drills about 3 inches deep by 6 inches asunder, place some white sand in the bottom of the drills and on this set the small tubers. The tubers may be 3 inches apart, and a little sand dropped on the crowns aids to keep them clean and healthy. The leaves in their progress to the light will lift the soil with them; but it is easily shaken off with the fingers; at the same time the young plant may require to be pressed into the ground. Some manure well decayed may be placed on the surface between the rows. The plants have a tendency to flag if the soil is rather dry, therefore it is well to water between the rows. After the bloom has passed away and the leaves have taken on the yellow tinge of decay dig the tubers up at once, and lay them out to dry in a cool, airy place.

The Ranunculus may easily be raised from seeds, but the best flowers should be set apart for this purpose, and sticks be placed to all the flowers intended to produce seed. The seed may be sown when ripe, any time in the autumn, and it will germinate in a month in a cold frame or greenhouse. The tubers will all flower well the second season. The seed should be sown thinly and the small tubers should be removed from the seed pans as soon as the leaves decay, which may be in July. They must after this be treated like the full-sized tubers. Do not throw all the single-flowered varieties on the rubbish heap. *Jas. Douglas.*

FIG. 51.—ANTHEMIS CUPANIANA: FLOWERS WHITE.

THE ALPINE GARDEN.

ANTHEMIS CUPANIANA.

THE subject illustrated in fig. 51 is not in the least a choice or a particularly interesting plant, but it is certainly a useful and attractive one. Anthemis Cupaniana forms enormous recumbent masses of aromatic Ferny-grey foliage, from which all the summer through spring singly large white Marguerites on stems of about 8 inches. The whole growth of the plant is luscious and rank, so that its value (and the value is very great) is specially for clothing high points and bare uplands of the rockwork in a spreading galaxy of stars. Its reputation, aided by its weak and succulent texture, leads one to suspect that its hardiness is not beyond doubt; even here, however, in three winters it has taken no harm, and now, with 24° of frost persisting, it flops, indeed, but obviously retains its vitality unimpaired. In any case the smallest cutting roots profusely. The photograph shows A. Cupaniana hanging from a ledge on the Cliff, in such a position, of course, as prevents it from making the vast show and spread that it does on level open plots. But some idea can be gained of the plant's appearance and its prodigality of blossom. *Reginald Farrer.*

The Week's Work.

THE HARDY FRUIT GARDEN.

By F. JORDAN, Gardener to Lady NUNBURNHOLME, Warter Priory, Yorkshire.

PRUNING STANDARD FRUIT TREES. — If the work has not been done already, standard fruit trees should be pruned and cleansed. Worthless trees should be grubbed up and burned, afterwards making the necessary preparations for planting fresh trees. Orchard trees should be attended to yearly to keep them in a clean, healthy condition. Once a tree has formed a well-balanced head, very little pruning will be necessary to keep it in a proper condition, for crowding of the branches may result from over-pruning as well as from no pruning at all. When trees are only pruned at intervals of a few years, the mischief is increased each year it is neglected, because the larger the growths when they are removed the greater are the wounds caused by the cut surfaces. It is better to spread the period of the pruning of such trees over two or three years to minimise any risk of a check by removing too many branches at the same time. In pruning, first remove any dead branches, then any that cross each other or are badly placed, cutting out entirely a branch here and there if the heads still appear crowded. When the work is completed, collect the prunings and rubbish and burn them. Take advantage of mornings when the ground is hard with frost to cart manure or any other materials collected together from various sources for top-dressings. The soil of old orchards is generally impoverished, and well-decayed manure is one of the best materials to enrich it: lacking this, basic slag, lime, or any other stimulating substances are valuable. As a rule, trees that are bearing freely fail to make much growth; they should be given rich top-dressings of a stimulating nature.

YOUNG TREES.—Thin the branches and remove entirely those that cross each other, allowing the shoots to increase and extend upwards and outwards, according to their strength. See that the trees are properly secured to the stakes, as chafing of the bark causes much injury.

COB-NUTS AND FILBERTS.—The time and method of pruning Nut trees should be largely governed by the condition of the catkins. If early pruning is practised, be careful to leave plenty of twigs bearing catkins. March is the best time to prune Cob Nuts and Filberts, and the plants should be grown on single stems to prevent the formation of suckers. Keep the main branches thinned sufficiently to allow the sun and air to reach the centre of the tree: shorten back the leading shoots, and induce the trees to make plenty of twiggy growths, as the Nuts are chiefly borne on such shoots. Nut bushes are often planted in some out-of-the-way corner of the garden, or as windscreens, where they are allowed to become crowded with shoots. Even in such cases they well repay for the trouble of annual pruning and cleansing of all rubbish, afterwards affording the roots a dressing of short manure or other suitable materials.

THE ORCHID HOUSES.

By J. COLLIER, Gardener to Sir JEREMIAH COLMAN, Bart., Gatton Park, Surrey.

BULBOPHYLLUM. — Bulbophyllum grandiflorum, B. Reinwardtii, B. lemniscatoides, B. Watsonianum, B. mirum, B. corniculatum, B. saurocephalum, B. macranthum, B. Ericssonii, and B. virescens are pushing forth new roots, and should be afforded fresh rooting materials. Others, including B. anceps, B. barbigerum, B. saltatorium, B. mandibulare, B. auricomum, B. tremulum, B. Godseffianum, B. Lobbii, and B. Dearei, are developing their flower-scapes, and these will be better repotted later in the year. Those having a creeping habit are best grown in Teak wood baskets, made longer than wide. Plants of this type that have grown beyond their receptacles may, if the compost is still in a good condition, have their roots carefully trained round and pegged into the compost, thus making them more shapely. Plants that need repotting may be divided into portions consisting of two or three pseudo-bulbs with the roots attached, and made into fresh specimens as desired. Plants of a more compact habit of growth should be grown in pans. A suitable compost for Bulbophyllums is equal parts A1 fibre and Osmunda fibre, with a liberal quantity of Sphagnum-moss and some crushed crocks, mixing the materials well together. All these plants succeed best in the East Indian house, as they need a high temperature and plenty of moisture. They grow equally as well either on the stage or suspended from the roof-rafters.

CIRRHOPETALUM.—Cirrhopetalum pulchrum, C. elegans, C. elegantulum, C. ornatissimum, and C. Collettii are growing actively at their roots, and should be potted in a similar manner to that recommended for Bulbophyllums. Many plants belonging to the Megaclinium section are sending up their flower-spikes, and their potting should be deferred for the present.

CATASETUM. — Catasetum macrocarpum, C. Cliftonii, and C. tabulare should be repotted, using a compost consisting of good fibrous loam and A1 fibre in equal proportions, with a quantity of Sphagnum-moss and crushed crocks.

MASDEVALLIA. — Plants of the stronger-growing kinds of Masdevallia, such as M. Harryana, M. Veitchiana, M. ignea, M. Chelsonii, and M. amabilis that were not repotted in the autumn may now receive attention in this matter. Any specimens that are root-bound may be shifted into larger pots, but, in doing this, do not disturb the roots more than is unavoidable. Others that have become bare in their centres may be broken up, and, after cutting away all decayed parts, potted afresh in smaller pots. Use a compost comprised of one half its bulk A1 fibre, cut up rather roughly, and the remainder half-decayed Oak leaves rubbed through a ½-inch sieve, chopped Sphagnum-moss, some crushed crocks, and silver sand. Fill the pots two-thirds of their depth with rough crocks for drainage. Pot moderately firmly. As soon as the flowers of M. tovarensis are over, and the flower-spikes cut away, the plants will commence to make new growth, at which stage fresh rooting material should be afforded. This Orchid is best grown in a shallow pan in the compost recommended for these plants: the pans should be suspended from the rafters. Masdevallias of the Chimæra section, such as M. bella, M. Wallisii, M. Chestertonii, M. Winniana, M. Backhouseana, and M. Carderi, should be grown in Teak-wood baskets and suspended from the roof-rafters. A layer of Fern rhizomes should be placed at the bottom of the basket for drainage purposes, and covered with Sphagnum-moss. Crocks should not be used, as these will hinder the flower-spikes from pushing downwards through the bottom of the basket. Use the same compost recommended for the other species. If a house is not devoted entirely to Masdevallias, they should be placed in the warmest and shadiest part of the Odontoglossum house.

FRUITS UNDER GLASS.

By E. HARRISS, Fruit Foreman, The Royal Gardens, Windsor.

CUCUMBERS.—Cucumbers that were planted last month are making plenty of growth. The leading shoot should be stopped at about halfway up the trellis, to encourage laterals to develop freely. These, in turn, may also be stopped at the third or fourth leaf. Top-dress the roots with fibrous loam and leaf-mould as often as they appear in quantity on the surface. Let the new soil be brought into the house overnight, to become thoroughly warmed before it is placed on the roots. When the fruits are developing, the plants will need feeding, diluted liquid manure being suitable. This may be supplemented by an occasional sprinkling of some concentrated fertiliser. Syringe the foliage twice daily with lukewarm water, and damp the bare surfaces of the house frequently to promote a moist, genial atmosphere. Admit a small amount of fresh air at the top of the house on bright mornings when the temperature reaches 80°; but the ventilators should be closed by 2 p.m., after syringing the plants. The minimum temperature may be maintained at 70°. Raise another batch of plants for successional fruiting. To avoid loss through damping, sow the seeds singly in small pots, in a compost of loam and leaf-soil in equal parts. The soil should be quite warm and sufficiently moist so that no water is required till the seeds have germinated. Plunge the pots in a hot-bed, cover them with a sheet of glass, and provide shade until the seedlings are through the soil.

LATE VINES.—Where mealy bug is present in late vineries special measures must be taken to rid the vines of this pest. I alluded in a former calendar to the use of cyanide for destroying mealy bug on vines. From experiments which we have subsequently made here, I should be far from justified in recommending it for ridding vines of this pest. There is also an element of danger in its effects on the tender shoots. If the rods are subjected to the usual winter cleansing, and the interior of the house thoroughly washed with strong soapy water, there should be little trouble with mealy bug, provided the vines are carefully examined during the early stages of their growth. Carefully remove the soil at the surface of the border for an inch or two deep, and replace it with chopped loam mixed with a liberal quantity of lime rubble, wood ashes, and fertiliser. Carefully examine the borders, and should water be necessary, give the soil a thorough soaking before closing the house. In cold districts late vines may be started at the beginning of March, especially the varieties Gros Colman, Lady Downe's Seedling, and Lady Hutt. Grapes of Lady Hutt variety require a long season to ripen perfectly, and the bunches need to be partially exposed to the sun when the berries are ripening, or they will not be well coloured. Appley Towers and Black Alicante do not require a long season to perfect their fruits, therefore, when planting these in vineries with the above-named varieties, they should be placed at the cooler end of the house.

OUTSIDE FRUIT BORDERS. — The borders should receive an annual top-dressing of rich materials, to encourage the roots to grow near to the surface. A sprinkling occasionally of artificial manure is also beneficial, and when roots are plentiful this is best applied previous to a heavy rain. Where it has been found necessary to cover the borders in which early vines or Peaches are growing with fermenting matter, they should be examined occasionally, and if the temperature has fallen below what is required, some fresh manure and leaves added and mixed with the old. It will serve no good purpose to leave these materials on the borders when the warm spring weather arrives. Therefore, when the cold season is past, the heating materials should be removed and replaced by a dressing of well-decomposed farmyard manure.

THE FLOWER GARDEN.

By J. G. WESTON, Gardener to Lady NORTHCOTE, Eastwell Park, Kent.

STANDARD PLANTS FOR SUMMER BEDDING. —It has become the fashion to employ standard plants of all kinds for bedding purposes. Old plants are usually worth retaining, and should be lifted from the beds in autumn, placing them in pots. But there is no difficulty in raising quickly a stock of the softer-growing kinds, if their propagation is undertaken in the autumn. Heliotrope is always a favourite subject: beds filled with ordinary dwarf plants in these gardens, with a few standards interspersed, were much admired last season. The stronger-growing Pelargoniums are also suitable for this kind of training; varieties such as Clorinda and Paul Crampel soon form large heads. Fuchsias, Aloysias, Marguerites, and Salvias are other plants that may be similarly employed. Old plants that were lifted and potted in the autumn and placed in a cool house should receive attention. Dead and weak shoots should be removed, pruning the plants back to sound wood. Afford a small quantity of fresh compost as a top-dressing, and grow the plants for the present in an intermediate house, to start them into active growth. It is a mistake to maintain much fire-heat in the plant house, as growth made under such conditions is too tender to withstand the cold when the plants are first placed out-of-doors. Young plants intended for training as standards, having been kept growing moderately freely all through the winter, will now require larger pots. Use a moderately rich compost, as a quick growth is desirable. Pot firmly, and do not use pots of too large a size. The side growths should

be pinched as soon as they appear, and the leading shoots tied to a strong stick. As soon as the plants are of a suitable height, they should be stopped, and the resulting shoots pinched again after a few leaves have developed.

PRUNING EVERGREENS. — No general rule can be laid down as to the pruning of evergreen shrubs, for the requirements of the individual plants must be considered. In many establishments evergreens are planted closely in belts or large clumps for the purpose of wind-screens. Laurel, Privet, Aucuba, and Osmanthus are all suitable for the purpose. Sometimes, after being planted, the plants are allowed to grow without restriction, till they have quite outgrown their positions. In this case, advantage should be taken of dry, frosty weather to carefully overhaul the shrubberies, cutting out all dead wood, and reducing the growth to a proper limit. After removing a large branch, train in and secure by string good pieces of healthy growth, to furnish the gap. Laurels or other large-leaved shrubs should not be clipped with shears, as many of the leaves are cut in halves and the shoots damaged, setting up unhealthy conditions. A strong pruning knife is the best tool: a good workman can prune a large number of shrubs with a sharp knife very quickly. Shrubberies may be made additionally interesting by planting a good selection of choice flowering subjects. In particular plant plenty of autumn-blooming shrubs, as there is usually a wealth of bloom in the shrubbery during spring and early summer. Hibiscus syriacus (Althæa frutex) flowers in the autumn, and thrives in almost any kind of soil. Some of the best varieties of this plant are rubis, cœlestis, albus plenus, Duchesse de Brabant, rubra plena, Amaranthus, Leopoldii, and pæoniæflora. Clumps of the stronger-growing, hardy, herbaceous plants should also be utilised, giving preference to those having brightly-coloured flowers late in the season. Kniphofias placed in bold clumps are very effective subjects, the stronger-growing varieties, such as nobilis, grandis, Saundersii, John Benary, K. uvaria grandiflora, and K. caulescens, are all suitable for the purpose. Other suitable plants include Aconitum, Anemone japonica, species of Helianthus, Artemisia lactiflora, Bocconia cordata, Echinops, Eryngiums in variety, Epilobium, and Solidago, all of which flower in the autumn. In spring, patches of Papaver orientale and perennial Lupins will provide a display of bright colours.

SEEDLINGS.—Seedlings of various kinds should be transplanted as soon as they are large enough to handle. Plants of East Lothian Stocks, Pentstemons, and Antirrhinums should not be allowed to grow for too long a period in the seed pans, or they may become drawn and weakened. They should be grown in a light frame or house having an intermediate temperature, transplanting them later to cooler quarters.

THE KITCHEN GARDEN.

By EDWIN BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

LEEKS.—A further sowing of Leeks should be made in boxes and raised in a gentle heat. Seedlings should be pricked off, and grown in a temperature of from 50° to 55°.

SEAKALE.—Roots of Seakale will be found to force much more easily now, and a regular supply of crowns should be placed in the Mushroom house about once a week, and in numbers according to the demand.

MAINCROP ONIONS.—At the first favourable opportunity make a sowing of maincrop Onions. Ground that has been previously well worked and exposed in a rough condition to the influences of the weather will only need the surface made level with a fork, and afterwards raked to prepare a fine tilth for seed-sowing. Wood ashes and soot strewn over the ground before it is raked will be beneficial to the crop. Onions require a firm seed bed, and the ground should be well trodden before the drills are made. Mark the positions of the rows by placing sticks at either end of the plot as a guide to the garden line. Where a quantity of Onions are grown, provision should be made for alleys between every eight or ten rows. Draw shallow drills 10 inches to 1 foot apart. Sow the seed moderately thickly, as the surplus plants will be useful for salad purposes; but leave plenty of plants in the row, as the bulbs ripen better and a greater bulk of crop is obtained than when the plants are thinned too rigorously. Press the seeds in well with the heel, and tread down the soil in the rows, afterwards leaving the surface neat and level. James's Long Keeping and Main Crop are two excellent varieties, and the bulbs keep well.

GARLIC.—Garlic is frequently in request, and a small quantity should be grown each year. Fork over the ground, rake it level, and then plant the sets in rows, with a dibber, at 1 foot apart, allowing 9 inches between the bulbs or cloves, as they are termed. Little attention will be required afterwards, except keeping the ground free from weeds.

PARSNIPS.—Roots of last year's crop still in the ground should be lifted and stored (under a north wall for preference) in ashes or soil. Afterwards, the ground they occupied should be dug without delay.

TURNIPS.—If not already done, a sowing of these should be made on a south border in soil that was trenched or well dug last autumn. Fork the ground lightly, rake the surface as level as possible, and then draw the drills at 1 foot apart. A sprinkling of wood ashes or soot will be found a great advantage. When the seedlings are through the ground, a first thinning should be made, finally thinning them when they have attained to a fair size, at about 9 inches apart. From now onwards small sowings of Turnips should be made at intervals to maintain a succession of roots. White Gem is a good variety for present sowing.

PLANTS UNDER GLASS.

By THOMAS STEVENSON, Gardener to E. MOCATTA, Esq., Woburn Place, Addlestone, Surrey.

THE CONSERVATORY. — When opportunity affords, the conservatory should receive a thorough cleansing, washing the walls with limewash, blacking the pipes and making everything tidy. Creepers, such as Bougainvillea, Habrothamnus, Abutilon, Bignonia, Tacsonia, and Fuchsia, may be either cut back or the shoots thinned according to the requirements of the individual plants. Should the plants be infested with insects, such as thrip, mealy-bug or red-spider, steps should be taken to destroy the pests and remove all traces of them. If this is not done, other plants may be attacked by the insects, which soon spread. Where practicable, a light top-dressing of fresh soil mixed with bone-meal may be applied to the borders in which plants are growing, first removing the top soil if it has become sour. In many conservatories Ferns, Begonias, and other suitable plants are grown on rockeries; sometimes the back wall is covered with Ferns, growing in a compost secured to the brickwork by wires. Such places should be overhauled, dividing any plants that have become too large for their positions or removing them entirely. Some of the more rampant-growing species are liable to smother smaller subjects in adjoining pockets, and for this reason alone it is necessary to examine systematically the various subjects at least once a year. The present is a suitable time to repot large specimen plants, such as Palms. Take care not to overpot them, for after they have attained a certain size they may generally be kept healthy and attractive by merely giving a sprinkling of artificial manure.

CODIÆUMS (CROTONS)—To procure a stock of plants for an early summer display, autumn-struck specimens are preferable. These make well-rooted little plants during the winter; if they are potted into 4½-inch pots (48's) at once and placed on a stage or shelf in the warm stove they will soon grow freely. When Codiæums are required as table plants, the narrow-leaved varieties, such as angustifolius, Chelsonii, Aigburth Gem, Countess, Lucy or Mrs. Dorman, should be selected, but the larger-leaved varieties are the best for producing a bold, decorative effect in the warm conservatory or for grouping. Suitable varieties for the purpose are Prince of Wales, cordatus, tortulis, Warrenii, Queen Victoria, Nestor, Reidii, B. Comte, and Johannis.

CALADIUM. — Plants of Caladium that have been wintered under the stages of the stove are commencing to grow, and should be potted before the shoots grow too long. The larger corms of each variety should be selected as specimen plants for making up, placing them singly in small pots, pans or boxes. I prefer to use boxes, as they can then be potted on into pans or pots as soon as they have made suitable roots, and it will be an easy matter to determine which roots are likely to give the largest leaves, and so better arrange them in the pots. The smaller corms may be potted into small pots at the discretion of the grower. They will provide very useful plants for general decorative purposes. Plants of small-growing varieties such as C. argyrites, and C. minus erubescens should also be started in boxes, potting them into 60's pots as soon as they have made a little growth. The Caladium does best in an open compost consisting of good fibrous loam, peat, leaf-mould, charcoal, broken crocks and sand. The plants should not be potted tightly, as anything that promotes stagnant soil is very harmful. Any repotting of the plants must be undertaken before the plants have become in the least pot-bound.

ROSES.—Roses planted out in cool greenhouses will now be growing actively and may be given a good soaking at the roots of weak liquid manure. Roses in pots that were brought indoors early should be showing their flowers, and these, too, may be helped with manure. A concentrated fertiliser of any kind is suitable, if not used too liberally, guano being probably one of the best foods. At this season overhead syringings are rarely necessary, as a very damp atmosphere may cause mildew to appear. Ventilation should be very carefully afforded. Fumigating with sulphur, if done carefully, is a certain check to mildew; the quantity used must be very small when the foliage is young and tender.

THE APIARY.

By CHLORIS.

ISLE OF WIGHT DISEASE.—I am sorry to state that there are further outbreaks of Isle of Wight disease amongst bees. In every case where bees have died, the frames in the infected hives should be burned with honey and comb contained in them, together with the quilts. The whole of the hives should be scrubbed with boiling water and carbolic soap; when dry, every portion should be painted twice, at intervals of 24 hours, both inside and out, with a solution of carbolic acid, using one part of Calvert's No. 5 carbolic acid to two of water. The hives should then be exposed to the atmosphere and sunshine until they are required for use. Every dead bee should be carefully picked up and burned. If a painter's spirit lamp is available, the whole of the woodwork should be scorched with the flame, and every portion painted afterwards with the carbolic solution. I find that some take all the above precautions, but omit to disinfect the site on which the hives stand. One of the easiest methods is to sprinkle the soil freely with quicklime, or a solution of strong disinfectant; 8 ounces of carbolic acid to one gallon of water may be used. The chief symptoms of the disease are: The abdomen is swollen and the segments near the fundament droop and are curled under the body. The wings, each of which consists of two parts, and when at rest lie one over the other and appear as one, are disconnected and stand out from the body and are seen as in flight. At this time of the year the walls, alighting board, and combs are all soiled by the bees, and the excrement in this case is yellow in colour and not dark and muddy, as in the case when bees suffer from dysentery. Other symptoms may be observed later, when bees are more often on the wing. They do not gather any stores, fly about aimlessly, and seem to have no power to settle down to work. This is followed by a loss of the power of flight, for they cannot fly more than a few yards without alighting. They then fall to the ground, crawl about, creep up blades of grass and attempt to rise in the air from the tips, but fall to the ground. In the evening they crowd together in groups and die during the night. The whole of the bees in the colony are soon infected and all but a few around the queen are found dead on the ground, or in front of the hive on the alighting board. The queen and the brood are unaffected, for the foragers suffer first, but the queen and brood die ultimately from insufficient warmth.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Local News.—*Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Special Notice to Correspondents.—*The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.*

Letters for Publication, *as well as specimens of plants for naming, should be addressed to the* **EDITORS, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Illustrations.—*The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c., but they cannot be responsible for loss or injury.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.*

APPOINTMENTS FOR THE ENSUING WEEK.

WEDNESDAY, FEBRUARY 28—
Roy. Botanic Soc. meet.
SATURDAY, MARCH 2.
Soc. Française d'Hort. de Londres meet.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—40·8°.

ACTUAL TEMPERATURES:—
LONDON.—*Wednesday, February 21* (6 P.M.): Max. 48°; Min. 36°.
Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—*Thursday, February 22* (10 A.M.): Bar. 29·3°; Temp. 54°; *Weather*—Dull.
PROVINCES.—*Wednesday, February 21:* Max 48° Ireland, S.W.; Min. 44° Yorkshire.

SALES FOR THE ENSUING WEEK.

MONDAY AND WEDNESDAY—
Rose Trees, Fruit Trees, Perennials, Liliums, Trained Bay Trees, Palms, &c., at 12.30, at Stevens's Auction Rooms, 38, King Street, Covent Garden, London, W.C.
MONDAY AND FRIDAY—
Herbaceous Plants and Perennials. Lilies and other Hardy Bulbs, at 12; Roses and Fruit Trees, at 1.30; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.
WEDNESDAY—
Japanese Lilies, Gladiolus, and other Hardy Bulbs, Border Plants, Perennials, &c., at 12; Roses and Fruit Trees, at 1.30; Palms and Plants, 5; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.
FRIDAY—
Orchids, at 12.45., at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

The World's Supply of Potash.

Periodical efforts are made by well-meaning, prophetic souls to scare the world by pointing out an approaching shortage in this or that essential material. At one time they threaten us that the Wheat-supply will give out, or that timber is on its last legs. At another it is the world's supply of available nitrogen that is running low, or that the bunkers of the earth are fast becoming depleted of coal. Soon potash will have its turn as the bogey to scare us into economy, and although we decline to share the apprehensions, the facts as to supply and use of potash in the world's agriculture and industries are striking enough and deserve to be widely known. These facts are brought out in an impressive manner in a booklet recently issued by the Potash Syndicate. As is generally known, Germany enjoys a unique place in the sun with respect to the sale of potash salts; for the ownership of the world's supply of this raw material for the industries and agriculture rests almost exclusively with that country. The crude Strassfurt salts are derived from Saxony, in the neighbourhood of the Harz Mountains, and the potash salts, Kainit, extracted therefrom, constitute the main supply for the whole world. It is true that France, with that genius for economy which characterises her, ekes out this supply by the use of muriate of potash (potassium chloride) obtained by the evaporation of sea water, and the thrifty Scotch extract the same substance from seaweed (kelp). Among the by-products of the Sugar-beet industry is carbonate of potash—an added reason for the encouragement of the cultivation of that crop. These, and similar minor sources of supply, pale into insignificance before the gigantic output of the Strassfurt industry. Thus the amount of crude salts of potash (Strassfurt salts) amounts to 7,000,000 tons per annum. The rate at which the use of potash salts is increasing is remarkable. According to the booklet referred to, the consumption, which in 1890 was 71,456 tons for agricultural purposes, and about 50,000 tons for industrial purposes, reached in 1909 the gigantic totals of 590,000 and 85,300 tons. The agriculturists' hunger for potash has increased eight-fold (by 825 per cent.) in 20 years, whereas industries have been satisfied with an increase of only 167 per cent. Holland heads the list of potash users—as judged by the amount applied per acre. In that country potash salts are applied to the land at the average rate (reckoned as pure potash, K_2O) of 1,300 lbs. per 100 acres. Germany uses 915 lbs. per 100 acres, Belgium 426 lbs.; Scotland leads in the United Kingdom with 357 lbs. England is content with 130 lbs., and Ireland remains unsatisfied with 116 lbs.; yet it might be remarked in parentheses that "no nation needed it so much," for as is well known light, peaty soils are generally deficient in potash. Lest our remark should be construed as reflecting on the progress of Irish agriculture, we hasten to add that Ireland's use of potash has increased enormously of recent years. For whereas in 1900 a mere 25 lbs. per 100 acres was given to the potash-hungry land, between four and five times that amount is now used. Although, as we have pointed out recently, scientific knowledge as to the uses of potash to the plant is by no means exact, and although practice very rightly refuses to wait till science sanctions its procedure, yet it is well to remember that the use of potash manures is due to no one so much as to the great founder of bio-chemistry, Justus van Liebig, who first demonstrated that potash is an indispensable constituent of plants. So far as is known, this substance takes a hand in the upbuilding and transmutation of the proteins (albuminous substances) which are the chief and essential constituents of protoplasm.

The United States has been bestirring itself of late years, and has subsidised the Department of Agriculture to seek out sources of supply. Up till the present time the search, so far as the earth is concerned, has not been very successful; but guided, perhaps, by the kelp industry of Scotland, the Agricultural Department has extended its range of seeking to the sea. Therein—or rather in the giant seaweeds of the Pacific—potash has been found in sufficient quantity to pay for extraction. According to an article on the subject in the *American Florist*, the kelp groves along a portion of the coast have been mapped, and it is estimated that they will yield more potash than is at present imported. The method of extraction of the chloride of potash from the seaweed is very simple. The kelp is dried and, as it dries, the potassium chloride exudes. The kelp groves of the Pacific are often many square miles in area, and consist mainly of two great brown algæ belonging to the genera Macrocystis and Nereocystis. These seaweeds reach a gigantic size, plants of 100 feet in length being common. It is estimated that a proper exploitation of these gardens of the sea will yield annually 1,000,000 tons of potassium chloride, worth nearly $40,000,000. Moreover, and therein is much to rejoice the heart of the ingenious American, the by-products to be obtained from the kelp—iodine, glue, provender for cattle, after the example of Japan—may be expected to contribute materially toward the cost of collection and preparation of the potash. Life arose—so we are told—from the sea, and when Strassfurt has given us its last ounce of potash salts, the life of our fields and gardens will be prolonged by the potash which the sea will yield.

PROFESSOR BATESON ON GENETICS.—In his fifth lecture at the Royal Institution Professor BATESON returned to the problems of specific variation in the light of recent research in genetics. He gave many examples, in which the differences are such that there is no reason for thinking that they play any part in the struggle for existence. For instance, the house-sparrow and the tree-sparrow closely resemble each other, but the sexes in the house-sparrow are unlike, whereas in the tree-sparrow they are alike, resembling the cock of the house-sparrow. Yet these two species live closely similar lives. Again, in the scarlet tanager there are two nearly-related forms. In one form the cock is a brilliant scarlet; in the other he is a more carmine red. The hen of both forms is a greenish bird. In winter the cock of the scarlet form moults and becomes like the hen, but the cock of the carmine form shows very little seasonal variation. The study of specific variations makes us realise the difficulties with which the systematist has to deal. For instance, a case which has puzzled botanists for some time is that of the classification of the Elms of Great Britain. HENRY and BACKHOUSE set out to study the genetic relationship of the three forms, Ulmus montana, U. glabra, and the Huntingdon Elm. They found that the Huntingdon Elm is a hybrid between U. glabra and U. montana, and that the difference between these two species is a simple difference involving two pairs of Mendelian factors. Yet another case of a polymorphic species which offered difficulties to the systematist is that of Capsella bursa pastoris. This case has been worked out by SHULL. Here there are two pairs of factors involved, namely, pointed and blunt lobes to the leaves, and broad and narrow lobes. It is to the various possible combinations of these characters that most of the different forms are due. There is only one method by which the systematist can discover the relationships of the multitudinous forms with which he has to deal, and that is by experimental breeding. Failing that, he must be content to remain a cataloguer of differences. Finally, Professor BATESON discussed some problematic cases of the distribution of nearly allied species in contiguous areas. These included that of the North

Fig. 52.—Hybrid Tea Rose Irish Elegance: Flower-buds orange-red; expanded flower shades of apricot-yellow.

(See p. 123.)

American woodpecker (Colaptes). There are two forms: one with red quills, the other with yellow quills. They also differ in other minor characters. If a line be drawn from British Columbia to the Gulf of Mexico, then east of it is found the yellow-quilled form, and west of it the red-quilled form. In the belt of country where the two species overlap there are some mongrel forms, and there can be no doubt that some of the differences are factorial. But in this, as in many similar cases, we must ask: Why is there no intermediate population? If one of the species has arisen, by any gradual process of evolution, from the other, or if they have both arisen from a common ancestor, why are there no traces left of the transitional stages of the process? Can these colour-differences have a survival value? The yellow, eastern Colaptes has a scarlet crescent on the neck. The western has none. But it happens that in another American woodpecker (Sphyropicus varius) it is the eastern form which has no scarlet crescent, while the western form has this mark.

ROSE IRISH ELEGANCE (see fig. 52).—This Hybrid Tea variety is one of the very best single-flowered Roses for bedding purposes; a sufficient reason to warrant its inclusion in every collection. The beauty of the blossom is remarkable both for exquisite form and delicate tinting, including shades of orange and apricot. The buds are a beautiful orange-scarlet colour. The plant is a vigorous grower, and is suitable for growing in bush form. The variety was raised by Messrs. A. DICKSON & SONS, and was first distributed in 1905.

FLOWERS IN SEASON.—We have received from Messrs. ROBERT VEITCH & SON, Exeter, flowering sprays of Buddleia asiatica, from plants grown in a cool greenhouse. The terminal spikes of white, sweet-scented flowers are very graceful.

LINNEAN SOCIETY.—The next general meeting of this Society will be held on Thursday, March 7, at 8 p.m. The following papers will be read:—"Internodes of Calamites," by Prof. PERCY GROOM; "Psygmophyllum majus, sp. n., from the Lower Carboniferous Rocks of Newfoundland, together with a Revision of the Genus and Remarks on its Affinities," by Mr. E. A. NEWELL ARBER; "Historic Doubts about Vaunthompsonia," by Rev. T. R. R. STEBBING; Specimens of Cactoid Euphorbias from South Africa (exhibited by permission of the Director, Royal Gardens, Kew), will be shown by Dr. OTTO STAPF, and Miss ETHEL M. PHILLIPS will exhibit coloured drawings of Barbados plants.

THE LOSSES CAUSED BY PARASITIC FUNGI.—It is to be doubted whether the extent of the monetary loss caused by parasitic fungi is generally realised. The following figures are, therefore, not without interest. The official estimate of the loss due to the attacks of rust on Cereals amounts, in Prussia alone, to about £20,000,000. The loss from this cause amounts to about £3,500,000 in the case of Wheat, to nearly £9,000,000 in that of Rye, and to about £8,000,000 in Oats.

"LAWNS."*—The fact that Messrs. SUTTON & SONS' well-known volume on lawns has reached its eleventh edition speaks both for the excellence of the contents and for the wide interest that is taken in lawns. The information which it contains is thoroughly practical, and we can recommend anyone who has to undertake the task of laying out lawns, and who is new to the work, to make a careful study of the contents of this book before proceeding to the actual work.

* By Sutton & Sons, Reading. Eleventh edition. (London: Simpkin, Marshall & Co.) 1912.

NATIONAL AURICULA AND PRIMULA SOCIETY.—The 36th annual exhibition of this society will be held in the Royal Horticultural Hall, Vincent Square, Westminster, on Tuesday, April 30, in conjunction with the fortnightly meeting of the Royal Horticultural Society. To perpetuate the memory of the late JAMES DOUGLAS, a silver challenge cup is offered for the best exhibit in certain classes for show or Alpine Auriculas. A member offers four special prizes for single specimens of fancy Polyanthus and four prizes for single specimens, Primroses. Mr. JAMES DOUGLAS presents four medals of the Royal Horticultural Society, to be awarded in the amateur classes. Mr. T. E. HENWOOD will present a silver medal to the winner of the 1st prize in Class 10, and Mr. R. MORTON a silver medal to the winner of the 1st prize in Class 19.

ABANDONMENT OF PROPOSED GARDENERS' DINNER.—The proposal to hold a gardeners' dinner during the time of the International Show at Chelsea in May next has been abandoned. The promoters met on Tuesday last in the Royal Horticultural Hall, Vincent Square, when the matter was given full consideration. It was felt that the proposal had not aroused much enthusiasm, and that the dinner would have to take place on Saturday, an inconvenient day for such an event.

HIGH PRICE FOR CULINARY PEAS.—We are informed that two acres of Webb's Senator Peas have been sold by a Cambridgeshire grower for £98, or £49 per acre. On a previous occasion £44 and £41 per acre have been realised for this variety by a grower in the Stourport district.

BULBS IN THE L.C.C. PARKS.—No fewer than 374,750 bulbs have been planted this season in the various parks and public gardens in the control of the London County Council. They include 115,150 Tulips, 78,700 Crocuses, 18,400 Hyacinths, 2,825 Lilies and 159,675 of various kinds. The numbers at the principal parks are Battersea Park 38,250, Finsbury Park 34,650, Victoria Park 30,150 Victoria Embankment and Leicester Square Gardens 25,700, Southwark Park 24,450, Brockwell Park 22,375, and Peckham Rye Park 21,075.

MR. SILAS COLE.—It is proposed to present a testimonial to Mr. SILAS COLE, the raiser of the Countess Spencer type of Sweet Peas. Mr. COLE is about to engage in business on his own account, and it is felt that the present would be an opportune moment to recognize the great work which he accomplished in originating this distinct and beautiful type of the Sweet Pea. Already a sum of nearly £124 has been promised, including two donations of £25 each from American seed firms. Subscriptions may be sent to Mr. G. H. MACKERETH, Market Place, Ulverston.

"GARDENING YEAR BOOK."*—This year book and diary contains much helpful and useful matter for gardeners. The diary occupies the first 30 or so pages, and a calendar of garden work follows, well drawn up and of a thoroughly practical nature. The new plants and flowers of the year 1911 are fully described in the next section, and many of them are well illustrated from photographs. Several chapters are devoted to a description of plants and flowers suitable for various uses, with directions for their culture. Insect pests and plant diseases are also dealt with. The rest of the book is occupied with tabular matter, including a comprehensive list of public parks and gardens in the United Kingdom.

* *The Gardening Year Book and Interleaved Diary, 1912.* (London: W. H. & L. Collingridge.) Price 1s.

LADY GREY AND THE GARDENS AT RIDEAU HALL.—We have read with particular pleasure the article under the above title, which appears in the January number of *The Canadian Horticulturist*. The article, which describes the interest which Lady GREY has taken in Canadian horticulture, during the time of office of His Excellency Lord GREY, is from the pen of Mr. W. T. MACOUN, Dominion Horticulturist, than whom none is more competent to express an authoritative opinion on subjects appertaining to horticulture. Mr. MACOUN pays a fitting, and as we know from personal experience, just tribute to the good work which Lady GREY has done in promoting in the Dominion the interests of horticulture. This work consisted both of precept and example. During her chatelaineship of Government House, Ottawa, the grounds of that not very imposing edifice were embellished, and rendered more attractive, by the establishment of herbaceous borders, and by the planting of many thousands of bulbs of Narcissus and Tulips in the grass bordering the roads in the park belonging to Government House. Moreover, it is due to Lady GREY that Rideau Hall has now a fine range of glasshouses, in which the flowers which she knows and loves so well are cultivated. Thus, and in many other ways, as for example in the encouragement of garden competitions in Ottawa, has Lady GREY played a notable part in fostering a love of horticulture in Canada, and we may add that during the time when she was at Government House every visitor who possessed a knowledge of horticulture was sure of a specially warm welcome, and of a very delightful conversation on the subject of horticulture, which Lady GREY has so much at heart.

NEW CHINESE SPECIES OF ROSA AND RUBUS.—Dr. W. O. FOCKE contributes to *Notes of the Royal Botanic Garden, Edinburgh*, "An Enumeration and Description of the Species of Rosa and Rubus discovered and collected by Mr. GEORGE FORREST, in Yunnan and Tibet, during the years 1904, 1905, and 1906." Rosa Forrestii, closely allied to R. microphylla, is the only new species of Rosa described, but there are several interesting varieties of various species, notably of R. Banksiæ, R. damascena, R. Gigantea and R. macrophylla. Of R. Banksiæ there are varieties with single, white, fragrant flowers, double, white, fragrant flowers, and double, rich-yellow scentless flowers. Of R. gigantea, the variety erubescens has pink, fragrant flowers. Rubus major, R. hypopitys, R. stimulans, R. trijugus, R. alexeterius, R. stans, and R. subornatus are new species; all of which, as well as the new Rose, are figured, half natural size, from photographs. As compared with previously known species, there is none particularly striking among the new species of Rubus. Mr. FORREST's field notes copiously supplement the botanical descriptions.

POTATOS INSTEAD OF GRAFTING WAX.—According to the experiments made by Mr. BERGOUNIOUX, and described in *Le Jardin*, a Potato is better for vine-grafting than any form of grafting clay wax. The method of use is simple. A scion is chosen of about the same diameter as the stock; a hole is cut through the Potato just large enough to admit of the passage of the stock and scion. After the surfaces of stock and scion have been prepared for grafting, the Potato is slipped over the stock, the scion placed in position, and the tuber drawn up and fixed so as to surround the graft. Mr. BERGOUNIOUX states that in the dry and hot weather of last year the grafts bound with ordinary materials were generally a failure; those treated in this novel manner were as generally successful.

PRESENTATION CUP FOR THE ROYAL INTERNATIONAL EXHIBITION. — A most successful meeting of the Horticultural Club took place on Tuesday last at the Hotel Windsor, Westminster, in connection with the annual dinner. During the proceedings, which we shall describe more fully in our next issue, Sir FRANK CRISP, the new president, announced his intention of offering a cup, value £25, for presentation at the Royal International Show to be held in May next. The cup will be offered in the name of the Horticultural Club.

SOLANUM TUBEROSUM: A TRUE SPECIES.— The botanical origin of the Potato has been the subject of much speculation and discussion, but, as is so often the case with cultivated plants, little certain knowledge has been gained with respect to it. As the result of a long and careful investigation, involving a study of the anatomy and morphology of the chief cultivated varieties, Mr. P. BERTHAULT concludes that they are all derived from a common ancestor, and that that ancestor is not any of the known wild tuberous solanums. We are driven, therefore, to conclude that our Potatos are varieties of a true species of S. tuberosum, the wild form of which is now either very rare or extinct.

TOXIC EXCRETA OF PLANTS.—Experiments made by Mr. FLETCHER, the result of which are published in the *Journal of Agricultural Science*, appear to confirm the views previously expressed by the author and other writers that the roots of plants excrete substances which are, or may be, poisonous to other plants. The experiments in question were carried out at Gizet, Egypt, where the rainfall is practically nil and where, therefore, the water supply is under complete control. Maize and Sesamum were grown in alternate rows. Certain rows were watered at intervals, some every 15 days, others every 10 days, and others again every 2 days, and certain of the last-mentioned were manured every eight days with small quantities of sodium nitrate, potassium sulphate, and sodium phosphate. In every case the Sesamum, which was planted at about 1½ foot from the Maize, developed very badly. This poor development was as marked in the manured rows as in the non-manured. Mr. FLETCHER concludes that the poor growth is due not to lack of food materials, but to actual poisoning of the roots of the Sesamum by excreta from the Maize.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

CORRECTION; R.H.S. "JOURNAL."—In the report on Sweet Peas at Wisley, 1911, at p. 394 of the *Journal* (vol. xxxvii., pt. 2) the last sentence in the opening paragraph has been transposed. It should, as the report itself shows, come after the words "Several varieties were also recommended on account of their strong growth, and because of their non-burning qualities. They are indicated by the sign P below. These varieties . . . ." etc. *W. Wilks, Secretary.*

THE R.H.S. ANNUAL GENERAL MEETING.— I have just returned from the meeting in the Royal Horticultural Hall, and have the uneasy feeling that I might have put the time to better use. I sat at the back of the small gathering, and, except for the remarks of the president and treasurer, I know but very little of what was said. Judging from the appreciative attention of those near him, Mr. Engleheart made a thoughtful and interesting speech, but practically none of it filtered to the back benchers. No one who has heard Mr. Engleheart speak will for one moment lay any blame on the speaker, for he has an enviable voice and delivery. It seemed to me that the greater portion of his remarks were absorbed by the red curtain behind the chairman. It was evident that others besides the writer suffered in this respect. One Fellow put the time to good use by adopting the attitude one associates with prosy sermons; others looked listless and "out of it." I would suggest to the Council that at their future meetings they adopt the plan of some other large bodies (the National Rifle Association, for instance), and request speakers to address the meeting from the platform. *A Fellow.*

GAMES IN PUBLIC PARKS.—I was interested in the paragraph on p. 105, respecting the number of games played in the London County Council parks. The statistics show that 15,558 games of bowls were played on 100 greens. We have recently made two bowling greens in the Victoria Park, Widnes. The first was opened on Easter Monday last, the second a month later, and both were closed on September 28. During that period 13,972 games were played, which is only 1,086 fewer than on the 100 greens of the L.C.C. parks, and the fees amounted to £101 10s. 3d. Is this a record? *H. Curtis, Victoria Park, Widnes.*

COLOURING OF APPLES.—In my note on p. 59 I omitted to state, with reference to the experiment I described, that both the trees which were allowed to send one or two tap-roots into the chalk and those which were not allowed to do so were root-pruned, so that the greater amount of colour produced in the fruits from trees which had a tap-root in the chalk must have been due, in some manner or other, to the influence of the chalk. *Wm. H. Johns.*

SPRAYING FOR BIG BUDS.—In reply to *Mr. A. H. Pearson* (see p. 106), one of my objections to all methods of spraying that I have seen is that they could not be effectual, because they extended over only about half the period of the migration of the mites. Probably Mr. Pearson's period of spraying is longer, and if he would give details in your columns of the dates, and number of sprayings and the strength of the wash used, it would be less trouble to him and would be read by a much greater number of persons than would be the case if he follows up his obliging offer of giving particulars privately to all who ask for them. "Nothing succeeds like success," and if an infested plantation is cured by Mr. Pearson's method there is no more to be said, although I am at a loss to understand how that success is attained. If my memory serves, the mites are migrating daily for eight or nine weeks, and it is clear therefore that not a tenth part of them can be killed by contact by spraying three or four times. Is it supposed that the coating of the buds with the spray-stuff deters mites from entering them? I have 27 acres of Black Currants as bottom fruit, and the expense of spraying them three or four times would be heavy; but if Mr. Pearson will kindly give in your columns the details of his plan, I will try it this season on one piece and give the results next season. (See *Gard. Chron.*, May 21, 1904, p. 330, Eds.). But my plan of picking off all big buds annually where there are only a few on a bush, cutting off badly infested shoots, and cutting to the ground level a badly infested whole bush has left my plantations approximately free from mite. In the oldest one, 8½ acres, planted partly six and partly seven years ago, the experienced pickers got only about three pints of big buds last week. The cost is trifling, and only experience would convince me that I could get equally good results by spraying. As for the incidental advantage of cleansing the bushes of aphis when spraying for mites, I have tried spraying with a very strong decoction of quassia and soft soap for that direct purpose, and have failed to effect anything like a clearance. Some of the pests are killed, but there are enough left to make up for the mortality in a few days, so rapid is their multiplication. Perhaps this is because I have a patent Black Currant aphis of my own, which no one appears able to identify. It resembles the black dolphin to the naked eye, but is of an olive-green colour as seen through a magnifying lens. It attacks the tops of young shoots, and at once causes the top leaves to curve over it, umbrella fashion, so that it is to a great extent protected from spray fluid. I encounter it effectually, however, by sending women over the plantations two or three times, at fortnightly intervals, with small pots containing quassia and soft soap, in which they dip and shake about every infested shoot. I have never been troubled to any extent worth notice with the common Currant aphis, perhaps because my bushes are not at all crowded. *A Southern Grower.*

CINERARIAS SEEDING.—In "Answers to Correspondents" columns, p. 96, it is stated that "great difficulty is experienced by most growers in obtaining seeds true to variety from these plants, as the plants cross-pollinate so freely." Having made a very large number of Cineraria crosses and self-pollinations extending over a series of years, I may strengthen that statement by saying that no seeds are ever produced except by cross-pollination. Reference was made to a few hybrids which are sterile with their own pollen, but I would say that not only are all the plants of all hybrids sterile with their own pollen, but every plant of every species of Cineraria yet introduced is absolutely self-sterile. It is not true of all hybrids, but it is true of some hybrids, C. Lynchii, for instance, that they produce seeds but sparingly, with all the trouble of crossing that may be taken. This hybrid, in fact, when wanted, should be remade from the parents; it is easy to procure, and the plant, when well grown, is a very fine one. It is C. multiflorus × Garden Cineraria, and by taking good forms of the garden Cineraria, fine vigorous plants may be obtained with beautiful flowers. The crossing of Cinerarias is easily effected. I have had hybrid plants that have combined all the species of Cineraria in cultivation at the time, not omitting the garden Cineraria. A brush is not necessary, the best plan being to take a flower-head on which there is ripe pollen by its stalk between the finger and thumb, and pass it over the heads, when it is seen that the female organs are in a receptive condition. A smooth thumb-nail can, in many cases, be used, when the stigmas project, for the purpose of transferring pollen to the stigmas with much greater facility than a camel-hair brush. Better again than a camel-hair brush, when the stigmas do not project, and always far more economical of pollen is an anther with the pollen taken by its stalk between the points of fine forceps. Has any reader, after making careful experiment, found any Cineraria that was not self-sterile? I must admit that exception is possible—that a thousand plants might be sterile and the first of the next thousand self-fertile, and also that there might be conditions that would render fertile, plants that are normally self-sterile. Information of such conditions with regard to any self-sterile plant would be welcome. We know the object of self-sterility, but we do not know what it consists in or how it is attained. One of my reasons for making definite assertion of self-sterility in Cinerarias is that few realise the fact of its existence in any plant, though it is not rare, being found in quite diverse natural Orders, and is quite common in the Compositæ. A writer in America, for instance, who has discovered a method of depollination for use when the plant's own pollen has reached the stigmas, gives the special instruction necessary for depollinating Cinerarias, and the process in that case, according to my experience, is quite unnecessary. *R. Irwin Lynch, Botanic Garden, Cambridge.*

SWEET PEA DISEASE.—The articles by *W.* on the above subject raise the whole question of "streak" in Sweet Peas to a prominent place in the *Gardeners' Chronicle*. Many hundreds of Sweet Pea lovers will have read the notes with interest and perhaps profit. I think, however, that the matter is not to be disposed of in the easy manner that *W.* seems to indicate. Some 23 years ago I began to grow Sweet Peas systematically in quantity, sowing in November, December, and January, in small "60" pots, five to seven seeds in a pot, getting them through the soil quickly, and then giving all the air possible. By February, the lights were taken away, and pilchard netting was tacked over the cases, which was kept up by laths from off the Peas. I usually confined myself each season to 14 distinct varieties. Generally drifts of 3 feet wide were trenched through during the winter in the positions where the rows were to be. During some time in February, or, in late seasons, early

March, shallow drills were drawn along the trenched land, the soil being drawn up on the cold side for shelter. The groups were put out whole, generally with a trowel, and five Pea plants were allowed to each group. The groups were from 14 inches to 15 inches apart. Moderate quantities of cow manure were used, and lime and phosphates, with burnt earth were always given. My practice was to provide the Peas with sticks at the time of planting. My Sweet Peas were always the talk of the districts in which they were grown. "Stripe" did occasionally appear, even as long ago as 22 years, both in the flowers and haulm. For many years I tried to get to the bottom of this trouble both in my own Peas and in scores of others sent me over a period of 10 years or so. Thielavia has sometimes been found to be present, sometimes Fusarium, and occasionally an Alternaria, with Macrosporium among it. I have often thought that the Alternaria was part and parcel of the Macrosporium. In the majority of cases, however, both on flowers and plants, Botrytis cinerea developed, and I have no hesitation in saying that, from the seedling 2 inches high up to the plant in full bloom, for every one plant destroyed by the other diseases named by *W.*, there are 10 destroyed by Botrytis. Eelworm seems to help on the destructive work greatly, and will often be found destroying the nitrogen nodules and reducing the Pea itself to a pulp. When striped blooms produce only Botrytis cinerea, one is bound to come to the conclusion that the fungus does cause "stripe." Macrosporium is found on unhealthy plants of many kinds, and it is no unusual thing to find Cladosporium herbarum, Fusarium sp., and Macrosporium all together on yellowing Hop leaves that have eelworm at the roots. I have also found all the pests on Marigolds that were failing, the eelworm at the root and the three fungous diseases on the discoloured leaves. I believe that Thielavia, Fusarium, Macrosporium or Alternaria can and do cause stripe. Macrosporium has, however, appeared less often in striped plants than any of the others, so far as my experience goes. I should place the diseases in the order named: Botrytis, Fusarium, Thielavia, Macrosporium, or Alternaria. I have always used permanganate of potash largely for watering Sweet Peas, for stripe in Tomatos and for sprinkling over the floors of Orchid houses, and I am sure with advantage. This matter calls for investigation by a National Horticultural Institute, such as recommended on p. 72, where all such problems could be investigated fully, and where the points could be settled by a committee of experts. Because one man has found Macrosporium during the last summer on dead Sweet Pea haulm, killed by stripe, we should not conclude that all stripe is caused by Macrosporium. *F.R.H.S.*

KAINIT AND PEAR TREES. — The writer of the weekly Calendar on the "Hardy Fruit Garden" advises (see p. 70) an application of from 1 lb. to 2 lbs. of Kainit per square yard for the destruction of the Pear midge. If an area of but 6 feet square were so dressed around each tree, from 4 to 6 lbs. of Kainit would be needed. I cannot but think that a mistake as to the quantity of dressing has been made. It would be well if others who have suffered from the attacks of the Pear midge would say what they have found to be the best remedy for the pest, that is, if they have found a real remedy. *D.*

———The quantity should be 1 lb. to the square yard, ½ lb. in the autumn and ½ lb. in the spring; the amount I recommended in *Gardeners' Chronicle*, February 1, 1908. In 1897 many Pear trees of which I had charge in a Worcestershire garden were badly attacked, and, according to my notes, I dressed a standard tree of Williams' Bon Chrêtien with 2 lbs. of Kainit to the square yard in October, I also dressed standard trees of Doyenné du Comice and Van Mons. Léon Leclerc Pears with 1 lb. in October and 1 lb. again in February, repeating the dressings the following season. Other trees I dressed with 1 lb. in October and ½ lb. again in February, also ½ lb. in October and ½ lb. in February. The same beneficial results followed all the dressings without injurious effects. I removed the surface soil before making the second applications, and the quality of the fruits was greatly improved, whilst three years afterwards the Pear midge was entirely exterminated. *F. Jordan.*

SOCIETIES.

ROYAL HORTICULTURAL.

FEBRUARY 20.—There was a splendid exhibition at the fortnightly meeting of the Society held on Tuesday last in the Society's Hall, Vincent Square, Westminster. The weather was fine and very mild, which probably accounted for the large attendance of visitors. Exhibits of Orchids were astonishingly fine for a winter show, and a Gold Medal was awarded to Sir GEORGE HOLFORD for a miscellaneous collection of these beautiful flowers. There were, as usual, numerous novelties presented to the ORCHID COMMITTEE, and this body recommended three Awards of Merit.

In the floral section, a group of Carnations and Roses shown by Mr. W. E. WALLACE, Eaton Bray, was awarded a Gold Medal, the method of displaying the flowers being an object-lesson in good staging. Other important exhibits in this section were groups of Carnations, forced flowering shrubs, Cyclamens, Ferns, Zonal Pelargoniums, and hardy border flowers. The FLORAL COMMITTEE gave an Award of Merit for a new species of Ribes and a variety of Carnation respectively.

The FRUIT AND VEGETABLE COMMITTEE granted an Award of Merit to a new Apple.

At the 3 o'clock meeting of the Fellows, a lecture on "New Sweet Peas" was delivered by Mr. William Cuthbertson.

Floral Committee.

Present: H. B. May, Esq. (in the Chair); and Messrs. Chas. T. Druery, John Green, T. W. Turner, W. J. Bean, G. Reuthe, F. H. Chapman, John Dickson, C. E. Shea, Chas. E. Pearson, W. G. Baker, W. J. James, J. F. McLeod, J. T. Bennett-Poë, C. R. Fielder, Chas. Dixon, Herbert J. Cutbush, W. Cuthbertson, Walter T. Ware, E. H. Jenkins, John Jennings, E. A. Bowles, and R. C. Notcutt.

Mr. L. R. RUSSELL, Richmond, put up a showy group of forced flowering shrubs, such as Wistaria, Lilac, Prunus lobata, Jasminum primulinum, Cerasus Itisahusa (a glorious Japanese Cherry), Azaleas in great assortment, and Magnolias. Along the edge were well-bloomed plants of Franciscea floribunda and Primulas. Kennedya monophylla, with violet-purple, Pea-shaped blooms, was noticed in the collection of shrubs. (Silver-gilt Banksian Medal.)

A small exhibit of forced shrubs was also staged by Messrs. R. & G. CUTHBERT, Southgate.

Messrs. H. CANNELL & SONS, Swanley, Kent, showed Zonal Pelargoniums, greenhouse Cinerarias, and Cyclamens. The bunches of Pelargonium flowers made a very striking exhibit, notable varieties being New York (scarlet), Sir T. Hanbury (crimson), Maxime Kovalesky (orange-salmon), Snowdrop (white), Hibernian (red), and Clevedon (orange). The Cyclamens were flowering abundantly. (Bronze Flora Medal.)

Messrs. H. B. MAY & SONS, The Nurseries, Upper Edmonton, showed epiphytal Ferns, having fine plants of Polypodium vaccinifolium, P. v. album, P. piloselloides, P. p. minus, Drymoglossum spathulatum, Davallia heterophylla, Drynaria quercifolium, Niphobolus rupestris, and others. (Silver Flora Medal.)

Messrs. SUTTON & SONS, Reading, showed batches of their choice strains of Primulas, with a central bank formed of their Giant White Cyclamen. All the plants were admirably grown, being compact, well-bloomed specimens of the large-flowered type. (Silver Flora Medal.)

Messrs. GEO. MOUNT & SON, Canterbury, again showed fine blooms of the rich red Rose Richmond.

Messrs. STUART LOW & Co., Bush Hill Park, Enfield, showed choice Carnations, the varieties White Wonder, Gloriosa, Fairmount (an improved Mikado), and Baroness de Brienen being exceptionally good. This firm also exhibited pans of Cyclamens, including their varieties Salmon King and Mrs. Buckston (salmon). They also showed Daphne odora (indica), Boronias, Indian Azaleas and Acacias. (Silver Flora Medal.)

Messrs. JAMES VEITCH & SONS, LTD., King's Road, Chelsea, staged an assortment of greenhouse flowering plants, and, as a separate group, a number of forced shrubs. Of these latter plants, specimens of the double-flowered, rose-coloured Almond were deserving of praise. At the opposite end of this group were equally fine plants of Wistaria sinensis, whilst Rhododendron indicum (Indian Azaleas) figured largely in both collections. (Silver Flora Medal.)

Messrs. W. CUTBUSH & SON, Highgate, showed great numbers of forced shrubs, presenting a wealth of showy blossoms; also a rock-garden planted with seasonable subjects and a collection of Carnations. The rock-garden contained splendid plants in flower of Iris Sindjarensis, I. reticulata, Hepaticas in variety, Anemone blanda var Ingramii and Daphne japonica. The most conspicuous of the Carnations was the new variety Lady Meyer, which received an Award of Merit. Other choice sorts were Mrs. Lucy Mackinnon (scarlet, scented), Countess of Lathom (rich crimson), Beacon (scarlet), Britannia and Lord Rothschild (crimson, clove-scented). (Silver Flora Medal.)

Mr. W. E. WALLACE, Eaton Bray, put up a magnificent group of Carnations and a few Roses of the Richmond variety. The varieties of Carnations were those most popular for market purposes, a selection of the finer sorts being Marmion, Lady Audley Nield, Carola, Gloriosa, and Pink Delight. The blooms were arranged in large bunches in vases and epergnes with overhanging arches of greenery, there being in all 2,400 Carnations and 150 Roses. (Gold Medal.)

Mr. H. BURNETT, Guernsey, again presented a fine group of perpetual-blooming Carnations in numerous varieties. (Silver Flora Medal.)

Messrs. ALLWOOD BROS., Wivelsfield Nursery, Haywards Heath, showed varieties of Carnations, having good blooms of Lady Alington, White Wonder, R. F. Felton, and other well-known sorts.

Mr. C. ENGELMANN, Saffron Walden, Essex, showed varieties of perpetual-blooming Carnations, having the pink Lady Northcliffe variety in fine condition.

Other exhibitors of Carnations were Mr. BERTIE E. BELL, Castle Nursery, Guernsey; Messrs. YOUNG & Co., Hatherley, Cheltenham; Messrs. W. WELLS & Co., LTD., Merstham; and Mr. A. F. DUTTON, Iver, Buckinghamshire, who showed Mikado (mauve), Niagara (white, fragrant), and Mrs. C. W. Ward (a very large cerise-coloured variety). (Silver Banksian Medal.)

Mr. G. REUTHE, Keston, Kent, had an interesting collection of Alpines and hardy flowers against a background of uncommon shrubs. The rare Crocus Tomasinianus (with silvery-blue flowers), Saxifraga Burseriana tridentata (with large, white blossoms), S. Fernandii-Coburgii (yellow), S. Frederici-Augustii, and Androsace pyrenaica are some of the more interesting plants amongst the Alpines, whilst Berberis Aquifolium Bealii, with its fragrant, yellow blossom, was a conspicuous plant amongst the shrubs. (Silver Banksian Medal.)

Messrs. R. WALLACE & Co., Colchester, showed early-flowering hardy plants. In the centre of the group was a fine batch of Fritillaria imperalis chitralensis, some of the umbels bearing four of the rich, yellow blooms. Other plants of interest were Crocus Tomasinianus, C. aureus, C. Imperati, Tulipa Fosteriana, and T. Clusiana. (Silver Banksian Medal.)

Mr. MAURICE PRICHARD, Christchurch, Hampshire, exhibited a collection of Alpines, including the charming Daphne Genkwa, having flowers of a Wistaria-blue colour. There were also excellent plants in flower of Pulmonaria angustifolia aurea, Anemone blanda, Saxifraga oppositifolia, S. apiculata, S. a. alba, and Houstonia serpyllifolia, a tiny plant, with pale-blue, star-shaped blossoms.

Messrs. BARR & SONS, King Street, Covent Garden, again showed bulbous plants. Narcissus Bulbocodium citrinum was especially good. Several hybrids of N. cyclamineus × N. minimus were noticed, also large batches of Crocuses, Snowdrops, Scillas, Anemone blanda, and other early-flowering plants.

Messrs. G. & A. CLARK, LTD., The Nurseries, Dover, arranged a rockery planted with early flowers and shrubs, the latter including two dwarf, glaucous Conifers, of very attractive appearance, both varieties of Juniperus pachyphlæa named elegantissima and conspicua respectively. Ardisia crenulata was shown in fruit.

Messrs. JOHN PEED & SON, West Norwood, staged Alpines in pots, the groups being

brightened with flowering specimens of Snowdrops, Scillas, Crocuses, and other early bulbs.

Messrs. WHITELEGG & PAGE, Chislehurst, Kent, showed large numbers of well-grown plants of Primula malacoides, and a general collection of hardy plants in pots.

Mr. CLARENCE ELLIOTT, Stevenage, put up a model rock-garden, in which was planted large patches of Saxifraga Burseriana, Hepatica triloba, Primula Allionii, and other choice Alpine plants.

A rock-garden exhibit was shown by Mr. H. HEMSLEY, Crawley. Early-flowering plants, such as Saxifraga alpina, Armeria arborescens, Lithospermum prostratum, Noccæa stylosa, and Phlox procumbens gave a pleasing touch of colour to the exhibit.

Exhibits of hardy plants were also shown by GUILDFORD HARDY PLANT NURSERY; Misses HOPKINS, Mere Gardens, Shepperton-on-Thames; Mr. JAMES BOX, Lindfield, Sussex; and Messrs. J. CHEAL & SONS, Crawley.

Messrs. C. BROOKS & SON, Worting, Basingstoke, showed flowers of Chinese Primulas, including their two new varieties, Queen Mary (pink) and King George V (crimson). They also exhibited a single plant of a giant form of the beautiful Orange King variety.

A Silver-gilt Flora Medal was awarded to Miss GUNDRY, Foot's Cray, Kent, for paintings of garden scenes.

There were numerous exhibits of horticultural sundries, including garden pottery, vases, horticultural books, nesting boxes and models of garden furniture. Messrs. F. WALTERS & Co., Bilton, Rugby, showed a new form of garden-stake, made of steel, with metal hoops that may be raised or lowered by means of a screw attached. The hoops are made in various sizes, and, being flexible, the plant is not so liable to damage by strong winds and heavy rains as when string is used. In the case of large plants, such as Dahlias, the hoops are secured to three stakes set in tripod fashion.

AWARDS OF MERIT.

Ribes laurifolium.—Three plants of this new species were exhibited by Hon. VICARY GIBBS, Aldenham House, Elstree (gr. Mr. Edwin Beckett). The plants were about 18 inches high, and bore, in the axils of the leaves, racemes of greenish-yellow flowers. The inflorescences were about the size of those of Ribes sanguineum, the individual flowers being subtended by yellowish-green, strap-shaped bracts.

Carnation Lady Meyer.—This is a variety of the perpetual-blooming type, having flesh-pink petals, distinct in shade from that of any other pink Carnation. The plant is an exceedingly vigorous grower, and blooms with great freedom, whilst the calyces seldom split. Shown by Mr. E. GUILE, Newport.

Orchid Committee.

Present: J. Gurney Fowler, Esq. (in the Chair); and Messrs. Jas. O'Brien (hon. sec.), Harry J. Veitch, Gurney Wilson, J. S. Moss, Stuart Low, R. G. Thwaites, T. Armstrong, A. A. McBean, J. Charlesworth, J. Cypher, J. E. Shill, W. H. Hatcher, C. H. Curtis, W. P. Bound, A. Dye, W. H. White, R. Brooman-White, W. Bolton, de B. Crawshay, C. J. Lucas, H. G. Alexander, R. A. Rolfe, Sir George L. Holford, and Sir Jeremiah Colman.

Sir GEORGE L. HOLFORD, K.C.V.O., Westonbirt (gr. Mr. H. G. Alexander), staged a magnificent group, for which the Society's Gold Medal was awarded. An outstanding feature in the group were the numerous sprays of white forms of Lælia anceps, which arched over the whole of the group, and among which were Lælia anceps Dawsonii, with eight spikes of 28 flowers; L. a. alba, nine spikes, 21 flowers; L. a. Ashworthiana, seven spikes, 16 flowers; L. a. Williamsii, five spikes, 23 flowers; L. a. Sanderiana, six spikes, 25 flowers; and L. a. Schröderiana, three spikes, 13 flowers. With these were some of the best coloured forms of L. anceps, L. Gwennie, Cattleya Trianæ Hydra, and C. T. Imperator (two famous varieties), C. Miranda, C. Prince Olaf, C. Chocoensis alba "Westfield variety" (perfect in shape and pure white), C. Percivaliana Charlesworthii (a pretty white, with very dark labellum), C. P. alba, varieties of C. Maggie Raphael (mostly of the fine, dark type), Cypripedium aureum in great variety, C. Bellerophon, C. Actæus Undine and Langleyensis, C. Helen II. "Holford's variety," forms of C. Leeanum, C. Alabaster, C. Alcibiades, C. Rossettii, C. Hera, C. Hindeanum, C. Graceæ, C. Boltonii, C. Minos Youngii, C. Scipio, and others, all superbly grown. Among the Lælio-Cattleyas, L.-C. Tigris "Westonbirt variety" (L. Cowanii × L.-C. Dominiana) was a pretty, clear-yellow flower, and L.-C. Clive, L.-C. Epicasta, L.-C. Cornelia, L.-C. Barbarossa, L.-C. Goldfinch, L.-C. Cranstouniæ "Westonbirt variety," and L.-C. Pizarro. A very fine show of Brasso-Cattleyas included most of the forms of the season, and the Westonbirt variety of B.-C. Pluto. A selection of handsome Odontoglossums had for the best the very beautiful O. crispum Peacock, O. c. Miranda (a very fine, white flower), O. c. Egret and O. c. Rosemary (charming flowers), O. ardentissimum xanthotes, and other hybrids. In the maze of beautiful flowers, specially fine were Sophro-Cattleya Chamberlainiana, Sophro-Lælio-Cattleya Danæ "Holford's variety" (a rose-coloured flower), Sophro-Lælia læta Orpetiana, Lycaste Skinneri "Westonbirt variety," and Miltonia Bleuana.

Messrs. CHARLESWORTH & Co., Haywards Heath, were awarded a Silver-gilt Flora Medal for a fine group, the centre of which was of clear, white forms of Odontoglossum ardentissimum, in front of which was a brilliant arrangement of scarlet Odontiodas, nearly all the known varieties being present. On either side were richly-coloured hybrid Odontoglossums, good Cattleya Trianæ, including the best white form, C. Suzanne Hye de Crom (a large white flower, with chrome disc to the lip), Miltonioda Ajax, and other new hybrids, including a pretty cross between Odontoglossum Rossii and O. ardentissimum, and some showy Brasso-Cattleyas.

Messrs. ARMSTRONG & BROWN, Tunbridge Wells, were awarded a Silver Flora Medal for a fine group of well-flowered Orchids, in which their form of Cattleya Maggie Raphael alba was prominent. The many hybrid Odontoglossums included a very wide selection of O. ardentissimum, varying from the pure white variety to those of rich, claret colour, with but little white showing, one form being probably the best yet produced. Lælio-Cattleya Myra was in great variety, L.-C. Ernestii of a bright-yellow colour, and other showy Lælio-Cattleyas, Cymbidium insigne (with two spikes), a selection of white Lælia anceps contrasting well with scarlet Odontiodas and Sophronitis, a selection of Cattleya Trianæ (including a good white), various Masdevallias, and other interesting species were included.

Messrs. J. CYPHER & SONS, Cheltenham, were awarded a Silver Flora Medal for an effective group, rich in specially fine and rare Cypripediums, arranged with Dendrobiums, Calanthes, Masdevallias, scarlet Sophronitis, &c. Specially good were Odontoglossum McNabbianum, and a dark form of O. Vuylstekei, Masdevallia macrura, Angræcum citratum, and forms of Lælia anceps.

Messrs. STUART LOW & Co., Enfield, were awarded a Silver Flora Medal for an interesting group, in the centre of which was a noble plant of Angræcum sesquipedale with seven flowers, around which were Phalænopsis Schilleriana, good Odontoglossums, several fine specimens of the best form of Trichopilia fragrans, some pretty Dendrobiums, scarlet Renanthera Imschootiana, various Brasso-Cattleyas, Lælia anceps, Oncidiums, and Masdevallias.

Messrs. SANDER & SONS, St. Albans, secured a Silver Flora Medal for a good group, the back of which was of fine plants of Phalænopsis Schilleriana. In the body of the group were good varieties of Cypripedium, the most interesting being C. (Selenipedium) caudatum Sanderæ, a Peruvian type, and the best form of the species. Hybrid Odontoglossums and Odontiodas, forms of Lælio-Cattleya Myra, L.-C. Ernestii, and others; Dendrobium superbiens, D. velutinum, and other Dendrobes, the rare yellow Oncidium Jamesonii, Pleurothallis Roezlii, and other rare species were also noted.

Messrs. J. & A. A. MCBEAN, Cooksbridge, were awarded a Silver Flora Medal for an effective group, in which the white forms of Lælia anceps were prominent, the handsome L. a. Schröderiana being unusually well coloured, the lip resembling Waddoniensis. Some hybrid Odontiodas, one of which was flowering within 3½ years from the seed; good Odontoglossum Cattleya Chocoensis alba, Cymbidium eburneo-Lowianum auriferum, C. eburneum with six spikes, and other Cymbidiums; a novel form of Sophro-Lælio-Cattleya Marathon, with rosy-salmon flowers; and a good selection of hybrid Cypripediums were also noted.

Mr. E. V. Low, Vale Bridge, Haywards Heath, secured a Silver Banksian Medal for a select group, in which were several plants of Cypripedium aureum Surprise and other Cypripediums, the best of which was C. Mousme (insigne Harefield Hall × Leeanum Clinkaberryanum), a very fine flower and nearest to Harefield Hall; Cymbidium insigne (five spikes), and the very large-flowered Lycaste Skinneri Emperor.

Sir JULIUS WERNHER, Bart., Luton Hoo, Luton (gr. Mr. A. W. Metcalfe), was awarded a Silver Banksian Medal for a group of very finely-grown Calanthes, C. Regnieri and C. Baron Schröder albescens being specially good.

Messrs. MANSELL & HATCHER, Rawdon, Yorks, were awarded a Silver Banksian Medal for an excellent group, in which were the rare natural hybrid Vanda Moorei (Kimballiana × cærulea), light blue with violet lip; Aërides vandarum, Phalænopsis Schilleriana (very fine), Mormodes Lawrenceanum, Cirrhopetalum picturatum, fine Lælio-Cattleya Wellsiana and L.-C. eximia, a selection of hybrid Odontoglossums, the pretty Ionopsis paniculata, Angræcum citratum, and the rare A. bistortum.

DE B. CRAWSHAY, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), showed several pretty and interesting hybrid Odontoglossums, including O. Galba (Sceptrum × ardentissimum), O. Xerxes (Vuylstekei × illustre), O. Valeria (Edwardii × Vuylstekei), O. Voluminia (Hallio-crispum × Vuylstekei), and O. Vulcan. (See Awards.)

H. JENNINGS, Esq., Marlowes, Hemel Hempstead, sent Cypripedium Winifred Jennings, a large, dark flower.

The Hon. Lady NEELD, Grittleton (gr. Mr. J. Pitts), showed Odontoglossum Fascination (Fascinator × Ossulstonii), of good shape and deep colour.

F. DUCANE GODMAN, Esq., Horsham, sent Odontoglossum Godmanii (Rolfeæ × Edwardii).

WALTER COBB, Esq., Normanhurst, Rusper (gr. Mr. C. J. Salter), sent Odontioda Bradshawiæ "Cobb's variety," and a scarlet form with four spikes; Cypripedium Euryades "Cobb's variety," with a divided dorsal sepal; Cattleya Trianæ Cobbii, with a dark line on the petals; and a good form of Odontoglossum blandum.

Sir JEREMIAH COLMAN, Bart., Gatton Park (gr. Mr. Collier), showed the superb Dendrobium Lady Colman, which had previously gained an award; the white D. Margery Tyrrel Giles; the pretty yellow hybrid Dendrobium Golden Ray; and Bulbophyllum nigripetalum.

W. H. St. QUINTIN, Esq., Scampston Hall, sent a pretty white form of Dendrobium Cybele.

Mr. W. A. MANDA, St. Albans, sent a fine plant of Cattleya Schröderæ alba aurantiaca, C. S. a. Purity, C. Trianæ picta, and C. T. White Star.

From TRACY'S Nursery, Twickenham, came a small plant of Odontoglossum Pescatorei Floryi, of good shape and with reddish spots on the inner parts of the segments. It flowered from the batch which gave O. P. Sanderæ.

AWARDS.

AWARDS OF MERIT.

Cattleya Brenda (Dusseldorfei Undine × Gaskelliana alba), from Lieut.-Col. Sir GEORGE L. HOLFORD, K.C.V.O. (gr. Mr. H. G. Alexander).—A pure-white hybrid and an improvement on the favourite C. Dusseldorfei Undine, which it resembles in form, but is larger.

Calanthe Baron Schröder "var. albiflora," from Baron BRUNO SCHRÖDER, The Dell, Egham (gr. Mr. J. E. Shill).—C. Baron Schröder, from its first appearance at The Dell, had the reputation of being the finest and freest-growing Calanthe yet seen. This new form answers well to this description, but it differs from the type in having pure-white sepals and petals and a rose-pink lip with purple eye. The plant bore two spikes each of about 50 large flowers and buds.

Odontoglossum Vulcan (crispum × Vuylstekei), from DE B CRAWSHAY, Esq., Sevenoaks (gr. Mr. Stables).—A very fine Odontoglossum, with large, pale-yellow flowers, the inner parts of which are effectively blotched with red-brown.

CULTURAL COMMENDATION

to Mr. F. J. Thorne (gr. to Mrs. W. J. JOICEY, Sunningdale Park), for a superb specimen of Lycaste Balliæ with upwards of 30 flowers. Mr. Thome has grown the specimen from a small plant purchased as L. Cappei, which is known to be identical with L. Balliæ.

Fruit and Vegetable Committee.

Present: J. Cheal, Esq. (in the Chair); and Messrs. A. Dean, G. Woodward, E. Beckett, A. W. Metcalfe, A. R. Allan, G. Kelf, H. Markham, G. Reynolds, A. Grubb, A. Bullock, J. Davis, O. Thomas, J. Harrison, and H. S. Rivers.

Sir JULIUS WERNHER, Luton Hoo, Luton (gr. Mr. W. A. Metcalfe), showed 10 baskets of very handsome, firm Apples. There were four baskets of Lane's Prince Albert and six of Annie Elizabeth, the fruits being of an ideal size for dessert. (Silver Banksian Medal.)

Lord FALMOUTH, Mereworth Castle, Kent (gr. Mr. Hogbin), staged 24 dishes of distinct varieties of Apples, the fruits being of very high quality. The varieties included Cox's Orange Pippin, Allington Pippin, Newton Wonder, Calville Malingre, Brabant Bellefleur, Annie Elizabeth, Striped Beefing, Lane's Prince Albert, Ben's Red, Bramley's Seedling, and Egremont Russet. (Silver Banksian Medal.)

Miss G. SEWELL, Harcourt Terrace, South Kensington, showed a collection of preserves. Bottled Apples, Quinces, Lemons, Strawberries, Raspberries, Currants, Damsons, Plums, also marmalades, jellies, and Chutneys were included in the exhibit. (Silver Banksian Medal.)

Sixty Cabbage Lettuces of the variety Petite Noire were shown, as grown, in three large flat boxes, by Mr. HONESS, Hopedene Gardens, Holmbury St. Mary, Dorking. The plants were generally 8 inches in diameter, there being about 4 to 5 inches of firm heart. The plants were excellently grown, the leaves being very clean. (Silver Banksian Medal.)

Messrs. SUTTON & SONS, Reading, again set up a collection of vegetables, having 24 dishes and mounds. In the centre of the exhibit was a group of Sutton's A1 green curled Kale, flanked on each side by baskets of Early White Broccoli, also of fine New Year Savoy. Other dishes were Early Gem Brussels Sprouts, roots of Salsify and Scorzonera, Globe Beet, White and Red Jerusalem Artichokes, Stachys tuberifera, Turnip Snowball, Red Intermediate and Early Forcing Carrots, and Kohl Rabi. (Silver-gilt Banksian Medal.)

AWARD OF MERIT.

Apple Oatlands Seedling.—This variety was stated to be raised from Cox's Orange Pippin crossed with Sturmer Pippin. The fruits were of a medium size and flattish-round. The skin is green, slightly coloured near the stalk and marked with russet. The eye is almost closed: the flesh is of excellent flavour, crisp and juicy. The fruits had the appearance of keeping in a sound condition for another two months. Shown by Mr. F. G. GERRISH, Pendley Manor Gardens, Tring.

ANCIENT SOCIETY OF YORK FLORISTS.

JANUARY 30.—The annual meeting of this society was held on this date. The chair was occupied by the president, Mr. Geo. Crombie. The secretary, Mr. Dale, read the annual report, which contained the following extracts:—"The committee, in submitting their annual report and financial statement, regret to have to again record that the past year has not been of a satisfactory character financially. The number of members who have paid their subscriptions is 503 as against 537 last year. A large number of resignations have been received during the past few years, whilst few new members have been elected. The total income or receipts from ordinary sources have been £388 6s. 9d., and expenditure £439 6s. 6d., an excess of expenditure over receipts of £50 19s. 9d. This has absorbed the balance of £28 1s. 6d. standing to the credit of the society at the bank at the commencement of the year, the balance being met by a special donation of £25 given by Mr. Arnold S. Rowntree, M.P., leaving a balance of cash in bank of £2 1s. 9d. Mr. Rowntree very generously came forward at the annual meeting in January, 1911, and undertook to guarantee a sum of £100 to the society. Every effort was made by the committee to curtail the expenditure during the year, and a special appeal to the most prominent citizens for support was issued in the early part of the year in the joint names of Mr. Arnold S. Rowntree, the ex-president, and Mr. George Crombie, the president for 1911. This met with very little response, and owing to the meagre attendance of the public at the Chrysanthemum show on the third day, the committee had been most reluctantly compelled to appeal to Mr. Rowntree for financial assistance. The amount expended in prizes at the Chrysanthemum show was £164 8s. 6d., whilst the sum of £29 10s. 3d. was paid in respect of prizes at the minor shows."

GHENT HORTICULTURAL, AGRICULTURAL AND BOTANICAL.

FEBRUARY 4.—The monthly meeting of this society was held on this date in the grounds of the Casino. Certificates for general good culture and freedom of flowering were awarded for Pelargoniums, Phylica ericoides alba, and Acacia diffusa, which were shown by M. FIRMIN DE SMET. Cultural Certificates were awarded to Kentia Belmoreana, shown by the firm of DE SMET-DUVIVIER, and Trichomanes radicans and T. reniforme, both shown by the firm of LOUIS DE SMET. A Certificate of Merit was granted to a collection of 52 varieties of Abies, 38 varieties of Cypressus, and 30 varieties of Retinospora, shown by M. A. BRAECKMAN.

In the section devoted to Orchids, Certificates of Merit were granted to Cypripedium Suzanne Hye, C. Mme. Grosjean, C. Beryl, Miltonia bleuana aurea, M. b. Duchesne, and Odontoglossum ardentissimum variety Galvani, all from M. F. LAMBEAU; Cypripedium Beeckense, shown by M. VAN SCHOOTE; Cattleya Harrisonii alba and Lycastes, shown by MM. J. VANDEPUTTE & Co. Other notable exhibits of Orchids were a hybrid Cypripedium (C. insigne × C. Leeanum) from M. F. DEMETER; and Cattleya Trianæ variety Backhousiana, which was shown by MM. J. VANDEPUTTE ET CIE.

In the section for new plants, Certificates of Merit were awarded to new Conifers, exhibited by M. A. BRAECKMAN; Adiantum "Roem van Moordrecht" and Pteris De Smedtii, both shown by the firm of L. DE SMET-DUVIVIER; a group of Azalea M. Jean Haerens, presented by MM. J. B. HAERENS ET WILLE, who also showed Azalea Bouton Rose, A. Memoire de Louise De Smet-Duvivier, A. Koning Albert. M. AUG. HAERENS presented Azalea delicata rosea, A. Brillanta Belgica, A. Excellenta, A. Etoile de Noël and A. Triomphal, all of which received Certificates of Merit.

LEEDS GARDENERS' FRIENDLY BENEFIT.

FEBRUARY 15.—The annual dinner was held on this date. Mr. F. B. Hudson presided, there being about 50 members present. Mr. Geo. Carver, the secretary, made an earnest appeal to gardeners to join the society, which will in due time become approved within the meaning of the National Insurance Act.

The total income for the year amounted to £226 10s. 1½d., and the expenditure of £118 7s. 0½d., the balance of £108 3s. 1d. bringing the accumulated funds up to £1,874 2s. 2½d.

The sickness during the year only averaged about 7 days per member. The sum of £17 has been paid in death allowances, which, with £53 7s. 6d. paid in sickness benefits, makes a total sum of £70 7s. 6d. paid out of the benefit fund.

The Management Fund remains at £50, the surplus of £2 2s. 9d. having been transferred to the Distress Fund. There having been no cases of prolonged sickness entitling members to additional benefits from the Surplus Benefit Fund that fund now stands at £52 3s. 3d.

Several members in poor circumstances have been assisted in the payment of their contributions, and by grants from the Distress Fund.

Three new members were admitted during the year, one member died, and eight lapsed or resigned. The number of financial members at the present time is 155.

SCOTTISH HORTICULTURAL.

(Continued from p. 108.)

THE GARDEN CITY MOVEMENT.

"THOUGH the garden city idea is by no means new, the 'movement' is of comparatively recent date. In England the commencement of the movement was due to the success which had attended the formation of model industrial villages. In 1903, a pioneer company was formed under the title 'First Garden City, Limited,' with a capital of £300,000, to acquire and develop an estate which had been selected at Letchworth, near Hitchin. This estate consisted of 3,818 acres, and the purchase price was £40 per acre. When the ground was purchased, the population was approximately 450, and a population of 35,000 is ultimately aimed at. It is an industrial town with factories, railway sidings, water works, gas works, &c., but all laid out on garden city lines. Each house has a separate garden, and there are parks and open spaces, recreation grounds (cricket, golf, &c.), schools, churches, halls, &c., while the outlying parts of the estate, comprising about 2,500 acres, are devoted to small holdings for agriculture. The land will ultimately be transferred to the community, or to a trust on its behalf, and the rents, which will increase with the city's progress, are expected to provide interest on the purchase money and the cost of all necessary municipal undertakings, so that there will be no rates. In France, a Garden City Association (the Association des Cites—Jardin de France) was formed in 1905, its object being 'to provide healthy homes for working men, encourage agriculture, check migration to towns, secure for communities unearned increment on building land, and cheapen industrial production,' and under the recent Town Planning Act before referred to, quite a number of town planning schemes on garden city lines are being prepared under the direction of local authorities in various parts of the United Kingdom.

"In the case of a garden city scheme like that of Letchworth, where the only question is the building up of a garden city *de novo*, the problem is simple, but it is quite another matter to develop the idea in the case of densely-populated industrial towns, or even in towns like Edinburgh, which are largely residential, but which, nevertheless, have overcrowded slum areas, for it is for the benefit of the dwellers in these slums as much as for any class that the change is required. Under the new Housing and Town Planning Act, slum dwellings can be closed and demolished, and no doubt some difficulty will sometimes have to be faced in finding other accommodation for the people who are dispossessed; but we have the satisfaction of knowing that difficulties of this sort can never recur under the new order of things, for if local authorities do their duty there will be no new slums.

"In garden city schemes in connection with existing industrial towns the most important factors are therefore cheap dwellings, cheap, easy, and rapid means of carrying the workers to and from the scene of their daily toil, and, above all, cheap land, for on the last factor the whole thing hangs. Cheap dwellings and cheap means of transit present no insuperable difficulties, but the question of building sites is a more serious one, for under a garden city plan the number of houses to the acre will not exceed from eight to twelve, whereas under some of the existing by-laws as many as 56 may be erected. Recently a statement appeared in *The Lancet* which showed that not fewer than 60,000 tons of soot fell in the administrative area of London in a year, and in a lecture delivered in Edinburgh recently, the chief sanitary inspector for Leith stated that at least 78 tons of soot were discharged daily from domestic chimneys in Edinburgh and Leith, and this alone is a strong argument for the removal of dwellings to more healthy localities.

"It goes without saying, I think, that the ideal garden city must have all the attributes of a garden. I doubt if the ideal garden city is yet in existence. It certainly cannot come into being all at once, for where plants come into the plan, as they must do in this case, Nature requires time to finish the work. Even the plainest of brick buildings—the 'little brick boxes with slate lids,' as Mr. Burns, the author of the Town Planning Act, once called the brick and slate-

roofed houses we see so often in mining villages—may sometimes be made to look prettier objects in the hands of an enthusiastic gardener than the more substantial, dressed stone buildings. I consider that horticulture has a very important part to play in the development of these garden cities, and it is to associations such as ours that people will naturally turn for light and leading in their development. This association has already made a move in this direction, for a proposal to offer a prize for villa gardening and one for window gardening in the city has been adopted by the committee which deals with these matters, and we are to have papers read on these subjects at our November meeting. These are steps in the right direction, and by action of this sort, and in other ways stimulating a taste for floriculture among the citizens, this and other associations can do much to forward the Garden City movement. In a city like Edinburgh, or in fact any other large city, the garden city must be largely of the character of a garden suburb surrounding the civic centre. As a matter of fact, Edinburgh does already possess some of these garden suburbs, but, alas, they are disappearing, and there seems to be no power to stay the hand of the despoiler. At the west end of our seaside suburb, Portobello, huge, inelegant blocks of tenement houses are at this moment springing up on the very edge of our main approach to the city from the east, and in the Joppa end of the suburb, which is purely residential, and really a garden suburb in the truest sense of the term, cottages with gardens, such as are being advocated in the formation of garden cities, are being gradually swept away and tenements erected in their places. The same transformation may be seen in some other parts of the suburbs, and, apparently, there is no power to prevent it; in fact, it was stated by one of the speakers at the Town Planning Exhibition in March last that Edinburgh could not do without her tenements.

"There are three distinct types of garden city, and as to which of these is the ideal type there may be differences of opinion. A great deal must depend on local and other circumstances. We have, first, the older cities and towns, with their centres of civic life, and their outlying garden suburbs; secondly, we have the complete industrial town with its sites for public works, and its civic buildings, &c., laid out on a complete garden city plan, such as Letchworth, Bournville, and Port Sunlight; and, thirdly, we have the simple garden village, such as New Barswick. From a health point of view, there does not seem to be much to be said for the one in preference to the other, provided there is no overcrowding of the dwellings, for the death rate per 1,000 at Bournville (5.7) is not a great deal lower than that of uncrowded Kelvinside (7.7): but when we compare it with crowded Cowcaddens (24.3), the contrast is very striking. To whichever of these types the garden city belongs, it is essential that it be well planned, and there must be economy in everything."

(To be continued.)

NATIONAL CHRYSANTHEMUM.

FEBRUARY 19.—The annual dinner of the Floral Committee of this Society was held at Carr's Restaurant, Strand, on Monday evening last. Mr. D. B. Crane occupied the chair.

After partaking of an excellent repast, several toasts were duly honoured, including those of "His Majesty the King," "The National Chrysanthemum Society," "The Exhibitors," "The Market Growers," and "The Press." During the evening the question of increased awards for new varieties was raised, and it was stated that a record number of varieties had been presented to the committee for awards during the past year.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

FEBRUARY 8.—*Committee present;* Rev. J. Crombleholme (in the Chair); and Messrs. R. Ashworth, W. R. Lee, C. Parker, H. Thorp, Z. A. Ward, J. C. Cowan, J. Cypher, J. Evans, W. Holmes, A. J. Keeling, D. McLeod, W. Stevens, and H. Arthur (secretary).

Silver-gilt Medals were awarded to Z. A. WARD, Esq., Northenden (gr. Mr. Weatherby), for a group composed principally of Odontoglossums, and W. R. LEE, Esq., Heywood (gr. Mr. Branch), who staged a miscellaneous group. *Silver Medals* were awarded to R. ASHWORTH, Esq., Newchurch (gr. Mr. Gilden) for a mixed group; Col. J. RUTHERFORD, M.P., Blackburn (gr. Mr. Lupton), who exhibited a miscellaneous collection; A. WARBURTON, Esq., Haslingden (gr. Mr. Dalgleish); Messrs. J. CYPHER & SONS, Cheltenham, and Messrs. SANDER & SONS, St. Albans. *Bronze Medals* were awarded to Rev. J. CROMBLEHOLME, Clayton-le-Moors (gr. Mr. Marshall), for a small group of Cypripediums; J. MCCARTNEY, Esq., Bolton (gr. Mr. Holmes); and W. J. HARGREAVES, Esq., Burnley.

Other exhibitors were WM. THOMPSON, Esq. (gr. Mr. Stevens); J. J. HOLDEN, Esq., Southport (gr. Mr. Johnson); G. H. PEARCE, Esq., Monton Grange (gr. Mr. Mace); H. THORP, Esq., Rhodes; Messrs. HASSALL & Co., Southgate; Messrs. A. J. KEELING & SONS; and Mr. W. SHACKLETON, Great Horton.

AWARDS.

FIRST-CLASS CERTIFICATES.

Odontoglossum percultum variety "purpurescens," a fine bronze-purple flower, from W. R. LEE, Esq.

AWARDS OF MERIT.

Odontoglossum crispum Euterpe, from W. R. LEE, Esq. *O. Wilkeanum variety "Jasper," O. Adrianæ variety "Vulcan,"* and *O.* × *Jasper,* all from Z. A. WARD, Esq. *Cypripedium birkdalense* (insigne Sanderianum × Thalia magnificum), from J. J. HOLDEN, Esq. *C. Hercules* (Vandyke × Sultana), *C. Draco* (insigne × Euryades), and *C. Nubia* (Niobe Westonbirt variety × Thompsonii), these three from WM. THOMPSON, Esq. *Odontoglossum Orphanum,* from R. ASHWORTH, Esq., and *Cypripedium Lucernale* (chrysotoxum × Euryades splendens), from A. WARBURTON, Esq.

Obituary.

HAYWARD MATHIAS.—Mr. Hayward Mathias, one of the founders and first honorary secretary and treasurer of the Perpetual-flowering Carnation Society, died suddenly from heart failure at Stubbington on the 10th inst. Mr. Mathias, who was aged 62 years, was greatly interested in Carnations, and was an ardent cultivator of both the border and perpetual-blooming types of the flower. The chairman of the Perpetual-flowering Carnation Society, Mr. J. S. Brunton, and the hon. secretary, Mr. E. F. Hawes, were present at the funeral. A wreath of white Carnations was sent by the Society, in memory of one of its hardest workers.

GARDENING APPOINTMENTS.

[*Correspondents are requested to write the names of persons and places as legibly as possible. No charge is made for these announcements, but if a small contribution is sent, to be placed in our collecting Box for the Gardeners' Orphan Fund, it will be thankfully received, and an acknowledgment made in these columns.*]

Mr. W. T. DOIDGE, as Gardener to A. ST. GEORGE CAULFEILD, Esq., Vicars Hill, Lymington, Hampshire.

Mr. F. T. ROSE, for nearly 2 years Foreman at Canwick Hall Gardens, Lincolnshire, as Gardener to Sir BACHE CUNARD, Bart., Nevill Holt, Market Harborough.

Mr. E. WAKEHAM, for the past 4½ years Gardener to Mrs. C. BETHELL, Cheam Park, Surrey, and formerly of Nonsuch Park, Cheam, as Gardener and Bailiff to the School of Handicrafts, Chertsey, Surrey.

Mr. ARTHUR C. LEHANE, for the past 2½ years Gardener to JOHN NELSON, Esq., Sherborne, Malvern Wells, as Gardener to F. F. HALL, Esq., Park Hall, Mansfield, Notts. (Thanks for 2s. sent for R.G.O.F. box.—EDS.)

Mr. W. FAIRBAIRN, for the past 2½ years Foreman in the Gardens at Gorddinog, Llanfairfechan, North Wales, and previously at Osmaston Manor, and Manderston, N.B., as Gardener to Mrs. GEO. CLARK, at Chacombe House, Banbury, Oxfordshire.

Mr. JAMES D. COWARD, for 25 years Gardener to the late Earl of WINCHELSEA, and later to EDITH Countess of WINCHELSEA, at Haverholme Priory, Sleaford, as Gardener and Bailiff to A. L. JESSOP, Esq., Lexham Hall, Swaffham, Norfolk. (Thanks for 2s. enclosed for R.G.O.F.—EDS.)

TRADE NOTICE.

Messrs. John K. King & Sons, Coggeshall, Essex, have received an official communication informing them that they have been awarded a Diploma and Commemorative Medal in connection with exhibit at the seed competition at the recent Brussels International Exhibition.

DEBATING SOCIETIES.

CHESTER PAXTON.—A meeting of this society was held on the 10th inst., under the chairmanship of Mr. John Wynne, when Mr. T. Edward Miln, son of the hon. secretary, read a paper entitled, "A Survey of the Historical and Botanical Features of the Cereals of Great Britain." In his opening remarks, Mr. Miln drew attention to the large increase in the size of the grains of the present day types of cereals compared with those of earlier times. Several original and interesting slides were shown to prove that this increase of food in the seed was not utilised by the germ in its growth, and must have come about by the continuous selection of the largest and best grains for propagating purposes. The lecturer dealt fully with all the various types and species of the three leading British cereals, viz., Oats, Barley and Wheat, and gave a lucid description of the chief botanical features relating to them. Slides were used to illustrate every known type of these three cereals, and although many are now almost quite out of cultivation, the pictures were none the less interesting to the large and appreciative audience.

CHELMSFORD AND DISTRICT GARDENERS'.—The eighth meeting of the winter session was held in the County Laboratories on the 2nd inst.; the president, Mr. E. H. Christy, presided over a company of about 40. Mr. W. Seabrook, of the Chelmsford Fruit Nurseries, gave a lecture on "The Pruning of Fruit Trees." In dealing with standard Apple trees Mr. Seabrook recommended no pruning the first year after planting, but hard pruning for the next five years in order to lay a good foundation to the trees. In the case of bush Apples he advised pruning the shoots in winter to two buds, and the removal of all useless growths. In the case of Plums, all strong wood should be cut away, leaving only the short twiggy growths.

DEVON AND EXETER GARDENERS'.—The spring session of this society opened with the annual supper of the members, between 40 and 50 being present. Mr. W. Mackay, honorary secretary and treasurer, presided. At the first ordinary meeting a paper was read by Mr. Geo. Merritt, of Exmouth, one of the oldest members of the society. Mr. Merritt last autumn paid a visit to Canada, spending a considerable time in the province of Quebec, and he gave a lucid description of what he saw there of interest from a gardener's point of view. Mr. W. Charley, who had been honorary secretary for the past eight years, on retiring from that office, has received a presentation from the members.

BATH GARDENERS'.—The fortnightly meeting was held on February 12, Mr. T. Parratt presiding. A paper on "Spring Bedding" was read by Mr. E. W. Parsons. The society's silver medal was awarded to Mr. T. Allen for the highest number of points scored during 1911, and Mr. W. Burt, who was placed second, secured the bronze medal. Two honorary members and one ordinary member were elected. It was decided to consider arrangements for a visit by the members to the International Exhibition to be held at Chelsea in May.

LEE, BLACKHEATH, AND LEWISHAM HORTICULTURAL.—A meeting of this society was held on Friday, January 26, when a lecture on "Winter-flowering Plants" was delivered by Mr. R. E. Pullen; Councillor Balsdon occupied the chair. The lecturer stated that in his opinion there were few more beautiful flowers for decorative purposes than the Bouvardias. To obtain good strong bushy specimens, the young plants should be placed on an open border in July, they require no more attention until the early autumn, excepting watering and occasionally pinching the long growths to cause the plants to grow into a good shape. When lifted the plants should not be taken directly into the greenhouse, but should be potted, and placed back in the holes whence they came, giving them a good watering to prevent flagging. After about a fortnight they should be removed to a cold frame until they are brought into the conservatory, admitting plenty of air in the meantime. The culture of Euphorbia jacquiniæflora, E. pulcherrima (Poinsettia), and Genistas was also dealt with by the lecturer.

CROYDON AND DISTRICT HORTICULTURAL.—At the meeting of this society, held on the 6th inst., a lecture was given by Mr. A. Smith, of the R.H.S. Gardens, Wisley, on "The Water and Wild Gardens." Mr. Smith said that the space for a water garden should be cleaned thoroughly and any tree roots removed. In the case of a big pond the bottom may be of puddled clay, but in smaller gardens it will be found of great advantage to cement the bed of the stream as well as the sides. The surrounding ground on either side of the stream should be well dug and manured ready for the plants. To build rockeries with huge boulders on either side of the water course was to spoil the natural view. It is far better, said Mr. Smith, to plant down to the water's edge such subjects as will grow there. Generally one finds in a water garden a rustic wooden bridge standing high above the stream, but in the lecturer's opinion this is an eyesore. A few stepping stones would provide the means of crossing.

DONCASTER GARDENERS'.—The annual dinner of this society was held at the Wellington Hotel, Doncaster, on the 8th inst., under the presidency of the ex-mayor (Councillor C. Wightman.) Proposing "Success to the Society," Councillor Morris pointed out that in connection with the Royal Show, to be held in Doncaster in July next, there would be an exhibition. During the evening the medals won in competition during the year were presented to the members.—Responding for the officials, the secretary (Mr. W. H. Touns) stated that since he had taken up the work the society's programme and prize list had increased by 100 per cent. The number of classes had increased proportionately. He urged the resuscitation of the Doncaster Chrysanthemum Society.—Mr. Bell said he was sorry the Chrysanthemum Society had fallen through; he considered that another similar society could be started.

STIRLING AND DISTRICT HORTICULTURAL.—The opening meeting of this association of the session 1912 was held on February 6; Mr. Jas. Johnston presided. Professor M'Alpine, of Glasgow Agricultural College, gave a lecture on "Seeds and Their Peculiarities." The subject was treated in an instructive and entertaining manner, and illustrations were given.

BARNSLEY PAXTON.—The 29th annual report and balance sheet show that the society is in a flourishing condition. There have been 22 lectures and essays during the year, and two outings of members. The number of members is 87. The balance sheet shows the income to have been £11 0s. 6d., and the expenditure £7 15s. 6d. There is a reserve fund of £12 12s. 3d. The hon. financial secretary and treasurer is Mr. S. Newton, and the hon. secretary Mr. F. Weatherill.

READING GARDENERS' ASSOCIATION.—The fortnightly meeting of this association took place on the 5th inst.; Mr. F. B. Parfitt, J.P., presided. The lecturer was Mr. J. O. White, of Messrs. Sutton & Sons, his subject being "A Chat on Sweet Peas." The lecture was illustrated by a collection of beautiful slides. Apart from the instruction which the slides conveyed, Mr. White gave directions on the preparation of the ground, the subjects of trenching, manuring, watering and feeding, all being most fully and carefully described.

BRISTOL AND DISTRICT GARDENERS'.—The fortnightly meeting of this association was held on February 8, Mr. A. Perry presiding. Mr. Sydney Wills, of Newport, read a paper entitled "Would They have been Pests if Left Alone?" The lecturer defended the birds which the ordinary gardener generally looks upon as enemies. He said that man only sees the evil in them and does not take into account the great amount of good they do. In destroying owls, hawks, sparrows, starlings, and other birds, the lecturer stated, the balance of nature had been upset, and man had only made things more difficult through having to adjust that balance as best he could.

KILMARNOCK HORTICULTURAL.—The usual monthly meeting of the above association was held on Wednesday, the 14th inst., when Mr. Hill, of Lainshaw, gave a lecture on "Changes in Gardening Customs and Tastes." Mr. R. H. Sillars presided over a large attendance of the members. In the course of his lecture Mr. Hill referred to the new methods of training fruit trees, and the different manner in which soil operations were carried out. He also referred to the fine specimen plants of old times.

WATFORD HORTICULTURAL.—The February monthly meeting of this society was held at the St. Andrews Church Room, Church Road, on the 9th inst., under the chairmanship of Mr. W. Smith. A lecture on "Insects Injurious to Garden Crops" was delivered by Mr. James Davidson. The life histories of many insect pests were explained by the lecturer; additional interest being given by a number of drawings and lantern slides. Recipes for the destruction of the various pests enumerated were described by Mr. Davidson.

WEYBRIDGE & DISTRICT HORTICULTURAL.—At the last monthly meeting of this society, held at the Village Hall, the president, Sir Herbert Ellis, in the chair, Mr. Smith, of the R.H.S. Gardens, Wisley, gave a lecture on "The Cultivation of the Vine." Mr. Smith paid special attention to the ventilating of vineries, as he said he considered it one of the chief items in successful Grape growing.

WOLVERHAMPTON HORTICULTURAL CLUB.—A meeting of the above club was held on Wednesday, 7th inst., when Mr. G. H. Thompson, of Grove House, Walsall, delivered a lecture on "Orchids." The lecture was illustrated with upwards of 100 limelight views. Mr. Thompson said that it was an easy matter, even for amateurs, to grow Orchids in an ordinary greenhouse. He recommended Osmunda fibre as being the best potting material to use for most of the species, although peat, leaf-soil, and even loam could be used for a few kinds.

CATALOGUES RECEIVED.

SEEDS.

DOBIE & MASON, 22, Oak Street, Manchester.
JOHN E. KNIGHT, Dudley Street, Wolverhampton.
FRANK DICKS & Co., 68, Deansgate, Manchester.
JAMES CARTER & Co., Raynes Park, Wimbledon.
JAMES COCKER & SONS, 130, Union Street, Aberdeen.
SUTTON & SONS, Reading—Farm Seeds.
DICKSON & ROBINSON, Cathedral Street, Manchester—Farm Seeds.
W. DRUMMOND & SONS, LTD., Stirling—Farm Seeds.

MISCELLANEOUS.

H. J. JONES, LTD., Ryecroft, Hither Green, Lewisham—New Chrysanthemums.
JOHN FORBES, LTD., Hawick, Scotland—Plants and Seeds.
RANSOMES, SIMS & JEFFERIES, LTD., Orwell Works, Ipswich—Lawn Mowers.
BARR & SONS, 11-13, King Street, Covent Garden, London—Bulbs and Tubers: Hardy Perennials, Alpines, Rock Plants, Climbers and Aquatics.
YOUNG & Co., Hatherley, Cheltenham—Carnations.
HARRY BARKER, Rosemount, Whittlesford, Cambridgeshire.—Trees and Plants.
R. WALLACE & Co., Kilnfield Gardens, Colchester—Bulbs, Tubers and Hardy Plants.
BEES LTD, Liverpool—Garden Plants.
THOMAS A. WARE, LTD., Feltham, Middlesex—Begonias.
H. C. SLINGSBY, 142-146, Old Street, London—Trucks, Barrows, Garden Engines, Sprayers.

FOREIGN.

LEMOINE, V. ET FILS, Rue du Montet, 134, Nancy—New Plants.
VALLERAND FRÈRES, 28, Avenue Faidherbe, Asnieres, France—Begonias, Gloxinias and Cyclamens.
L. FERARD, 15, Rue de L'Arcade, Paris—Nursery Stock.
WILLY MULLER, Nocera Inferiore, Italy—New and Rare Plants; Trees and Shrubs; Greenhouse Plants.

MARKETS.

COVENT GARDEN, February 21.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—EDS.]

Cut Flowers, &c.: Average Wholesale Prices.

	s.d. s.d.
Arums (Richardias)	2 6– 3 6
Azalea, doz. onchs.	4 0 —
Camellias, per box of 18's and 24's	2 6 —
Carnations, p. doz. blooms, best American var.	1 6– 2 0
— smaller, per doz. bunches	18 0–21 0
— Carola, crimson, extra large	6 0 —
Eucharis, per doz.	2 6– 3 0
Freesia refracta alba, p.dz. bun.	1 6– 2 0
Helleborus (Christmas Roses), p. dozen	1 6– 2 0
Hyacinth (Roman), pr. doz. bnchs.	4 0– 6 0
Lilac, per bunch white	2 6– 3 0
— mauve	3 0– 3 6
Lilium auratum, per bunch ...	4 0– 5 0
— longiflorum, long, per doz.	2 6– 3 0
— short, per doz.	2 6 —
— lancifolium alba, long ...	2 6 —
— — short ...	2 0– 2 6
— speciosum rubrum, dz. blooms:	
— long	2 6 —
— short	0 9– 1 0
Lily of the Valley, p. dz.bunches:	
— extra special ...	15 0–18 0
— special... ...	10 0–12 0
— ordinary ...	8 0 —
Marguerite, per doz. bunches:	
— Yellow... ...	2 0– 2 6
Narcissus, per doz. bunches:	
— Double Van Sion	4 0– 6 0
Narcissus, per doz. bunches:	
— Emperor ...	4 0– 5 0
— Empress ...	4 6– 6 0
— Golden Spur...	3 0– 4 0
— Henry Irving	2 0– 2 6
— Paper white ...	3 6– 4 0
— Poeticus ...	2 0– 2 6
— Princeps ...	2 6– 3 6
— Sir Watkin ...	4 0– 5 0
— Soleil d'Or ...	1 6– 2 0
— Victoria ...	4 6– 5 0
Orchids, Cattleya, per doz. ...	12 0 —
— Odontoglossum crispum ...	3 0– 4 0
Pelargoniums, p. dz. bunches:	
— Double Scarlet	8 0–12 0
Roses, 12 blooms,	
— Bridesmaid,	4 0– 5 0
— C. Mermet ...	4 0– 5 0
— Liberty ...	5 0– 8 0
— Niphetos ...	2 6– 3 6
— Richmond ...	4 0– 8 0
Snowdrops, p. doz. bunches ...	1 0– 2 0
Tulips, per bunch:	
— double pink ...	1 0– 1 6
— — yellow ...	1 0– 1 6
— — scarlet ...	1 3– 1 6
— per dozen bunches:	
— white	8 0– 9 0
— yellow	7 0– 8 0
— scarlet ...	8 0–10 0
— bronze	6 0– 8 0
— pink	9 0–12 0
Violets, per dozen bunches ...	1 3– 2 0
— Princess of Wales, per doz. bunches ...	3 0– 4 0
— Parma	2 0– 2 6
Wallflowers, per dozen bunches	2 6 —

Cut Foliage, &c.: Average Wholesale Prices.

	s.d. s.d.
Adiantum Fern (Maidenhair), best, dz. bnchs.	7 0– 8 0
Agrostis (Fairy Grass), per dz. bunches ...	2 0– 4 0
Asparagus plumosus, long trails, pr. ½doz.	1 6– 2 0
— medium, doz. bunches ...	12 0–18 0
— Sprengeri ...	10 0–12 0
Carnation foliage, doz. bunches...	4 0 —
Croton foliage, various, per dozen bunches ...	12 0–15 0
Cycas leaves, artificial, per doz.	3 0–12 0
Eulalia japonica, per bunch ...	1 0– 1 6
Moss, per gross ...	6 0 —
Myrtle, dz. bchs. (English), small-leaved ...	6 0 —
— French ...	1 0 —
Smilax, per bunch of 6 trails ...	1 0– 1 3

Plants in Pots, &c.: Average Wholesale Prices.

	s.d. s.d.
Aralia Sieboldii, p. dozen	6 0– 7 0
Araucaria excelsa, per dozen ...	18 0–21 0
Asparagus plumosus nanus, per dozen	10 0–12 0
— Sprengeri ...	8 0– 9 0
Aspidistra, p. dz., green	21 0–30 0
— variegated ...	30 0–60 0
Azaleas, per doz.	36 0–42 0
Cinerarias, pr. dz.	8 0– 9 0
Cocos Weddeliana, per dozen:	
— 60's	6 0–12 0
— larger, each ...	2 6–10 6
Croton, per dozen	18 0–30 0
Cyperus alternifolius, per doz.	5 0– 6 0
— laxus, per doz.	4 0– 5 0
Daffodils, per dozen	6 0– 8 0
Dracæna, green, per dozen ...	10 0–12 0
Ericas, per dozen:	
— hyemalis ...	10 0–12 0
— alba	10 0–12 0
Ferns, in thumbs, per 100... ...	8 0–12 0
— in small and large 60's ...	12 0–20 0
— in 48's, doz. ...	6 0 —
Ferns, choicer sorts, per doz.	8 0–12 0
— in 32's, pr. doz.	10 0–18 0
Ficus elastica, per dozen	9 0–12 0
Genistas, 48's, doz.	10 0–12 0
Geonoma gracilis, 60's, per dozen	6 0– 8 0
— larger, each ...	2 6– 7 6
Hyacinths white & clrd., p. dz. pots	10 0–12 0
Kentia Belmoreana, per dozen	5 0–42 0
— Fosteriana, 60's, per dozen	4 0– 6 0
— larger, per doz.	18 0–60 0
Latania borbonica, per dozen ...	12 0–30 0
Lilium longiflorum, p. doz.	20 0–24 0
— lancifolium rubrum in pots, per dozen ..	15 0 18 0
— lancifolium alba	15 0–18 0
Marguerites, white, per dozen ...	8 0–10 0
Pandanus Veitchii, per dozen ...	36 0–48 0
Phœnix rupicola, each	2 6–21 0
Spiræa japonica, p. dozen pots ...	10 0–12 0

Fruit: Average Wholesale Prices.

	s.d. s.d.
Apples (English cookers) bushel	6 0–12 0
— Nova Scotian, per barrel ...	17 0–22 0
— Californian Newtowns, pr. case	9 0–11 0
Apples (Canadian), per barrel ...	20 0 —
— Oregon (Hood River), per case	16 0–18 6
— American, per barrel	20 0–32 0

Fruit: Average Wholesale Prices *(continued)*.

	s.d. s.d.
Bananas, bunch:	
— Doubles ...	10 0–12 0
— No. 1 „ ...	8 0–10 0
— Extra	10 0–12 0
— Giant „ ...	14 0–18 0
— Loose, per dz.	0 6– 1 0
— Red coloured...	5 6– 6 6
— Jamaica Giants, per ton ...	£10–£12
— Jamaica Ordinary, per box (9 doz.) ...	4 0– 5 0
Cranberries, per case (30 qts.)...	10 0–11 0
— Cape Cod, per case (30 quarts)	9 6 —
Dates (Tunis) doz. boxes	4 6– 5 6
Grape Fruit, case:	
— 96's	14 0–20 0
— 80's	
— 64's	
— 54's	
Grapes (English), per lb.:	
— Black Alicante	2 0– 3 0
— Gros Colman...	1 6– 3 0
— (Belgian), Gros Colman, p. lb.	0 9– 1 3
— Almeria, p. brl.	11 6–15 6
Per dozen lbs.	3 0– 4 6
— (Cape) per case	4 0–10 0
— „ White...	6 0– 8 0
Lemons:	
— (Naples), case	26 0–30 0
— Messina, per case	7 6–17 0
Limes, per case ...	4 0 —
Mangoes, per doz.	4 0– 6 0
Nuts, Almonds, per bag	52 6 —
— Brazils, new, per cwt. ...	85 0–100 0
— Spanish, per sack	40 0 42 0
— Barcelona, bag	35 6–36 6
Nuts, Chestnuts, per bag ...	3 6–19 0
— Cocoanuts (100)	18 0–23 0
— English Cobs per lb.... ...	0 3 —
— Walnuts (Naples) kiln dried, cwt. cases	54 0 —
— French Grenobles, per bag	6 6– 7 0
— Boeris, per bag	6 0– 7 0
Nectarines (Cape) per box ...	4 0– 6 0
Oranges, Jamaica per case ...	9 0–10 0
— Californian ...	20 0–22 0
— Denia, case ...	16 0–34 0
— Valencia ...	10 0–12 0
— Jaffa, per case	9 6 —
— Blood, per case	8 0– 9 0
— Mandarins, per box ...	0 6– 3 6
— Bitter, per ½ chest	16 0–18 6
— Seville Sour ½ chest ...	15 0–18 0
Peaches (Cape), pr. case	3 0– 8 0
Pears (Californian), per case ...	10 6–16 6
— Glou Morceau	11 6–12 6
— Easter Beurré	8 6 —
— Winter Nelis	12 6–13 6
— (American) per barrel, 180 lbs.	25 0–26 0
— cases	7 0 —
— (Cape)	3 0– 4 0
Pineapples, St. Michael ...	2 6– 5 0
Plums (Cape), per case	2 0– 4 0
— Apple, per box	5 0– 7 0
Strawberries, p. lb.:	
— A quality ...	24 0 —
— B quality ...	16 0 —

Vegetables: Average Wholesale Prices.

	s.d. s.d.
Artichokes (Globe), per dozen ...	3 0– 4 0
— Ground, per ½ bushel ...	1 0 —
Asparagus, Sprue..	0 9 —
— Cavaillon ...	3 0 —
— Laurie ...	5 0– 6 0
— Paris Green ...	4 6– 5 0
Beans, Madeira, per basket	5 0–10 0
— Guernsey, Dwarf, per lb.	4 0– 4 6
— French, per packet, lb. ...	1 6– 1 9
Beetroot, p. bshl.:	
— Long	2 0– 2 6
Broccoli, sprouting, per bag ...	3 0– 3 6
Brussel Sprouts, per ½ bushel ...	1 6– 2 0
— half bags ...	2 0– 3 0
Celeriac, per doz.	2 6– 3 0
Cabbages (French) per dozen ...	2 0– 2 6
— (English), per tally	6 0–10 0
Cauliflowers, p. dz.	2 0– 2 6
— (Italian), p. pad	2 0– 3 0
— (Cornish), per crate	10 0–12 0
Celery, doz. bndls.	10 0–14 0
— (washed), per dozen bundles	10 0–16 0
Carrots (English), pr. doz. bun....	1 6– 2 0
— per cwt. ...	3 6– 4 6
— (washed) p. bag	4 0– 5 0
Chicory, per lb. ..	0 4 —
Cucumbers, p. doz.	8 0–12 0
Endive, per dozen	2 0 —
Greens, per bag ...	2 0– 3 0
Herbs (sweet), pkts., p. gross	7 0 —
Horseradish, 12 bundles ...	12 0–14 0
Leeks, per doz. ...	2 6– 3 0
Lettuce (French), per doz. ...	1 6– 2 0
Mint, per dozen bunches ...	5 0– 6 0
Mushrooms, cultivated, p. lb. ...	0 10–1 3
Mustard and Cress, pr. dz. punnets	1 0– 1 6
Onions (Dutch) per bag	7 6– 8 0
— English ...	8 6– 9 0
— (Spanish), per case	8 0– 9 0
Parsley, ½ sieve ...	2 0– 2 6
— per doz. bun.	2 6– 3 0
Parsnips, per bag	5 0– 5 6
Peas (French) p. pad	5 0– 6 0
Radishes (English), per dozen ...	0 9– 1 0
Rhubarb, forced, per 12 bundles	0 9– 1 0
Savoys, per tally...	10 0–12 0
Spinach, per bushel... ...	3 0– 4 0
Seakale, p. punnet	1 0– 1 3
Tomatos (Canary Islands), per bundle... ...	12 0–16 0
Turnips (English), per dz. bunches	2 0– 2 6
— bags (washed)	4 6– 5 0
— (unwashed) ...	3 6– 4 0
Turnip Tops, per bag	2 0– 2 6
Watercress, p. dz. bunches ...	0 6–0 6½

REMARKS.—Supplies of home-grown Grapes are diminishing daily; and Muscats are no longer obtainable. One thousand two hundred and fifty-one boxes of Grapes, principally of Black Hermitage variety, arrived in a sound condition this week from the Cape. Hothouse Strawberries from the Worthing district are arriving in limited quantities. A consignment of Cape fruits, per s.s. "Balmoral Castle," amounting to about 21,000 boxes, consisting of Pears, Plums, Peaches, Nectarines, &c., has been received. Shipments from Nova Scotia this week totalled 6,021 barrels of Apples, and from California, per s.s. "Oceanic," 4,470 packages, consisting of Apples, Cranberries, Pears, Oranges and Grape fruit. Supplies of English Apples are now limited to Bramley's Seedling and Dumelow's Seedling (Wellington). Teneriffe Tomatos continue a good supply. Forced vegetables are fairly plentiful. A few early Cabbages have been received from St. Malo. *E. H. R., February 21, 1912.*

Potatos.

	per cwt. s.d. s.d.
Kents—	
Queen's	4 0– 4 6
Up-to-Date ...	4 0– 4 6
Lincolns—	
Up-to-Date ...	3 9– 4 6
British Queen ...	3 9– 4 3
King Edward ...	4 0– 4 6
Epicure	3 0– 3 6
Northern Star ...	2 9– 3 6
Evergoods ...	3 0– 3 9
Lincolns—	
Maincrops ...	4 3– 4 6
Blacklands ...	2 9– 3 3
Bedfords—	
Up-to-Date ...	3 9– 4 0
Puritan	4 0– 4 3
Dunbars—	
Up-to-Date ...	5 0– 5 3
Maincrop ...	5 3– 5 6

REMARKS.—Supplies are more numerous, consequently the stocks in London have become very large.

ANSWERS TO CORRESPONDENTS.

ACETYLENE-GAS REFUSE: *Seakale.* Acetylene-gas refuse should be mixed with soil in a heap and kept for a month or two before it is spread over the ground

ADDRESS: *New Reader*: Lieut.-Col. D. Prain, Director, Royal Botanic Gardens, Kew, Surrey.

APPLE-TREE BARK DESTROYED: *S. E. N.* We are unable to say whether or not the Apple tree can possibly live, as we do not know how deeply the goat has injured the bark. If the cambian layer is destroyed completely round the tree there is not any hope, but you will do well to cover the injured stem with styptic, such as is used for covering wounds after grafting to prevent bleeding.

CALANTHE: *Foreman.* It is better to retain the deciduous Calanthes in their pots during the resting season, but they must be given a warm and tolerably dry situation and not stored under a stage, where drip and stagnant air would injure them. If space is very limited, however, they may be turned out of the pots when the plants are thoroughly matured, and placed upright in boxes, their roots covered with a thin layer of Sphagnum moss. The boxes should be stored on a shelf in a warm house and kept dry until the growth is about to recommence, when the plants must be repotted.

CAMELLIA BUDS ROTTING: *J. W. B.* The mildew present on the leaves is not injurious, but it is a sign that the atmosphere has been too damp. Excess of moisture and insufficient heat are the causes of the buds falling.

CERTIFICATE IN BOTANY: *E. P.* Examinations are held by the Board of Education in botany, and you should apply to the Board for further information. Address, the Secretary, Board of Education, Whitehall, London, S.W.

CINERARIAS UNHEALTHY: *C. W.* Your plant of Cineraria is suffering from too much water in the soil; the loam is apparently satisfactory.

CRASSULA M. FRITZER: *F. C.* This plant requires abundant light and air. Very little moisture should be afforded, especially during the winter season. The cuttings should be inserted as soon as the plants have finished flowering, say, in June or July. They should be kept on the dry side, in a light, airy house, where they may be allowed to remain throughout the winter, only affording heat sufficient to keep out the frost. If too much moisture is afforded, the plants will grow freely, at the expense of flowering. Specimens frequently fail to bloom until they are two years old; such plants should be used for purposes of propagation.

GRUBS INFESTING BRANCHES OF CHOISYA: *G. G.* The grubs are those of a dipterous fly, possibly a species of Cecidomya or allied genera. The only practical remedy, so far as we know, is to cut away the infested shoots and burn them.

JAPANESE NURSERY FIRMS: *H. F. C.* Yokohama Nursery Co., Craven House, Kingsway, London; L. Boehmer & Co., 5 and 28, Bluff, Yokohama; and The Tokio Nurseries Co., Komagome, Tokyo.

JASMINUM AND PELARGONIUM: *A. W. G.* The marks on the Pelargonium leaves are caused by mites. Wash the foliage with Tobacco water. The browning of the Jasminum blooms is not due to disease.

LEAVES INJURED BY A MINING INSECT: *Hortus.* The leaves—which are apparently of Hibiscus syriacus—have been injured by the mining maggot of the Marguerite fly. Spray the plants with quassia extract or other distasteful liquid, in order to prevent the females from depositing their eggs upon the leaves. Remove badly-affected leaves and burn them.

NAMES OF PLANTS: *Correspondent* (no letter was found). 1, 2, 5, 6, 7 and 8, varieties of Cupressus Lawsoniana; 3, Thuya dolabrata; 4, Cupressus nootkatensis pendula; 9, Picea morinda; 10, one of the garden forms of Veronica speciosa; 11, Cryptomeria elegans. The various forms of Lawson Cypress cannot be recognised from small pieces of the branches. It is the most variable Conifer known, and forms showing quite as much variation as those you send may appear in any batch of seedlings.—*M. L.* Polygonum aviculare "Knot-grass."—*C. Stapler.* 7, Cryptomeria japonica var. elegans; 8, Picea pungens var. glauca; 9, apparently Juniperus virginiana; 10, Pseudotsuga Douglasii; 11, Thuya dolabrata; 12, Abies Nordmanniana.—*R. O.* 1, Begonia fuchsioides; 2, Eranthemum pulchellum; 3, Oncidium flexuosum; 4, Selaginella Wildenovii.—*Ajax.* Tiarella cordifolia.

PEACH DYING: *H. B. and T. W. C.* The symptoms suggest "die-back," caused by a fungus. It will be best to remove the badly-injured shoots, and wash the branches once a week for three or four weeks with a solution of liver of sulphur, using 1 ounce in 3 gallons of water.

PLANT BREEDING: *H. C. B.* The best course for you to adopt is to write to some of the nurserymen who make a speciality of breeding particular strains of plants, and try and make arrangements with them to give you employment in the plant department. There is a special station for research in heredity and plant-breeding at Merton, Surrey. This institution is under the direction of Professor Bateson, and he would doubtless advise you as to whether it would be possible for you to obtain employment there, and whether such a course would serve your interests.

POTATOS DISEASED: *Sterlini.* The tubers are affected with winter-rot, caused by a fungus. This disease is usually the result of Potatos not being well air-dried before they are placed in the pit.

POTTING HIPPEASTRUMS: *Constant Reader.* Different growers adopt different methods, for whilst some only repot their plants every two or three years, others do so annually. In both cases the general practice is to repot or afford surfacings of fresh compost in spring as the bulbs show signs of new growth. A mixture of turfy loam, leaf-mould, and silver sand is a suitable rooting medium. When the bulbs are growing freely and whilst the flower-spikes are developing liquid manure should be given. After the period of flowering is over and the growth completed, the bulbs should be rested in an airy greenhouse or vinery, but a little water must be afforded occasionally.

RHODODENDRON (AZALEA) INDICUM WITHERING: *A. E. R.* No disease is present in the plant. The trouble is the outcome of root-disturbance, and is of frequent occurrence.

SEAKALE UNHEALTHY: *Seakale.* The unsatisfactory condition of the Seakale is not due to either fungous or insects pests.

SEASIDE TOWN: *E. O. B.* The best deciduous trees to plant along the streets of a southern seaside town are the Tree of Heaven (Ailanthus glandulosa), the False Acacia (Robinia pseudacacia), the Cornish Elm (Ulmus cornubiensis), and the Birch (Betula alba). Suitable evergreen trees include the Holly (Ilex aquifolium, and its varieties), the evergreen Oak (Quercus Ilex), the Cork Oak (Quercus suber), the Austrian Pine (Pinus austriaca), and Pinus Coulteri. The north screen could well be planted with a few of the evergreen trees named, especially the Ilex and Holly, and any of the following trees and shrubs: Lawson's Cypress (Cupressus Lawsoniana), the Nootka Sound Cypress (Cupressus nootkatensis), the Western Arbor-Vitæ (Thuya occidentalis), the Box (Buxus sempervirens and B. balearica), the scarlet Thorn (Cratægus Pyracantha), Furze (Ulex europæus and its varieties), Junipers (Juniperus species), Myrtles (Myrtus species), Griselinia littoralis, Phillyræa media, P. angustifolia, Cotoneaster microphylla, Euonymus japonicus, and many kinds of Ivy (Hedera Helix). But to plant a screen of shrubs which will be a tasteful blending of the various forms and flowers, and a pleasure to the public, instead of the heterogenous muddles of a few different shrubs usually seen in public places, much more than a list of suitable species is required. Before deciding on your selection, it will be advisable to carefully consider the soil and its treatment before planting, also the present and future effect of the grouping of the shrubs you employ.

SOIL STERILISATION: *H. W. C.* It is not easy without suitable appliances to control the temperature in the process of soil sterilisation. Probably the simplest method for you to try is that which you suggest, namely, to build up a wood fire, about a large iron pot, or, better still, to sling the pot over the fire. Then, before lighting the wood, fill the pot with thoroughly moistened soil, plunge the thermometer attached to a stick nearly to the bottom of the pot, which should not be covered. Light the fire, and when the thermometer registers 200° F. rake away the fire, remove the thermometer, put on the lid, and leave the soil to cool. If you wish to use chemicals instead of heat for sterilisation, the soil must be thoroughly moistened with toluol, and then spread out in a fairly thin layer, and raked over from time to time till the sterilising substance has evaporated. In this connection you should consult the article in our present issue, p. 113.

THYRA WOOD: *H. Rabjohn.* We are unable to trace such a name as Thyra Wood. The nearest approach to it that we can find is "Tyrah," an Indian vernacular name applied to Bambusa khasiana. This is referred to by Sir D. Brandis in *Indian Trees*, p. 668. The word "Thura" is used in connection with Euphorbia Nivulia in India. If you could obtain a specimen of the wood, or better still of the leaves and the flowers of the tree, we should probably be able to identify it. You should also give, if possible, the name of the country from which the wood was obtained.

WINTER WASH FOR FRUIT TREES: *A. S.* The formula of your winter wash is the same as that which was found in the Woburn experiments most effective for the destruction of scale, except that ½ lb. of lime was used instead of ¼ lb. Probably, however, the reduction of the lime improves the consistency of the wash, and its benefit is questionable, because the sulphuric acid in the iron sulphate would combine with it, converting it into inoperative sulphate of lime (gypsum). The proper way of making the mixture is as follows:—Dissolve ½ lb. of iron sulphate in boiling water, made up to 8 gallons with cold water, and add to it milk of lime, made by shaking ½ lb. of quicklime, diluting it and straining the dilution. Then add 5 pints of paraffin and 2 lbs. of caustic soda, churning the mixture up thoroughly by means of a large syringe, and making up to 10 gallons. This winter wash was recommended as a general one, and not for scale only, and there is probably no better one for the destruction of the woolly aphis, American blight, when the pest is established on large trees. For its eradication on young trees pure methylated spirit, applied with a small brush, is a perfect specific. But so far as scale is concerned, lime-sulphur alone has almost entirely superseded other washes in the United States, where scale is very much more common than in this country. It is much less likely to do harm to the bark of trees than the strong solution of caustic soda, which you name, if applied year after year, even if the mixture you name has any such action. For example, lime-sulphur would be beneficial where the shoots of Plums and Apples are affected by brown rot or scab, and it is questionable whether the other mixture would have any fungicidal action. A clean solution of lime sulphur, easy to spray, is now to be obtained of Messrs. Walter Voss & Co., Millwall, London, showing 31° to 33° of density when tested with the Baumé hydrometer (equal to 1.2719° to 1.2946° as shown on the ordinary hydrometer). The dilution of solutions of these strengths should be at the rate of 9 to 10 gallons of water to 1 gallon of the solution. But it is doubtful whether this wash would have much effect upon the woolly aphis. Certainly it would not be as effective in the destruction of the pest as a combination of paraffin and caustic soda. It may be mentioned that the use of iron sulphate in the mixture you name is only that of an emulsifier to the paraffin.

Communications Received.—A. E. T., U. S. A. (Thanks, the fact was announced in the last issue.)—L. A.—R. B.—C. F. B.—Mrs. V. J. B. M.—G. R. S.—A. E., Guildford—J. H.—F. H. N.—H. H. S.—Botanist—A. G.—J. S.—W. B. L.—H. W. W.—F. W. & Co.—F. W. C.—G. M. T.—W. A. M.—W. H. A.—Polegate—R. G. W.—W. B.—J. D. M.—A. G., Somerset—H. E.—H. R., Holland—A. P. R.—H. H. R.—Anxious, Yorkshire—W. H. Y. (Many thanks; the news had already reached us.)—L. S.

THE GARDENERS' CHRONICLE

ESTABLISHED 1841 — No. 3714

No. 1,314.—Vol. LI. {THIRD SERIES.} SATURDAY, MARCH 2, 1912. {Registered as a Newspaper. WITH SUPPLEMENT.} {PRICE 3d. POST-FREE, 3½d.

SUBSCRIPTION—Inland, 15/-; Foreign, 17/6 [22fr. 10c.] [$4 26c.] per annum. Entered at the New York Post Office as second-class matter.

Postal Address—41, Wellington Street, Covent Garden, W.C. Telegraphic Address—"Gardchron, London." Telephone—Gerrard, 1543.

☞ For CONTENTS see page 131.

WEBBS' NEW "KING GEORGE" PEA. Introduced in 1911. 1s. per packet; 2s. 6d. per pint. Post free.

Mr. A. R. SEARLE, Head Gardener to the Marquis of Northampton, writes: "'King George' Pea did very well with me this past season. I grew it for exhibition, and it was the finest we had. The pods measured 7¼ in. in length, and were well filled. I think it a grand variety."

WEBBS' ALDENHAM PRIZE PINK CELERY.—An excellent variety; most strongly recommended. Grown by the leading exhibitors, and awarded First Prizes at Shrewsbury, Birmingham, and other leading Shows.—1s. and 1s. 6d. per packet, post free—WEBB & SONS, The King's Seedsmen, Wordsley, Stourbridge.

BATH'S SELECT SEEDS.—New Illustrated Catalogue of Choice Vegetable and Flower Seeds, with full cultural notes, is now ready, and will be sent post free on application.
(Dept. A), R. H. BATH, Ltd., The Floral Farms, Wisbech.

IRON & WIRE FENCING for GARDENS, Tree Guards, Gates, Arches, Espaliers, Rose Stakes, and Ornamental Garden Iron and Wire Work of every description. Send for Illustrated Catalogue, free.
BOULTON & PAUL, Ltd., Manufacturers, Norwich.

Roses and Herbaceous Plants.

GUNN & SONS were awarded the 25 Guinea Challenge Cup in each collection at the Leamington Show. Up-to-date List for each now ready.
Address: Olton, Warwickshire.

LAVENDER.—Common, Giant and Dutch, 3s. per dozen, 21s. per 100; also the dwarf Compact variety, 5s. per dozen, 35s. per 100, and the White-flowered, very sweet-scented, 7s. 6d. per doz., 55s. per 100.—THE GUILDFORD HARDY PLANT NURSERY, Guildford.

WM. DUNCAN TUCKER & SONS, Ltd., 27, Cannon Street, London, E.C.; Works, Tottenham. Conservatories, Winter Gardens, Vineries, Peach-houses, Portable Buildings, etc. Catalogue gratis.

CHRYSANTHEMUMS.—Descriptive Catalogue of choice up-to-date varieties and novelty list for 1912, sent free. Apply
H. W. THORP, Durrington, Worthing.

FRUITING VINES IN POTS.—Muscat of Alexandria, and leading Market varieties. We make Vines a speciality.
G. COLEMAN, The Vineries, Burgess Hill, Sussex.

BUNYARD'S CATALOGUES, free on application.
FRUIT TREES AND VINES.
SHRUBS AND CONIFERS.
ROSES AND OTHER CLIMBERS, in Pots.
HERBACEOUS & AQUATIC PLANTS for present planting.
GEORGE BUNYARD & CO., LTD., Royal Nurseries, Maidstone. Established 1796.

FIDLER'S NEW ILLUSTRATED CATALOGUE of CHOICE GARDEN SEEDS will be sent post free to any address on receipt of postcard. Write at once for a copy; it may help you to save 50 per cent. on your seed bill this season.
FIDLER & SONS, Royal Berkshire Seed Stores, Reading.

LANDSCAPE GARDENING.—W. INNES STUCKEY, Landscape Gardener, Piccadilly Mansions, Piccadilly Circus, W. (With the late Mr. H. E. Milner).

SUTTON'S MAGNUM BONUM CAULIFLOWER. Per packet, 1s. 6d. and 2s. 6d., post free.

Mr. W. DAVIES, Foot's Cray, writes:—"Your Magnum Bonum is the only Cauliflower that has done well with me throughout this terrible drought. From each plant of Magnum Bonum I cut a nice well-formed white Cauliflower."

SUTTON & SONS, The King's Seedsmen, READING.

DOUGLAS'S CARNATIONS & PINKS, border and perpetual, are noted all over the world. 5 Gold Medals, R.H.S., 450 Medals and Cups. Newest and best varieties at most reasonable prices, all ready for planting or potting on. Finest hand fertilized seed only sold. Carnation and Picotee seed, all types, 1s. 6d. to 2s. 6d. packet. Auricula, Pink, Polyanthus, finest strain in existence, all 1911 fine crop, now ready for sowing. Send for catalogue, Edenside, Gt. Bookham.

CLARK'S GARDEN SHEARS (Patent).—The most ingenious garden invention. Holds in position the object to be cut, and stops it slipping away. Marvellous value at 5s. per pair. Send P.O. to-day to W. CLARK, Limited, 2, Stourcliffe Street, London, W.

DICKSONS Horticultural Manure & other high-class Fertilizers; also Dicksons Improved Mushroom Spawn. Priced Circulars free on application to DICKSONS, Royal Seed Warehouses & Nurseries, Chester

POULTRY and KENNEL APPLIANCES of every description. Write for latest Catalogue free on application.
BOULTON & PAUL, Ltd., Norwich.

THE Popularity of "XL ALL" Specialities increases every year. All gardeners proclaim that nothing equals these celebrated preparations. "XL ALL" NICOTINE VAPORISING COMPOUND, the gardeners' favourite Fumigant, both Liquid and Cake. "XL ALL" NICOTINE INSECTICIDE WASH for Syringing, Dipping and Dressing Fruit Trees and Plants; Mealy Bug, Scale, etc., cannot exist where this is used. "XL ALL" INSECTICIDE WASH B (*sine* Nicotine), best non-poisonous Wash on the Market. No licence required to sell this. Other preparations of great renown, both poisonous and non-poisonous, are:—"XL ALL" WEED KILLER, "XL ALL" FERTILISER, "XL ALL" ROSE MANURE, "XL ALL" WINTER WASH for Fruit Trees, etc. Don't forget to ask your Nurseryman, Seedsman or Florist for Richards' small pink list.—G. H. RICHARDS, Manufacturer, 234, Borough High Street, London, S.E.

WALTERS & CO., Morland Rd., Croydon, Makers of Lath Roller Greenhouse Blinds; Trellis Screens and Fences, Arches, Arbours, Rose Pillars. Established over 20 years. Catalogues free.

RITCHIE'S SWEET PEAS.—Universally acknowledged to be the best procurable; Exhibition collection, containing the best 12 Spencers, viz., Asta Ohn, Clara Curtis, Edna Unwin, Elsie Herbert, Gladys Burt, Jno. Ingman, Marj. Linzee, Maud Holmes, Mrs. Sykes, Mrs. Breadmore, Prince Asturias, Tennant Spencer, 30 seeds each, 2s. 6d., post free; Sweet Pea list free on request.—
A. S. RITCHIE & CO., Seedsmen, Belfast.

GISHURST COMPOUND is harmless in use; its soluble Sulphur, &c., has for 40 years cured Blights and Fungus on Plants, and is good for washing unhealthy dogs. Gishurstine keeps boots dry in all weathers; they will polish. Good for Harness.
Wholesale from—
PRICE'S PATENT CANDLE CO. LTD., London.

OSMUNDA for Orchids.—Consignments arrive fortnightly. 2s. 6d. per bushel; per bag, 8s. 6d.
SANDER & SONS, St. Albans.

ALPINES & HERBACEOUS PLANTS, —Himalayan and other rare Rhododendrons, rare Shrubs, Construction of Rockeries. Catalogues ready.
G. REUTHE, Keston, Kent.

For Advertisement Charges see page xiv.

KELWAY'S "Manual of Horticulture" is the best of all Garden Books, 2s., post free. From ——, Esq., Northwood, Middlesex, September 28th, 1911: "I find that I have never forwarded 2s. for your lovely Catalogue you sent me some weeks since. It would be cheap at five times the price, and I sincerely regret the oversight."—KELWAY & SON, Langport, Somerset.

THE MODERN HERBACEOUS BORDER.—Full particulars and prices of Kelway Borders packed, arranged for planting, to flower in tasteful schemes of colour, from—KELWAY & SON, The Royal Horticulturists, Langport, Somerset. From ——, Esq., ——, East Mersea, nr. Colchester: "The box of plants has arrived safely. It was so carefully packed each plant came out looking perfectly fresh. It was a pleasure to unpack the box."

NOW is the time to plant Kelway's Delphiniums—fine, bold upstanding plants with a wealth of bloom in all shades of blue and purple. They are from strong country-grown stocks, and flourish under almost all conditions. From ——, Esq., ——, Bolton Percy: "I wish to say how pleased I am with the Delphiniums I got off you two years ago. They are really splendid. I have never seen anything to touch them." Choice named collections 15s., 24s, 34s., 56s. a dozen.—KELWAY & SON, The Royal Horticulturists, Langport, Somerset.

To the Trade.

COOPER, TABER & CO., Ltd., have posted their Wholesale Catalogue of Agricultural Seeds to all their customers. If not received, another copy will be sent on application.—90 & 92, Southwark Street, London.

GREENHOUSE PAINTING & GLAZING "Vitrolite" superior to White Lead Paint, 9/- per gall. "Plastine" supersedes Putty, 16/- per cwt. Full particulars from W. CARSON & SONS, Grove Works, Battersea. Agents throughout the country.

BARR'S VEGETABLE AND FLOWER SEEDS of finest selected strains and tested growth. Descriptive Catalogue, with Cultural Notes, free.

BARR'S BEAUTIFUL LILIES, GLADIOLI, MONTBRETIAS, CANNAS, TIGRIDIAS, etc. for Spring planting. Special Catalogue free.
BARR & SONS, 11, 12 & 13, King St., Covent Garden, London.

BARR'S REMOVAL SALE OF HARDY PLANTS.—Clearance List of surplus plants at greatly reduced prices (prior to removal of nurseries from Surbiton to Taplow), post free.
BARR & SONS, 11, 12 & 13, King St., Covent Garden, London.

GARDEN PESTS.—Cross's "Clubicide" is the Gardeners' Insurance against damage by Eelworm, Wireworm, Slugs, Maggot, and all Disease Germs and Insect Pests. Kills all harmful Bacteria, reinvigorates the soil, stimulates plant life. In 1s. flasks and ½-gall. and 1 gall. drums. From all Seedsmen.
Sole Manufrs.: A. CROSS & SONS, Ltd., Glasgow.

AUTO SHREDS FUMIGANT kills Leaf-mining maggot, insects in greenhouses, frames. For 1,000 cubic feet, 6d.; 10,000, 3s. 6d. No apparatus.
WM. DARLINGTON & SONS, Patentees, Hackney, N.E.

New Phloxes.

GUNN & SONS were Awarded a Silver Cup at the Great Show at Olympia. New Lists now ready. Address: Olton, Warwickshire.

LISSADELL ALPINE & HERBACEOUS PLANTS.—Write for our new illustrated and enlarged List, containing many beautiful novelties at moderate prices. Also List of Seeds collected from above in 1911.
J. A. COOPER, Lissadell (No. 2), Sligo, Ireland.

TO NURSERYMEN.—THE NEW PATENT MULTI-DIBBER. Indispensable to all who raise seedlings in boxes, frames, or in the open ground. Send for special list with prices.
BOULTON & PAUL, Ltd., Norwich.

SALES BY AUCTION.

Monday, Wednesday and Friday next.

MONDAY and FRIDAY NEXT, MARCH 4th and 8th, at 12 o'Clock. Japanese Liliums, Gladiolus, Montbretias, Begonias, Gloxinias, Lily of Valley, &c., Herbaceous Plants, Flowering and Decorative Shrubs, Spiræas, Iris, Pæonies, &c.

At 1.30 o'Clock.—1,500 ROSES, Standard, Dwarf, Climbing, &c., also Fruit Trees in variety.

WEDNESDAY NEXT, MARCH 6th at 12 o'Clock.—Choice Herbaceous Plants, Perennials, and Rock Plants, Lily of Valley, Gladiolus, Begonias, Japanese Lilies and Iris, Carnations, Pinks, Pæonies, &c.

At 1.30 o'Clock.—3,000 ROSES, English, French, and Dutch grown, together with Standard, Pyramidal, and Dwarf-trained Fruit Trees.

At 5 o'Clock.—Azaleas indica and mollis, Rhododendrons, Aspidistras, Standard Bay, Ornamental, and Decorative Palms and Plants from Belgium, also Stove and Greenhouse Plants in variety.

MESSRS. PROTHEROE & MORRIS will SELL the above by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, E.C. On view mornings of Sale and Catalogues had.

Wednesday Next, March 6th, at 12 o'Clock.

20,500 Gladiolus in variety, 3,500 Begonias, many thousands of Gloxinias, Tuberoses, Montbretias, Spiræas, Hyacinthus candicans, Tree and Herbaceous Pæonies, Cannas, &c., 70,000 Lily of Valley Berlin Crowns, 1,500 choice young Fruit Trees, 70,000 Phœnix rupicola Palm seeds, and 30,000 Latania borbonica Palm seeds.

At 2.30 o'Clock

a consignment of

667 CASES JAPANESE LILIUMS,

comprising

17,075 LILIUM AURATUM.
2,830 " " PLATYPHYLLUM and MACRANTHUM.
590 " " RUBRO-VITTATUM.
3,755 " LONGIFLORUM.
6,010 " TIGRINUM FORTUNEI.
2,300 " SPECIOSUM ALBUM.
1,200 " " RUBRUM.
500 " " RUBRUM MAGNIFICUM.
750 " " MELPOMENE.
880 IRIS SIBERICA and KÆMPFERI, 450 HERBACEOUS PÆONIES, 700 ACER PALMATUM, 900 LYCORIS SQUAMIGERA, and 140 FERN BALLS.

1,359 LILIUM LONGIFLORUM, Natal grown.
7,500 WATSONIA ARDERNEI from the Cape.

MESSRS. PROTHEROE & MORRIS will SELL the above by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, E.C. On view morning of Sale and Catalogues had.

STEVENS' AUCTION ROOMS. ESTAB. 1760.

MONDAY AND WEDNESDAY NEXT.

MR. J. C. STEVENS will SELL by AUCTION at his rooms, 38, King Street, Covent Garden, London, W.C. At 1.15.—Standard, Dwarf and Climbing Roses, Liliums, &c. At 3 o'clock.—Standard and Half-standard Roses, Standard, Pyramid, and Espalier-trained Fruit Trees, Standard and Pyramid Bay Trees, Box Trees, also Latanias, Kentias, Aspidistras, &c. At 3.45.—Splendid consignment of Hybrid Tea and Hybrid Perpetual Roses, including many of the latest varieties. On view mornings of Sale. Catalogues on application. Goods purchased, packed and forwarded to all parts.

ROSE TREES, FRUIT TREES, PERENNIALS, LILIUMS, etc.

Mr. J. C. STEVENS begs to announce that his

SALES by AUCTION

are held every **MONDAY** and **WEDNESDAY at 12.30.**

Catalogues post free.

Lots purchased, packed, and forwarded to all parts.

STEVENS' AUCTION ROOMS
(ESTABLISHED 150 YEARS),
38, King St., Covent Garden, London, W.C.

ROSE TREES.—Sales every Tuesday, Wednesday, and Friday of Roses, Shrubs, Lilies, Gladioli, &c., at Moorgate Auction Rooms, 23 and 25, Moorfields, E.C. (near Moorgate Street Station). Catalogues post free.

GLASGOW.

Mr. JOHN COWAN, of LIVERPOOL,

will sell by AUCTION in the

Trades Hall, Glassford Street, Glasgow,

On MONDAY, MARCH 11th, 1912, at 12.30, a large & grand

Collection of ORCHIDS

including numerous specialities, and many in flower and showing for flower, also many lots of newly imported Orchids. On view morning of sale. Catalogues may be had at the Hall, or post free from the Liverpool Orchid and Nursery Co. (Cowan's), Ltd., Gateacre Nurseries, Gateacre, near Liverpool. Telephone: 70 Gateacre. **Telegrams: "Cowan, Gateacre."**

BUSINESSES FOR SALE, &c.

Over 100 Nurseries, Market Gardens, Florist & Seed BUSINESSES to be DISPOSED OF.

MESSRS. PROTHEROE and MORRIS' HORTICULTURAL REGISTER contains full particulars of the above, and can be obtained gratis at—67 and 68, Cheapside, London, E.C.

FREEHOLD NURSERY for SALE, as a going concern, chiefly glasshouses, ¾ acre; well built and heated; town water supply; good opening for active man; immediate possession.—Avenue House, Crediton.

WORTHING.—FOR SALE with possession, by order of Executors, Maybush Nurseries, about 3½ acres; Freehold land; 12 glasshouses, 2,000 feet; large packing shed; artesian well; Vines, Cucumbers, Tomatos, 573 good Apple trees, Flowers, &c.—POLLARD & POLLARD, Solicitors, Brighton.

NURSERY, with good Dwelling-house, to be Sold; greenhouses recently rebuilt; good open position; well heated and near to station; will be offered at low figure; failing health of present occupier reason of disposal.—Apply, STEVENSON, The Nurseries, Stockport Road, Timperley.

FLORIST'S BUSINESS (Midland resort); splendid central situation; main thoroughfare; stock at cost; low figure; genuine; every investigation.—N. J., Box 6, 41, Wellington Street, Covent Garden, W.C.

SMALL NURSERY in centre of large town for DISPOSAL; long lease; old established; genuine business; every investigation; good eight-roomed house.—Particulars, C. B. A., Box 7, 41, Wellington Street, Covent Garden, W.C.

NURSERY, Middlesex, close to station, about 11 acres; eight large heated greenhouses, windmills, and tanks, packing sheds, &c.; two good cottages let off, leaving rent only £39; price, complete, £600.—H. D., Box 14, 41, Wellington Street, Covent Garden, W.C.

BALHAM.—New NURSERY, close to high road; three greenhouses and show house; rent £28.—Apply, CORNWALL NURSERIES, Devonshire Road, Balham.

BUSINESSES TO LET.

TO LET, on Lease, NURSERY with glasshouses, also grass land for poultry farm, in best residential suburb of Leeds.—HODGSON, Estate Agent, Oakwood Offices, Roundhay, Leeds.

BUSINESS CARDS.

AGENCY in the U.S. and Canada.—Mr. H. YOUELL, Financial Secretary, American Gladiolus Society, solicits correspondence from a reliable house wishing to establish an Agent in the U.S. and Canada.—Address, 538, Cedar Street, Syracuse, N.Y.

EXHIBITIONS.

NATIONAL SWEET PEA SOCIETY.

GREAT EXHIBITION

at Royal Horticultural Hall, Westminster, July 9th and 10th.

Join now. Minimum Annual Subscription 5/- Schedules on application. "Sweet Pea Annual" free to members 2s. post free to non-members. "List of Sweet Pea Names" free to new members. Charles H. Curtis, Hon. Sec., Adelaide Road, Brentford, Middlesex.

North of England Horticultural Society.

SPRING SHOWS

BRADFORD:—Central Baths, Thursday, March 14th.

LEEDS:—Corn Exchange, Wednesday, April 24th.

Secretary, (Rev.) J. BERNARD HALL, Rawdon, LEEDS.

NOTICES.

WILL H. WILLERTON, formerly of Apley Park, Salop, write to F. MOUNCY, Keyfield Nursery, St. Albans

PUBLISHERS' NOTICES.

KYNOCH'S "Wild Flowers of Barmouth," fourth edition, including Salwey's Scarce List, Habitats and Notes, published 1863, pp. 50, price 6d.—J. KYNOCH, 8, College Road, Brighton.

ALPINE FLOWERS AND ROCK GARDENS. By Walter P. Wright. A practical book containing magnificent colour and half-tone plates of the flowers as they grow. The most beautiful book on the subject yet produced. 12s. 6d. net.
HEADLEY BROTHERS, Bishopsgate, London.

ROSES AND ROSE GARDENS. By Walter P. Wright. A companion volume to above. *The Sphere* says: "Buy the book this winter and you will have a fine rose garden next June and July." 12s. 6d. net. Write for illustrated booklet post free.
HEADLEY BROTHERS, Bishopsgate, London.

AMONG THE HILLS. By Reginald Farrer, being an account of the Author's wanderings in search of Alpine Flowers. Profusely illustrated in colour. "Mr. Farrer has won for himself a unique place among writers on Alpine Plants."—*The Gardener's Chronicle.* 10s. 6d. net. Prospectus post free.
HEADLEY BROTHERS, Bishopsgate, London.

Present-Day Gardening.

Edited by R. HOOPER PEARSON, Managing Editor of the GARDENERS' CHRONICLE. Now Ready. Post free, **1/9** each.

Numerous Beautifully Coloured Plates are contained in Each Volume.

1.—**Sweet Peas.** By HORACE J. WRIGHT, late Secretary and Chairman of the National Sweet Pea Society. With Chapter on "Sweet Peas for Exhibition," by THOS. STEVENSON.

2.—**Pansies, Violas, and Violets.** By WILLIAM CUTHBERTSON, J.P., and R. HOOPER PEARSON.

3.—**Daffodils.** By the Rev. J. JACOB.

4.—**Orchids.** By JAMES O'BRIEN, V.M.H., Secretary of the Orchid Committee of the Royal Horticultural Society.

5.—**Root and Stem Vegetables.** By ALEXANDER DEAN, V.M.H., Chairman of the National Vegetable Society.

6.—**Carnations and Pinks.** By T. H. COOK, Head Gardener at Sandringham; JAMES DOUGLAS, V.M.H., and J. F. MCLEOD, Head Gardener to Mr. Pierpont Morgan. Contains 8 full-page coloured plates.

7.—**Rhododendrons and Azaleas.** By W. WATSON, with preface by Sir F. W. MOORE, M.A. (the first popular volume published on this subject). Contains 8 full page coloured plates.

8.—**Lilies.** By A. GROVE, F.L.S., with preface by H. J. ELWES, F.R.S. Contains 8 coloured plates.

9.—**Apples and Pears.** By GEORGE BUNYARD, V.M.H. Contains 8 coloured plates.

10.—**Roses.** By H. R. DARLINGTON, with 8 full-page coloured plates. A double volume, price **2/10**, post free. Special presentation edition, with beautiful cover design, in cloth gilt, gilt top, price **3/10**, post free

THE PUBLISHER,

"Gardeners' Chronicle" Offices, 41, Wellington St., Covent Garden, London, W.C.

PLANTS, &c., WANTED.

WANTED, large KENTIA PALMS, from 5 feet to 25 feet in height; large, well-coloured Dracænas and Crotons, also Aspidistras; for cash or exchange.—ROBERT GREEN (1911), LTD., 28, Crawford Street, London, W.

WANTED, 3,000 Black Champion Currant Bushes two year, 5,000 one year; to be properly packed for export.—Address, J. S., care of Street's, 30, Cornhill, E.C.

WANTED, collection of Rock Garden and Alpine Plants, to value of about £5.—Apply, stating varieties, to H. WHEELER, Wenvoe Castle Gardens, near Cardiff.

WANTED, several 100 planting clumps Iris Germanica purpurea (common purple Flag).—Quote price per 100 to RIDOUT, The Gardens, Paultons, Romsey, Hants.

WANTED, BOX EDGING (Tree variety); must be good stuff.—State height, price per nursery yard, to COUTTS, Fairlawne, Tonbridge.

WANTED to Purchase, second hand, double light garden frames and Kale pots with lids; good order.—Apply, with full particulars, B., Bookstall, Surbiton.

THE
Gardeners' Chronicle

No. 1,314.—SATURDAY, March 2, 1912.

CONTENTS.

Almond, date of flowering of the 139
Aphyllanthes Monspeliensis 134
Big bud, spraying for ... 142
Books, notices of—
Kew Guild Journal ... 140
The Natural History of Clay ... 133
The Scottish Botanical Review ... 141
Coldest spot on earth ... 140
Daffodil show, R.H.S. ... 139
Eucharis grandiflora ... 141
Farming, text books on 140
Florists' flowers
Perpetual-flowering Carnations 133
Foreign correspondence—
Nannorhops Ritchieana 132
Forestry—
Government Advisory Committee 134
Gardeners' Royal Benevolent Institution ... 140
Genetics, Prof. Bateson on 139
Hyacinth, a proliferous 142
International Horticultural Exhibition ... 139
Ireland, notes from ... 141
Kew notes 142
Larkspurs and Antirrhinums 142
L.C.C. Parks, the ... 140
Leaf curl 139
Leptospermum bullatum; L. scoparium ... 142
Lilies and sunshine ... 131
Limestone, the value of 143
Obituary—
Garaway, W. A. ... 145
Muir, Thomas ... 145
Sim, Thomas 145
Orchid notes and gleanings 135
Orphan Fund, Royal Gardeners' 140
Plants, new or noteworthy—
Cupressus formosensis 132
Plants, the phosphate nutrition of 140
Potatos, select varieties of 134
Rain water, nitrogen in 141
Scotland, notes from ... 142
Societies—
Horticultural Club ... 144
National Dahlia ... 140
Royal Horticultural ... 139
(Scientific Committee) 143
Scottish Horticultural 144
Solanum jasminoides, hardiness of 143
Spraying, compulsory ... 140
Sulphur for use with copper-containing spray fluids 140
Sweet Peas, lecture on 143
Tomato-leaf rust ... 140
Trees, effects of the summer of 1911 on ... 138
Week's work, the 136, 137
Wheat and Oat crops ... 141
Yucca gloriosa 139

ILLUSTRATIONS.

Appliances for sterilising soil 146
Brasso-Cattleya Wellesleyæ 135
Crisp, Sir Frank, portrait of 144
Cupressus formosensis on Mount Morrison 138
Cupressus pisifera, C. formosensis, and C. obtusa, details of 132
Eucharis grandiflora 141
"Irish" cup to be presented at the International by the R.H.S. of Ireland 139
Llewelyn, Sir John T. D., portrait of 144
Yucca gloriosa, a specimen plant of (Supplementary Illustration)

LILIES AND SUNSHINE.

TAKING it all round, 1911 was a wonderful year for Lilies, and but for the ceaseless deluge of November and December, the enthusiast had nothing to complain of; indeed, for once in a while, nearly everything in the way of weather was for the best; a trifle too dry on the whole, some may say, in parts of the country; but then, no one ought to bother about Lilies, or, rather, the more fastidious section of them, who is not in a position to give them water when Nature fails him; and the individual who, from choice or force of circumstance, sits still while the Lilies in his garden are wilting in the sun for want of water, will be well advised to restrict his operations to the European species, such as L. monadelphum, L. candidum, L. testaceum, L. pomponium, L. martagon, and L. chalcedonicum, which seem less impatient of drought than the Lilies of California, Japan, and China, to most of which, indeed, prolonged drought means death.

The mild winter of 1910-11 ended in such wet fashion, that bournes and springs whose very existence had almost been forgotten came to life again, the earth seemed charged with moisture, and there could not have been a better preparation for the months and months of drought that followed, and which, fatal as it was to so many gardens, would have been more generally destructive but for the unusual reserve of moisture in the ground.

April and May provided rather more wet than usual, while the temperature was below the average, but thanks, no doubt, to the prevailing moisture, Lilies were all growing apace; indeed, perhaps a trifle too fast, and one began to wonder what would happen at that critical time in May when spring gives place to summer, and in cold wet seasons the dreaded fungus, Botrytis, steals over the garden like a veritable epidemic.

But in the nick of time came the sun, and soon put things to rights; the fatal disease, which the gardener should make up his mind to fight just as systematically as civilised nations fight the plague, gave no sign of its existence, and then at the end of May began such a time as it is too much to hope gardeners will see again for many years.

L. Hansonii, the yellow martagon of Japan, with its petals thick and waxy as our common martagon, came first, as, indeed, it always does, no matter what the season may be like, quickly followed by L. rubellum, evidently relishing a little patch of subterranean clay into which, *more suo*, its roots had spread; then L. tenuifolium, smothered in bloom, and the host of June Lilies, including the many cups of the elegans family, L. monadelphum as beautiful as it is variable, and the really charming "Golden Gleam," now that L. Parkmannii is out of cultivation, probably the only strictly modern hybrid Lily of which one can say anything encouraging.

The origin of this interesting little plant does not seem to be generally known, and in order that in years to come doubts may not be thrown on its parentage, such as are occasionally cast on that other well-known hybrid L. testaceum, I give the history of the plant as told me by Mr. Richmond, from whose nursery in the United States this Lily is distributed:—

"Nineteen years ago a man named E. Huftelen took upon himself the task of hybridising Lilies, and, taking L. tenuifolium for the female parent, worked the pollen of L. Martagon album on to it.

"He tried this until he thought it was a failure, but one morning he noticed a light-coloured flower among a batch of his seedling L. tenuifolium crosses; this plant was set by itself and given a chance: and from it has sprung our 'Golden Gleam.'"

With July, and rather in advance of their usual time, came all the dainty beauties of the West, glorying in the unique experience of something approaching a Californian summer.

L. parviflorum, in the van as ever, was quickly followed by the Panther Lily, and its endless varieties, easy to grow and brilliant in all their spotted finery of orange, yellow, and scarlet, some of them such as Johnsonii, and especially Roezlii, seemingly fixed and coming true from seed.

Then, in bewilderingly quick succession, the small-flowered L. parvum from the shores of Lake Tahoe, and its exquisite variety luteum, surely one of the most delicately beautiful Lilies in existence, with the quaint little L. Bolanderi, still rare, and as yet none too easy to manage; L. columbianum, from the foothills of the Oregon mountains; the Washington Lily, obstinate to a degree, but established at last and flowering as freely as its cousin rubescens near by.

Towards the end of the month L. maritimum, coaxed by the sun into showing us something more than usual of its natural glory, was nodding its little red bells over L. Kelloggii, tiny and difficult as ever, but beautiful beyond compare, and sweet to the senses with its tender fragrance.

Meanwhile, L. Parryi, reputed troublesome to manage but easy enough when raised at home from seed, had been revelling all through the month in the unaccustomed heat and flowering as surely it seldom flowered before; the sight of 20 or 30 of the lovely yellow bells gently waving to the breeze, half-tipsy pollen-covered bees humming drowsily round them and almost tumbling from bloom to bloom, was to be long remembered, and so, by the way, later on, was the bumper harvest of seed which in due season found its way to the frames, and is now bearing abundant testimony, in the shape of thousands of seedlings, to the wonderful summer of 1911.

With the last days of July, L. Humboldtii and its more southerly form, L. magnificum, generally the last of the Californians to flower, were blazing away in a warm corner, Bloomerianum, another relative, and, if the truth be told, a poor one, doing its best, but hardly reaching to the knees of the typical plant.

In ordinary seasons there is usually a perceptible interval between the midsummer Lilies and those that bloom in autumn, but 1911 played odd pranks in the garden, and the early days of August saw many plants in bloom that do not usually flower until later; it was no surprise, therefore, one morning to find L. Leichtlinii, with all the memories this plant brings of the modest man who did so much for gardens in general and Lilies in particular, opening its purple-dotted, citron flowers long before the usual time, and bending low its delicate stem to smile on L. medeoloides—the Wheel Lily—her tiny neighbour from Japan, both, no doubt, and L. Batemanniæ as well, with the disappointing L. cordifolium in the background, wondering what had come to the English summer that it should suddenly have grown so like their own; not far away, Kramer's Lily, L. japonicum, was giving us a taste of her quality, perfectly happy in deep leaf-mould overlying a rather heavy but well-drained loam.

L. japonicum colchesterense, wonderful in its prolific production of offsets, and the diffident L. Brownii, a common wildling of Western China, were meanwhile running a neck and neck race, and bursting into flower just before that wonderful modern Lily, now in commerce as myriophyllum, opened its long vinous-tinted buds to the bees.

The world of botanists and gardeners owes much to that wonderful collector of plants—and souls—the Abbé Delavay, but if in his wanderings in the East the missionary father had never found anything else, his name would go down as the discoverer of what is possibly the most satisfactory of all modern Lilies; seemingly easy to manage and not fastidious, a wonderful bloomer and an equally wonderful seeder, one can hardly say too much for L. myriophyllum, and the recollection of

scores of the beautiful gold-dusted trumpets standing up bravely to the sun in the garden at Warley Place will not easily fade from the memory.

With August well into its stride, the dews falling heavy night after night, and seed of many of the earlier species already in the pans, the lover of Lilies might well be forgiven if his gratitude for all the delights vouchsafed to him was tinged with just a suspicion of regret that the wonderful year was all but gone.

True, the Tiger Lily—an excellent vegetable, by the way, and by no means a dear one—L. Henryi, auratum and speciosum of the many beautiful forms and the simplest culture, were still in the heyday of their glory, while L. sulphureum, long and lank, but lovely, was in its accustomed place, ready as ever for the annual duty of ringing down the curtain on the Lilies' year, but with August merging into September, there comes to gardeners, and especially the early risers, that intangible feeling, born, no doubt, of dewy cobwebs, the wail of the peewit, and a subtle something in the morning air, that the year is on the wane.

It is time to take stock, turn to account the many lessons an Italian summer and an interminable drought provides, and gather in the wonderful harvest of seed to which, for once in a way, every hardy species in cultivation has contributed its quota, with the sole exceptions of L. Leichtlinii and L. sutchuenense: if for this alone, forgetful of all else, the Lily grower will long remember the summer of 1911. *A. Grove, Henley-on-Thames.*

FOREIGN CORRESPONDENCE.

NANNORHOPS RITCHIEANA.

In your number for February 3 is figured Nannorhops Ritchieana, and *W. W.* says: "That it is doubtful if this Palm is in cultivation anywhere in Europe." In the Royal Botanic Garden of Rome there is one large plant of this species. It is a fine specimen, not growing tall, but creeping, with large, well-developed foliage. Prof. Tirotta informs me that it was raised from seed 10 or 15 years ago.

The Botanical Garden at Rome is very interesting for the rare plants which are grown in the open, including species which are seldom seen growing outdoors in Italy. Of the large numbers I mention only a few of the more interesting. Kiggelaria africana, a large, tall tree from Abyssinia; the new Trachycarpus (Chamærops) Takil; Pseudopanax crassifolium, a very fine specimen; Calliandra coccinea and other species; Quercus incana, the beautiful evergreen Himalaya Oak; Peumus Boldus, Maytenus Boaria, a fine, tall, tree of Dammara Brownii; the very pretty Pittosporum phyllyræoides, with long, small lanceolate leaves and yellow, sweet-scented flowers; P. ferrugineum, with dark-brown, quite blackish flowers; Psiadia arabica, Tricuspidaria dependens; Corynocarpus lævigata; Ficus ulmifolia: Carissa and Gordonias in many species, and Laurus sericea, a very beautiful tree. There is, moreover, a fine collection of typical Yuccas—baccata, Schottii, and macrocarpa. Other noteworthy collections include species of Phœnix and other Palms and species of Bambusa. Of Conifers, a complete series of Cupressus is remarkable.

Every visitor to Rome should spend some hours in this large garden, whence one of the best views of *the Eternal City* is obtainable. *Willy Müller.*

NEW OR NOTEWORTHY PLANTS.

THE GIANT CYPRESS OF FORMOSA.

THE forests of Formosa have lately been described* by Dr. Hofmann, who states that the Conifers begin in the mountains at about 6,000 feet elevation, succeeding the zone of evergreen Oaks and Laurels. The coniferous forest between 6,000 feet and 8,600 feet is mainly composed of two species of Cypress, one of which is identical with the valuable Cupressus obtusa of Japan, while the other is a species peculiar to the island, and remarkable for its gigantic size, which has been named Cupressus formosensis. These two Cypresses in the lowermost coniferous zone are the dominant species, forming extensive and nearly pure woods, in which occur isolated specimens of the peculiar Taiwania, a tree resembling in appearance the common Cryptomeria. Above the Cypress forests other Conifers become abundant, including peculiar species of Pine, Hemlock (Tsuga), and Spruce.

Cupressus formosensis attains enormous dimensions, and deserves to rank with the great trees of the Pacific coast of North America. Dr. Hofmann reproduces the photograph of a tree growing near Goten, at 8,000 feet elevation, which is 195 feet high, with a stem 20 feet in diameter, and containing 8,800 cubic feet of timber. The best parts of the Cypress forest, composed of smaller trees, 2 feet to 4 feet in diameter, and very dense on the ground, measure, on an average, 34,000 cubic feet per acre.

Mr. H. Clinton-Baker has kindly lent me a photograph (fig. 54), taken by Mr. A. R. Firth, H.B.M. Consul at Tamsui, which represents a tree growing on Mt. Morrison, 125 feet in height, with a stem 67 feet in girth, and giving off the first branch at 45 feet from the ground.

Capt. L. Clinton-Baker, R.N., obtained also, through the aid of Mr. Firth, excellent specimens of this Cypress, and a living plant, which is now about 3 feet high, and growing vigorously at Bayfordbury. Mr. H. Clinton-Baker received from Dr. Shirasawa, in 1911, a quantity of seed, which has been distributed to various gardens in England, Ireland, the Continent, and N. America, so that there is every chance of this species having a fair trial at any rate as an ornamental tree. Young seedlings at Bayfordbury, raised from seed sown last March, are about 4 inches high, and very thriving. I consider it unlikely that the Formosan Cypress will be as useful in Britain for economic planting as the Lawson Cypress.

Cupressus formosensis† was first described under Chamæcyparis, by Matsumura, and was briefly spoken of by me in my account of the genus Cupressus in the fifth volume of *Trees of Great Britain and Ireland.* It may be described as follows:—

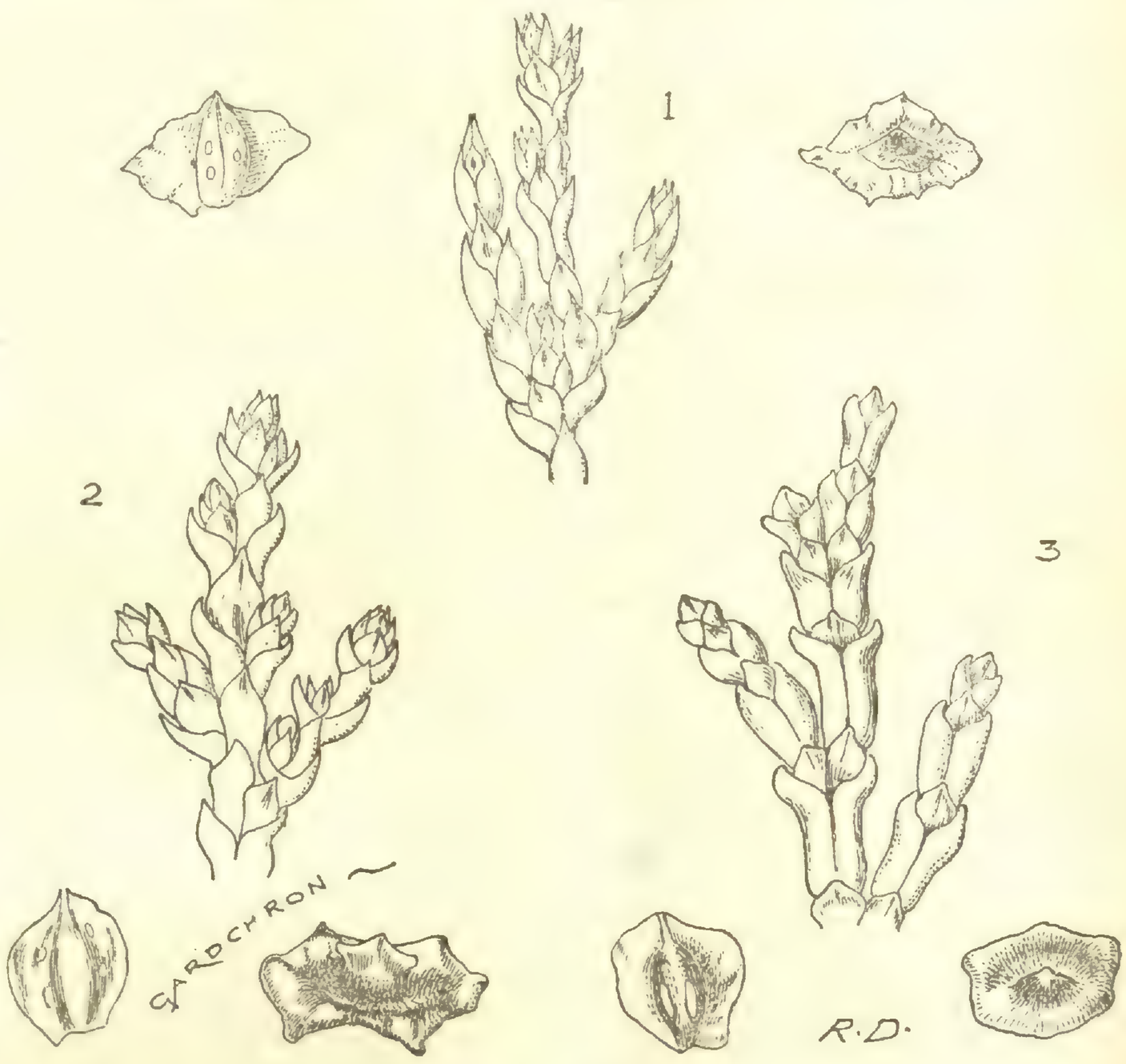


FIG. 53.—1, CUPRESSUS PISIFERA; 2, C. FORMOSENSIS; 3, C. OBTUSA; SHOWING THE FOLIAGE, SEEDS AND CONE SCALES OF THE THREE SPECIES.

A tree with the flattened branchlet-systems characteristic of the section Chamæcyparis, closely allied to Cupressus pisifera of Japan, and, like it, having the front and back leaves of the branchlet equal in length to the lateral leaves. Ultimate branchlets flattened, $\frac{1}{16}$ inch wide. Leaves appressed, but free at the incurved and shortly mucronate apex; lateral leaves conduplicate, as long as the facial leaves; facial leaves ovate, $\frac{1}{16}$ inch long, flattened, either keeled (as towards the apex of the branchlet), or depressed in the centre, with a longitudinal obscure gland. Foliage dull green on both surfaces, or covered more or less on the lower surface with an irregularly diffused, whitish bloom. Cones ripening in the first year, ellipsoid, $\frac{1}{3}$ inch in diameter; scales 10 or 11, with the outer surface wrinkled, brownish, depressed

* In *Centralblatt für Forstwesen* (1911), pp. 1–18, figs. 4 and 5.

† Cupressus formosensis, Henry, in Elwes and Henry's *Trees of Great Britain*, V., 1,149 (1910); Chamæcyparis formosensis. Matsumura, in *Tokyo Bot. Mag.*, XV., 137 (1901); Matsumura and Hayata, *Enum. Pl. Formos.*, 402 (1906); Beissner, in *Mitt. Deut. Dendr. Ges.* (1907), p. 115; Hayata, in *Journ. Coll. Sci., Tokyo*, XXV., 208 (1908).

in the centre, bearing a conspicuous quadrangular bract. Seeds, two on each scale, brown, oval, with narrow wings, and conspicuous resin-vesicles.

Cupressus pisifera differs in the foliage, bright green on the upper surface, and marked on the lower surface with well-defined white patches in hollows, the leaves being distinctly acuminate, with long mucros. It has globose cones, with a minute bract to each scale, and differently shaped seeds with very broad wings. Both C. pisifera and C. formosensis differ completely in foliage from C. obtusa, which occurs in Formosa as a peculiar variety, *forma formosana*, Hayata, with

[*Copyright H. Clinton Baker.*

FIG. 54.—TRUNK OF CUPRESSUS FORMOSENSIS. GIRTH, 67 FEET.
(From a photograph taken on Mount Morrison.)

leaves, cones, and seeds all smaller than the typical form of the species in Japan. The main distinctions are shown in fig. 53, where the foliage, cone-scale, and seed of the three species are drawn.

Kawakami, in his *List of Plants of Formosa*, published in 1910, gives no fewer than 22 species of Conifers as natives of Formosa, a considerable number of which have not yet been introduced. Mr. Elwes, F.R.S., and Mr. W. R. Price, who are now on their way to investigate the forests of this wonderful island, may be expected to return with valuable collections and information. *A. Henry.*

FLORISTS' FLOWERS.

PERPETUAL-FLOWERING CARNATIONS.

Of the novelties distributed last year, there are three varieties from America that should become favourites with both the large and small grower. These are White Wonder, Washington, and Gloriosa. The last two are very fine pink varieties. Of the English varieties, perhaps the best are Orpheus, R. F. Felton, and Regina. Orpheus is a yellow-ground fancy. It varies in colour, but the best yellow form is getting well on the way to the yellow-ground border variety. R. F. Felton is a large, salmon-pink flower, but it splits its calyx rather badly. Regina is a good pink variety, but it loses its colour during winter. There is one other which may be a very fine variety another year, namely, Lady Alington. This variety has been over-propagated, and, in consequence, its constitution is impaired.

Of the varieties to be distributed this year, the only three of which I hear good accounts from the States are Rosetti (pink), Delhi (scarlet), and Benoni (fancy). We must wait and see how they thrive in England. There is another American-raised variety that was grown in England in 1911, but was not generally in commerce, which I expect to hear further about. This is a very fine white flower named Wodanthe.

British novelties are plentiful. But two seem to excel all the others, and these are probably the two best commercial varieties that have been distributed in England since Mrs. Burnett and Britannia were sent out. They are Triumph (which is considered by experts the best crimson yet produced) and Lady Northcliffe (a lovely salmon-pink flower). There are others which will make a name for themselves, such as Baroness de Brienen and Lady Meyer, both pink varieties. The Geisha will probably find many admirers. Mandarin is a very pretty buff fancy; Wivelsfield Wonder is a white ground fancy; and Mr. Lawrensen is introducing a fine white flower that is likely to prove very valuable. *A. E. Usher, Ranston Gardens, Blandford.*

NOTICES OF BOOKS.

THE NATURAL HISTORY OF CLAY.*

ALTHOUGH this volume is written from the standpoint of the industry of clay-working rather than from that of the uses of clay in agriculture and horticulture, those engaged in the latter occupations will find much that is of service to them in its pages.

Thus the chapter of the "Physical Properties of Clay" contains an interesting discussion of the peculiar properties of plasticity to which clay owes so much of its importance as a soil substance.

This property is usually regarded as a consequence of the minute size of the clay particles. Their minuteness enables them to pack closely together, and to retain around each a film of water which acts partly as a lubricant and partly as an adhesive, causing the particles to adhere closely to one another. Other theories, however, have been advanced to account for the plasticity of clay. Among the most interesting are: first, that which holds that the particles of clay are composed of small globular masses of plates arranged in a network. In the presence of water the plates are separated, and come to lie flat on one another, forming a plastic and impermeable mass. The second theory maintains that clays owe their plasticity to the presence of colloid (glue-like) substances. In support of this theory the author mentions the fact that the plasticity of clay may be increased very considerably by the addition of such substances as tannin, and makes the interesting suggestion that the momentous plaint of the Children of Israel at being compelled to make bricks without straw was based on the rule-of-thumb knowledge which this people had gained that substances contained in straw (tannins) increase the plasticity of clay, and hence the quality of bricks.

The chapter on "Clay and Associated Rocks" is of interest in showing how variable is the quality of clay for agricultural purposes, and how this quality is determined in large measure by the origin of the several clays.

Thus Coal Measure clays are usually poor. Permian clays, on the other hand, yield free-working, good-cropping loams. The Lias clays support mainly pasturage. Oxford clays are difficult to work, and often yield cold and wet soils. The tertiary clays, for example, London clay, produce a heavy brown soil of slight value till properly drained and manured.

A perusal of Mr. Searle's interesting manual shows at once the complexity of the problems concerning the physical properties of one of the commonest of substances, and the importance of a thorough investigation of these properties. The easy discoveries have been made. The difficult ones take a deal of time in the making.

* By Alfred B. Searle. The Cambridge Manual of Science and Literature. (Cambridge: The University Press.) 1s.

FORESTRY.

APPOINTMENT OF ADVISORY COMMITTEE.

The Right Hon. Walter Runciman, M.P., President of the Board of Agriculture and Fisheries, has appointed a committee to advise the Board on matters relating to the development of forestry. The committee will be asked in the first instance :

(1) To consider and advise upon proposals for a forestry survey ;

(2) To draw up plans for experiments in sylviculture, and to report upon questions relating to the selection and laying out of forestal demonstration areas ;

(3) To advise as to the provision required for the instruction of woodmen.

The committee is constituted as follows :—Sir Stafford Howard, K.C.B. (Chairman) ; Mr. F. D. Williams-Drummond ; Sir S. Eardley-Wilmot, K.C.I.E. ; The Right Hon. R. C. Munro-Ferguson, M.P. ; Lieut.-Col. D. Prain, C.M.G., C.I.E., F.R.S. ; Mr. E. R. Pratt, President of the Royal English Arboricultural Society ; Professor Sir W. Schlich, K.C.I.E., F.R.S. ; Professor Wm. Somerville, D.Sc. ; The Hon. Arthur L. Stanley ; secretary, Mr. R. L. Robinson.

As announced in reply to a question asked in the House of Commons, Sir E. Stafford Howard has tendered his resignation of the office of one of the Commissioners of His Majesty's Woods and Forests. His resignation will take effect as from March 31. No new appointment of a Commissioner will be made to fill the office he vacates, and there will be a fresh allocation of the commissioners' duties between the two remaining Commissioners, Mr. Runciman, the President of the Board of Agriculture and Fisheries, and Mr. G. G. Leveson-Gower. The supervision of the Crown Forests, other than Windsor and of the more important Crown Woods, will now be committed to Mr. Runciman, with the object of bringing their administration into closer co-operation than has hitherto been possible with the work of the Board in regard to the development of sylviculture and forestry.

VEGETABLES.

SELECT VARIETIES OF POTATOS.

Of the many trials conducted annually by the Royal Horticultural Society, I question if any are of greater benefit to the general public than the Potato trials. The Society's awards are given only to varieties that combine the best cooking qualities with heavy cropping capacities.

In the following selections I do not purpose dealing with coloured varieties, but solely with those that I have found, after extensive cooking tests, to excel all others for table use. Late varieties give the best results when cooked in their skins.

Early Varieties.

Mid-Lothian Early.—This is a yellow-fleshed, kidney variety that received an Award of Merit from the R.H.S. in July, 1908. It is a first early of splendid quality and an immense cropper ; excellent for forcing, and suitable for field or garden culture.

Sharpe's Victor.—As long ago as July, 1893, this variety was honoured with an Award of Merit from the R.H.S. as a forcing variety, and again in 1900 as a garden variety. It is a somewhat light cropper but possesses excellent quality and yellow flesh.

Duke of York.—This tuber resembles Mid-Lothian Early in every way, but the latter comes into use about a fortnight earlier.

Epicure.—This is a white-fleshed, round variety, with rather deep eyes. It is an enorous cropper, and is much grown in the Northern counties as a first early for the market. It was given an Award of Merit by the R.H.S. in August, 1905.

Alpha.—This grand variety is perhaps not so well known as some others. It is a first early, white-fleshed, round, of superb quality, and a great cropper. The variety received an Award of Merit from the R.H.S. July, 1903, also xxx from the National Vegetable Society, July, 1910.

Sir John Llewelyn.—This variety obtained the R.H.S. Award of Merit in 1900. It is a white-fleshed, kidney variety of good quality and an abundant cropper. Grand for field work.

Sutton's May Queen.—A first early kidney variety, most suitable for forcing and early borders. Is much grown in the South for early market. Honoured with an Award of Merit from the R.H.S., August, 1905.

Second Early or Mid-season Varieties.

Abundance.—A white-fleshed, round tuber. Though classed by many as a maincrop, it digs so well in the green state that many growers prefer it to any of the other second earlies. As the name signifies, it yields abundantly, and is of good quality. Very suitable for field culture.

Dobbie's Favourite.—A white-fleshed, flatish, round tuber, which received the R.H.S. Award of Merit in August, 1907, and in December of the same year the higher honour of a First-class Certificate.

Windsor Castle.—This variety received a First-class Certificate from the R.H.S. in September, 1893, and it is saying a great deal in its favour that it still finds a place in 1912 as one of the best mid-season varieties. The tuber is round and has white flesh.

Russet Queen is a white-fleshed variety. Is an immense cropper, with splendid quality. Much used as a field variety. R.H.S. Award of Merit, 1906.

Late or Maincrop Varieties.

The Factor is, without doubt, the finest and most productive maincrop variety on the market. It received an Award of Merit from the R.H.S. October, 1901, and was honoured with a First-class Certificate April, 1905. It also took first place in the cooking tests at the Crystal Palace, October, 1904. White-fleshed, suitable for field or garden culture.

Dalhousie Seedling.—This variety resembles Up-to-Date, and is a first-class variety of excellent quality. Much grown for the market. R.H.S. Award of Merit, 1905.

Peckover.—Though not nearly so largely grown as some of the others, it is a variety of delightful table quality. Received an Award of Merit from the R.H.S. December, 1904, and a First-class Certificate November, 1908. A good keeper.

The Provost.—Too much cannot be said in favour of this grand, white-fleshed, round tuber. The cropping and cooking qualities are all that can be desired. In every way a most excellent variety. Honoured by the R.H.S. with an Award of Merit, October, 1907.

Langworthy.—Though this variety has not been favoured with an award, no other variety can compare with it for quality. A moderate cropper. To obtain best results the ground should be well manured.

What's Wanted.—This is very similar to Langworthy, and requires the same treatment.

Peacemaker has rather a brown, russety skin. When cooked the flesh is beautifully white and of excellent flavour. A moderate cropper. R.H.S. Award of Merit, December, 1905.

Golden Wonder is another rather dark, russety-skinned variety of excellent quality, but only a moderate cropper ; yellow-fleshed kidney. The tubers should be planted in rich land.

The Chapman, introduced two years ago, is a strong-growing, heavy-cropping variety of the finest table quality.

New Varieties for 1912.

Novelties are an attraction to many, and I confidently recommend the under-noted as worthy of trial.

Balmoral Castle.—A second early white, round of great promise.

Prolific received an Award of Merit from the R.H.S. September, 1911. This is an excellent addition to the maincrop section.

King George V.—A second early or mid-season variety, of which more will yet be heard.

Queen Mary is a kidney-shaped, second early variety that will recommend itself.

Coronation.—A first early of good quality.

John Bull.—A welcome addition to the first earlies. Flesh beautifully white. *J. B. M.*

THE ALPINE GARDEN.

APHYLLANTHES MONSPELIENSIS.

The Blue Rush is too much of a rarity in our gardens, where it is doubly worthy of a good place, alike for its delicate loveliness and its amenability to culture. One of the reasons, however, why one so seldom sees it in gardens is, I think, because the plant is not easy to collect or import, so that dealers, to make their scanty stock go as far as possible, ruthlessly split up their "stuff" into minute pieces for sale : and Aphyllanthes very much resents such disturbance, and is very slow about starting again. The plant, I believe, is peculiar to the Western Riviera and to the most northerly points of Africa : it forms a fine and vast mat of foliage exactly like that of some rather slack and floppy Juncus ; and in May the flowers appear, poising like Mazarine butterflies, at the end of the long rush-like stems. They are wide stars of soft and gentle blue, hovering with a charming effect above the tuft. In its distribution Aphyllanthes is as peculiarly local as Daphne rupestris ; throughout its native territory it shows itself very capricious, densely occupying some clayey bank or heathy dell, and then, on the next heathy dell or clayey bank, quite refusing to dwell at all. I myself have never seen the wild plants in flower, but in the late autumn of 1910 I motored up to a quoted station for the plant, in the neighbourhood of Monte Carlo. For long I roamed in vain, searching out dells and banks and every likely place. For Aphyllanthes is a plant of very light woodland or woodland fringes. Without result, however, did I search the edges of the copse, the heathy and the stony slopes, and at last, as the rapid darkness of November drew down, I ruefully returned along the highroad to the motor. On my right rose woodland ; on my left, beyond a shallow parapet, a bank fell very steeply away to a beck that ran far below in a rocky watercourse. In the last instant of daylight I resolved to leave no spot of search untried, so swung myself over the parapet, to find my feet at once embedded in firm mats of Aphyllanthes Monspeliensis, growing densely all down that bare, but northerly-facing bank, in the very heavy sticky red soil of the Riviera, in a position and aspect fairly cool and damp. The chills of dusk passed over me like tropic noon : for Aphyllanthes is a very powerful clinger to the soil. The individual plant grows on for ever in a gradually widening semi-circle of shoots, which hug the earth by a thousand deep-set wiry fibres : and the tufts seem also to enjoy sinking down beneath top-dressings of mud and silt. Therefore, indeed, Aphyllanthes is no toy for a trowel : stout spades and forks are needed to cope with it. At last, however, I secured my modest toll, and, dripping with heat, plastered with red mud, I staggered back with my bundle, wrapped in my best travelling rug, to meet the cool-eyed scorn of the chauffeur. My Blue Rushes were all in time despatched from Mortola, where

I hope that Mr. Berger has good news to give of the tufts for which he was going to find a home. Here, the collection, potted up, has uniformly thriven, but has sulked above ground for a whole season, with hardly any sign of fresh shoots. The other day, however, I took occasion to plant out one of the largest clumps, and I found that the pot was crammed full, and round and round, with vigorous stout white roots, with fresh noses of vegetation getting ready for next season. Thus long does Aphyllanthes, even if undivided and pulled to bits, take to surmount the annoyance of removal, and thus vigorously does it turn the corner at last. In the garden Aphyllanthes seems to have few fads, if you make your start with a sound established clump. It wants a deep, rich, and rather heavy loam, so far as I can find, in a well-drained, sheltered position, not too sunny. A far finer clump, far more rare and Persian-cat like in its profuse tangles than any of its brothers that I found wild, is thriving hugely at Myddelton House, Waltham Cross, where I believe it had not thriven so mightily before, until it was transferred to the neighbourhood of some small bush that gives it a gentle degree of shade and protection. The plant, of course, is absolutely hardy, and absolutely vigorous, so soon as it has got a fair start; but it seems to dislike intensity of untempered sun, and, possibly, in very arctic districts, it might conceivably dislike extreme intensity of untempered cold. It produces no leaves at all, the whole show consisting of the rush-like greyish branches, about a foot high, or less, emitting from their points the exquisite and charming blue stars of blossom. Aphyllanthes produces seed, and may be raised from seed: otherwise its propagation is difficult, as the plant so dislikes being moved and mangled that an established clump is far too precious a possession to be risked or worried. *Reginald Farrer.*

FIG. 55.—BRASSO-CATTLEYA WELLESLEYÆ; SEPALS AND PETALS WHITE; LIP WHITE WITH YELLOW DISC (BRASSAVOLA GLAUCA × CATTLEYA MOSSIÆ WAGENERI).

ORCHID NOTES AND GLEANINGS.

BRASSO-CATTLEYA WELLESLEYÆ.

HYBRIDS of Brassavola Digbyana are always favourites with Orchidists, but the largest in size and the brighest in its deep rose colour is B.-C. Mrs. Francis Wellesley (B. Digbyana × C. Luddemanniana), which obtained a First-class Certificate in 1906, the flowers measuring over 11 inches across, and was illustrated in the *Gardeners' Chronicle*, June 30, 1906. Hybrids of Brassavola glauca are less frequently met with, and, although they are generally of fine shape and substance, they are not so large as the varieties obtained from B. Digbyana, but are nevertheless very pretty. The flowers of B.-C. Wellesleyæ are pure white with a light yellow disc to the lip, and they are delicately fragrant.

ONCIDIUM ANTHOCRENE.

THIS very distinct and showy Oncidium gives an example of a very desirable species which has always been rare, while other species known to inhabit the same locality are tolerably plentiful. It was discovered by Wallis when collecting for Messrs. Veitch in New Granada in 1873, and named by Professor Reichenbach in 1877. Its habitat is variously recorded as Peru and unknown localities in New Granada, but the latter is probably correct (unless the plant follows the wide range of distribution of Miltonia Warscewiczii), for a fine example of it is now blooming in Tracy's Nursery, Twickenham, out of a small consignment of Miltonia Warscewiczii, received from Colombia. The fine branched inflorescence bears over 100 flowers, each 2 inches across and of a chestnut-brown colour, barred with pale yellow and with a narrow margin of the same colour. The lip is cream-white with reddish-brown markings at the base. It has recently also been shown by Messrs. Charlesworth & Co. The still more rare Oncidium Massangei, with bright yellow flowers, the inner parts barred with reddish-brown, is also in flower in Tracy's Nursery.

The Week's Work.

THE HARDY FRUIT GARDEN.

By F. Jordan, Gardener to Lady Nunburnholme, Warter Priory, Yorkshire.

Outdoor Vines.—Summers such as we experienced last year are very favourable to vines in the open, and the wood this season will be well ripened. Proper pruning and training are necessary to obtain good results, and the vines should be treated in these respects much in the same manner as those under glass. The present is the proper time to undertake their pruning, which needs to be done before the sap commences to rise. Shorten the growths to two or three buds, removing later all but the strongest shoot that develops or those without bunches. Keep all other shoots and lateral growths in check. If the pruning is deferred beyond this date much loss of sap and energy will ensue. After the vines are established they will require very little attention beyond pruning and tying of the shoots, with occasional applications of liquid manure. Many varieties of hardy vines develop highly-coloured leaves and are suitable for planting as climbers.

Figs.—Like the vine, the Fig produces large handsome leaves, and is also an ornamental subject on that account. The plants should be afforded a sheltered position facing south or west; in many districts, and especially in the north, some form of protection is necessary for the plants during severe weather. Much of the success with Figs out-of-doors depends on the soil, which should be of poor quality and dry. A well-drained border having a layer 18 inches or 2 feet deep of loam of medium quality mixed with lime rubble, broken bricks and wood ashes is suitable. The roots may, if considered necessary, be restricted by forming a trench 3 or 4 feet from the wall, and filling it with broken bricks or other similar materials, as they must be kept from light or rich soils. By adopting this plan the trees will produce hard, short jointed wood, that will mature thoroughly and produce good crops of Figs annually. Very little pruning will be necessary, beyond the removal of a branch here and there to prevent overcrowding. A light dressing of bonemeal and one or two applications of liquid manure may be applied to the roots during hot, dry weather as soon as the young Figs are about the size of Walnuts. Where protective material has been applied to the branches, a portion may be removed, or even the whole of it, if there appears to be no danger of cold weather prevailing immediately after its removal. Avoid hard pruning in the case of rank-growing trees or gross shoots will be sure to result. Rather restrict the roots by adopting the method described above. Tie the branches after the pruning is finished, arranging them at 8 or 12 inches apart, placing them close to the wall in cold localities. Brunswick, Brown, Turkey, and White Marseilles are the best varieties in the order named for outdoor culture.

Winter Spraying.—If the spraying of fruit-trees is not completed the specifics must now be used at a considerably reduced strength, or injury will be sure to follow, especially to Pear trees and such varieties of Apples as Duchess of Oldenburg, Irish Peach, Red Astrachan, and others that flower early.

FRUITS UNDER GLASS.

By E. Harriss, Fruit Foreman, The Royal Gardens, Windsor.

Strawberries in Pots.—When the fruits are well set on the earliest plants of Strawberries the temperature in the house may be raised to 60° or 65° and the atmosphere kept moist. Thin the fruits to six or eight on each plant. Securely stake and tie each truss to prevent the stems from breaking: the prunings from outdoor fruit trees make excellent stakes for the purpose. Spray the plants two or three times each day with luke-warm rain-water and frequently damp the bare surfaces in the house. In favourable weather admit plenty of air during the early part of the day, closing the house again early in the afternoon. The pots being filled with roots, liquid manure may be afforded more frequently and at an increased strength. Artificial manure may also be given, but it is not advisable to afford chemical manures of any kind too liberally: manure should be withheld altogether when the fruits are ripening. Successional batches of plants should be introduced into heat at regular intervals. It is a good plan to have a large number of plants growing slowly in a cool house. When these are developing their flower spikes the stronger plants may be selected and placed on a shelf near to the roof-glass in a warm house. Make sure that the drainage is in a proper condition before bringing the plants indoors. Remove old and decayed leaves, place the pots on their sides and drench the foliage with a strong solution of soft soap and sulphur.

Early Pot Vines.—As soon as all the berries are well set, the vines should be relieved of surplus bunches. From six to eight bunches on each vine will be ample for pot plants. The berries may be thinned when they are about the size of Peas. In thinning the bunches of Black Hamburgh variety be careful not to cut out too many of the berries. Although this variety is a free setter, the bunches have a very loose habit, but they will develop into large, shapely specimens if the thinning of the berries is done with discretion. In the cases of Foster's Seedling and Madresfield Court the thinning may be done more severely. The roots, being active and the vines growing freely, the minimum temperature may be raised to 70°. During bright, sunny weather the thermometer may be allowed to reach 85° or 90°, but the house must be carefully ventilated on these occasions, closing the ventilators early in the afternoon. Keep the atmosphere moist by frequently damping the bare surfaces in the house. It will also be beneficial to the vines to damp the paths with manure water very late in the day. The roots must be liberally supplied with water. Stimulants in the form of liquid manure, soot-water and chemical manure may be given alternately every other day, increasing the strength as the bunches approach maturity. When the berries have stoned, the roots should be covered with a layer of rich, farmyard manure. All lateral growths should be regularly pinched, and any shoots which are not required cut out.

Melons.—When the earliest plants of Melons have covered about 2 feet of trellis with growth they may be stopped. This will induce the side shoots to develop more quickly and hasten the flowering. Pinch the laterals which are showing fruit at the second leaf beyond the fruit. The laterals below the trellis may be stopped at the first leaf. Before pollinating the flowers, wait until three or four flowers are open on each plant or the crop will be irregular. The atmosphere must be kept dry and the ventilators opened constantly, affording fresh air more or less according to the weather, whilst the plants are flowering. Make fresh sowings as required. At this time of the year ripe fruits may easily be had in 12 weeks from the date of sowing. Hotbeds may be dispensed with for the indoor culture of Melons during the summer months, but the soil must be elevated near to the roof-glass.

THE KITCHEN GARDEN.

By Edwin Beckett, Gardener to the Hon. Vicary Gibbs, Aldenham House, Hertfordshire.

Seasonable Work.—At the first favourable opportunity complete any arrears of work, including the preparation of the ground for transplanting various kinds of vegetables and for seed sowing. Unless the weather is favourable and the ground in a suitable condition, especially in the case of wet, retentive soils, it is far better to delay ground operations for a few days or even longer, than be in too much haste, as there is generally plenty of other work needing attention, such as attending to seedlings raised under glass, preparing hot-beds, and starting the various kinds of vegetables which lend themselves readily to forcing under glass.

The Herb Border.—Every well-ordered kitchen garden should include a piece of ground devoted to the growing of herbs, which are generally much in request. A narrow border, in a fairly sheltered position, is suitable for growing herbs of various kinds, which are not only useful but interesting. To have the plants in the best possible condition, it is necessary to renovate the border every three or four years. The plants should be lifted in order that the ground may be thoroughly trenched, at the same time working in a good dressing of manure, and, on heavy land, materials such as road-grit, old mortar rubbish, burnt garden refuse, and leaf-soil to lighten the texture. After the ground has been prepared properly, and the surface raked neatly, the perennial kinds should be divided and replanted neatly, making the roots very firm in the soil. Any plants which are becoming exhausted should be replaced by new stock propagated either from cuttings or seeds.

Carrots.—Make a sowing of a stump-rooted variety of Carrot in a sheltered part of the garden, treating the ground much in the same manner as advised for Turnips.

Cauliflowers.—Seedlings of such varieties as Magnum Bonum raised in a gentle heat from seed sown early in the present month should be transplanted into boxes. They should be afforded a warm temperature until they have recovered from the shift, when they should be transferred to cooler houses and elevated near to the roof-glass. Employ a compost containing plenty of sharp grit and a little manure from an old Mushroom bed: water the plants well by means of a can having a fine rose spray.

Celery.—The main crop of Celery should not be sown until the early part of next month, otherwise the plants may run to flower prematurely. For providing late supplies, select a variety that is known to be of a hardy constitution.

Celeriac.—Seed of Celeriac should be sown about the same time as the main crop of Celery and raised in a gentle heat.

Potatos.—The set or seed tubers for the main crop of Potatos should be ordered from the Nurserymen without delay. When received, they should be placed thinly on trays or shelves in a cool, light, frostproof shed. Sets for successional supplies in frames should be sprouted in a warm house.

Paths.—It is as important to have the garden paths in a good condition as other parts of the garden. The present time affords an excellent opportunity for applying fresh gravel where it is needed, and making tidy the edgings. I am not in favour of Box edgings, but where these are employed the plants may be taken up, divided, and replanted where necessary.

PLANTS UNDER GLASS.

By Thomas Stevenson, Gardener to E. Mocatta, Esq., Woburn Place, Addlestone, Surrey.

Propagation.—The work of propagating plants should be continued. Cuttings of Salvia splendens and its varieties should be inserted. These plants make bright subjects for growing in the conservatory during the late summer and autumn, and I prefer plants raised from cuttings to those propagated from seed, although seedlings are, perhaps, fewer in growth. The best variety I noted last autumn was "Boule de Feu," the plants being particularly floriferous and of an excellent shape. A sowing should be made of Solanun, Impatiens, Celosia, and Statice Suworowii. This Statice is an excellent subject for decorative purposes: if the seeds are sown thinly in a box or pan and the seedlings pricked off three plants in a 4½ inch (48) pot plants may be had in flower quickly. The seedlings must not be left for too long a period in the seed box or they will flower when they are potted before making many roots, so that the results will be unsatisfactory for grouping. For purposes of grouping the plants may be potted singly in 54 pots, in which they will produce single spikes of flowers about 18 inches tall.

Zonal Pelargoniums.—A stock of plants intended for autumn blooming should be raised at once, inserting the cuttings in thumb pots. If stood on a shelf in an intermediate house or other warm place where there is not too much moisture, the cuttings will root very quickly, when they may be removed to a slightly-heated pit for some time before repotting them.

Winter-blooming Carnations.—Cuttings of Carnations that were rooted a few weeks since should be ready for potting into 60 size pots. Employ as potting soil a light, porous mixture of loam, old brick and mortar rubble pounded

finely, a little leaf mould (sterilised, if possible), and silver sand. Grow the plants in a light house where a temperature of about 50° is maintained at night. Keep the house moderately close for a few days until the young plants recover from their root disturbance, and spray or syringe the foliage rather than resort to shading to prevent them from flagging. When this stage is passed they may be liberally afforded fresh air, for the hardier they are grown (within reason) the better will be the results. The early batch of "Malmaison" Carnations may be helped with liquid manure or a small quantity of Bentley's Carnation manure, which causes the foliage to develop a healthy colour as well as adding vigour to the plants generally.

The Palm House.—In large establishments a plant-house is usually allotted to Palms, especially where many of these subjects are used for decoration in the dwelling-house. The present is a suitable time for a general potting and overhauling of the plants. In potting Palms required for decorative purposes due consideration must be given to the size of the receptacles they are eventually to fill, and here again it is necessary to limit the size of the pot as much as possible. Compost used for potting large Palms should consist of good loam peat and sand, using the peat and sand sparingly. If the soil is not too moist it may be well rammed about the roots, a necessary proceeding to keep the plants firm in their pots. Badly-potted Palms grow upwards out of their pots as soon as the strong roots reach the bottom of the receptacles. Smaller Palms, Bamboos, Aspidistras, and similar subjects in the Palm-house should also be examined and potted if necessary; a soil of a considerably lighter texture should be employed for these smaller-growing plants. Where Palms are largely in demand, it is advisable to purchase a few young plants each season, so that they may take the place of those that have deteriorated.

THE FLOWER GARDEN.

By J. G. Weston, Gardener to Lady Northcote, Eastwell Park, Kent.

Border Carnations.—The beds of border Carnations should be made tidy when the ground is moderately dry. Examine the individual plants carefully, and any that have become loosened in the soil by the action of frost should be made firm again. If this precaution is neglected, the drying March winds may cause many of the plants to die. In many gardens Carnations planted out in the autumn do not survive the cold of winter, and it is a safer practice to pot or box the layers in the autumn and winter them in cold frames. To keep them healthy under such conditions during the dull winter months, the lights should be withdrawn altogether in favourable weather. Rains must be excluded by placing the lights on the frames, but even in wet weather the plants must be allowed plenty of ventilation, as a damp, stagnant atmosphere often causes disease in the plants. If the ground has not been prepared already for planting, it should be trenched at once, as it is well to get the plants out early and before drying winds prevail. A good, strong loam is suitable for Carnations: if the soil is inferior, a quantity of rich loam should be added during the process of trenching. I do not advise the use of rank manure for Carnations, but, if manure is necessary, use that from a spent mushroom bed. After the ground has settled and in a friable condition, some burnt earth or wood-ashes should be incorporated with the top layer, making the surface fine with a rake before setting out the plants. Plant firmly at a distance of from 12 inches to 18 inches apart, according to the variety, and keep the ground clean by stirring it with the flat hoe at frequent intervals. For massing in beds, as distinct from a collection, select varieties such as Duchess of Fife, Lottie Pike, Raby Castle, Roy Morris, Mrs. Nicholson, the old Crimson Clove, and White Clove Gloire de Nancy.

Perpetual-flowering Carnations.—Certain varieties of this popular type of Carnation have proved suitable for flowering in beds or borders out-of-doors. The plants need to be well prepared for growing in the open, and if young plants only are available, those just potted into 4½-inch pots, with five or six shoots, are the best. These will make good plants by the end of May, but will be rather late in blooming. The following method was adopted with success in these gardens last year:—Plants were selected that had flowered during the preceding autumn and winter, and were possessed of a number of flowering shoots, some being in bloom. These plants were effective at once, grew without a check, and flowered continuously till the blooms were spoilt by frost. The following varieties were a success last season here, although it must be remembered that the summer was exceptionally sunny:—Britannia, Aurora, Harlowarden, Jessica, Mrs. Lawson, Winsor, Lady Bountiful, Mrs. H. Burnett, Oriflamme and most of the Enchantress type.

Pinks.—Pinks propagated from layers or pipings last season that are still in the nursery beds should be planted in their permanent positions. Pinks are very suitable for forming edgings to borders in the kitchen garden, or they may be grown in clumps in the mixed flower-borders or the scented garden.

Lobelia cardinalis.—Plants of Lobelia cardinalis that have been wintered under glass should be divided and potted in light sandy soil. Place them in gentle heat till they have started well into growth, then remove them to a frame and gradually harden them, preparatory to planting out-of-doors in April and May. There are several good varieties, including the novelty Gloire de St. Ann's.

THE ORCHID HOUSES.

By J. Collier, Gardener to Sir Jeremiah Colman, Bart., Gatton Park, Surrey.

Epidendrums.—Epidendrums of E. radicans type, such as E. Obrienianum, E. Courtonii, and E. Boundii, are rooting freely, and any that require repotting should be attended to. Many of these plants will, if neglected, grow to a great length, and become unsightly, but they may be kept dwarf and compact by proper attention. Straggling specimens should be cut through the pseudo-bulb to a desired length below some of the aerial roots that are pushing forth. The plants should be potted singly, or several may be placed together to form large specimens. The lower parts of the pseudo-bulbs from which the tops have been removed may be left in their old pots. They will soon start growing afresh, and when the roots are active, they may be repotted. A suitable compost for these plants is equal parts A1 fibre, Osmunda fibre, and Sphagnum-moss, cut up rather short and well mixed together. They require an intermediate temperature, and, during the growing season, a plentiful supply of water at the roots.

Epidendrum Vitellinum.—This showy Orchid is developing new roots, and any plants that require repotting should receive attention. These plants dislike root-disturbance. Therefore, any that are in pots sufficiently large to accommodate their new pseudo-bulbs may be left there for another season if the compost is good and sweet. This species should be afforded less Sphagnum-moss in the compost than those mentioned above. Newly-potted plants should be watered sparingly until the new growths are about 2 inches long, when moisture should be liberally supplied until the new pseudo-bulbs have completed their growth. They will grow well in a house having an intermediate temperature.

Epiphronitis Veitchii.—This pretty bi-generic hybrid, raised from Sophronitis grandiflora, crossed with Epidendrum radicans, is very similar in habit to its second-named parent, excepting that the influence of the Sophronitis has somewhat dwarfed its growth. Like E. radicans, the hybrid is continually pushing roots from the stem, and should be dealt with as recommended for that species. Five or six shoots should be potted together in the compost recommended for Epidendrums. The plants grow and flower well in pans suspended from the roof rafters of an intermediate house.

Calanthe.—Deciduous Calanthes that have been kept dry and resting since passing out of flower should be potted just before the new roots begin to push from the young growths. All the old-rooting materials should be shaken from the roots, which should be shortened, leaving them a sufficient length to hold the pseudo-bulbs firm in the new compost. The back pseudo-bulb should be removed, leaving only the one of the previous year with the new shoot. The plants may be potted singly in 48 or 32 pots, or several may be placed in larger pots if specimens are required. In potting, keep the base of the pseudo-bulbs an inch below the rim of the pots, as the plants will require a plentiful supply of water when in full growth. A suitable potting mixture is composed of three parts good fibrous loam, from which the small particles have been removed, one part dried cow manure broken up small, and oak leaves, adding some crushed crocks, charcoal, and a little bone meal. The plants should be watered very sparingly until the new roots have grown well into the compost. Where a house is not specially set apart for Calanthes, they may be grown in an ordinary plant stove or Melon house. They require plenty of heat and atmospheric moisture, and should not be exposed too much to the sun's rays. The back pseudo-bulbs may be employed for purposes of propagation by placing them in pans filled with crocks, till they break into growth, when they may be potted. They should develop good pseudo-bulbs by the end of the season.

PUBLIC PARKS AND GARDENS.

By Chief Officer.

Provision of Land for Picnics, &c.—A Parks Department which is fortunate enough to possess land some little distance beyond its city boundaries is generally able to cater very effectively for the requirements of picnic parties and school children's summer treats. It is generally recognised that the provision of land for this purpose is becoming a growing necessity, as year by year the difficulties which school authorities find in obtaining suitable places for their summer outings are so great that many have had to abandon them altogether. One Parks Department with which I am acquainted purchased a number of years ago a fairly large farm on the outskirts of the city as an open space. No attempt has been made to lay it out as a public park, and to-day the hedges and fences are just as they were when it was occupied and worked as a farm, and it still retains all the appearances of a dairy farm. When first purchased, one or two schools in the town took advantage of the opportunities offered and held their treats in the fields. Last year some 14 or 15 schools made use of them for this purpose, and no doubt before another 10 years are past double that number will be very glad of the opportunity of using them in the same way. Land somewhat further afield would, however, be more appreciated on such occasions, for, being so near the town, it is visited by thousands of young people every week, who play their games there, and in this way it does not savour so much of the country as would be the case were it a longer distance away. Although few who are not intimately acquainted with the inner workings of a municipality are aware of it, the majority of towns of even an ordinary size possess more or less large tracts of land in districts sometimes considerably removed from their own boundaries. Often for the sake of securing an unlimited supply of pure water, a township finds it necessary to purchase the freehold of hundreds of acres of land, comprising a good watershed. Sometimes, also, for the purpose of supplying a demand for small holdings, councils have to buy up large farms, and in these two ways become possessed of property in the very heart of the country. Unfortunately, from the nature of these possessions it would be quite out of the question to use them as a rendezvous for picnicers. Any land set aside for this would have to be purchased for this purpose alone. Land need not be of any agricultural value to be of incalculable value to the people as a country playground, and it should, therefore, be possible to purchase suitable sites at very reasonable prices. Neither would there be any necessity to allow the land always to lie idle, for it should be quite easy to let it out for grazing purposes, and in this way secure a certain amount of income, which might help very considerably in the necessary upkeep. That a scheme for providing land for the purpose set out above comes within the range of practical park politics is clearly shown by the fact that several large cities already possess property which, if not exactly set aside for this specific purpose, is mainly used for it. London is, of course, one of these fortunate cities, and the thousands of Londoners who every year make use of Epping Forest, Burnham Beeches, and the various heaths and commons which lie within the 25-mile radius from the City, provide an eloquent testimony to the value of these resorts to the inhabitants of London.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Special Notice to Correspondents.—*The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.*

Illustrations.—*The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c., but they cannot be responsible for loss or injury.*

APPOINTMENTS FOR MARCH.

SATURDAY, MARCH 2—
Soc. Française d'Hort. de Londres meet.

TUESDAY, MARCH 5—
Roy. Hort. Soc. Coms. meet and Spring Bulb Sh. (2 days). (Lecture at 3 p.m. by Prof. H. E. Armstrong on "The Stimulation of Plant Growth.")
Scottish Hort. Assoc. meet.

THURSDAY, MARCH 7—
Linnean Soc. meet. Manchester and N. of England Orchid Soc. meet.

MONDAY, MARCH 11—
U. H. Ben. and Prov. Soc. Ann. Meet. at 3 p.m.

THURSDAY, MARCH 14—
Roy. Hort. Soc. Exh. of South African Products, including Cereals (3 days).
North of England Hort. Soc. meet at Bradford.

TUESDAY, MARCH 19—
Roy. Hort. Soc. Coms. meet. (Lecture at 3 p.m. by Mr. H. B. May on "Ferns.")

WEDNESDAY, MARCH 20—
Roy. Meteorological Soc. meet. (Lecture by Dr. Pettersson.)

THURSDAY, MARCH 21—
Perpetual-flowering Carnation Soc. Sh. at R.H.S. Hall, Westminster (2 days). Linnean Soc. meet. Manchester Orchid Soc. meet.

TUESDAY, MARCH 26—
Bournemouth Spring Fl. Sh. (2 days).

WEDNESDAY, MARCH 27—
Roy. Hort. Soc. General Exam. Liverpool Hort. Assoc. Sh. (2 days). Roy. Botanic Soc. meet.

THURSDAY, MARCH 28—
Torquay Dist. Gard. Assoc. Spring Fl. Sh.

SATURDAY, MARCH 30—
Soc. Française d'Hort. de Londres Ann. Dinner.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—40·8°.

ACTUAL TEMPERATURES:—
LONDON.—*Wednesday, February 28* (6 P.M.): Max. 59°; Min. 50°.
Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—*Thursday, February 29* (10 A.M.): Bar. 29·8°; Temp. 54°; *Weather*—Dull.
PROVINCES.—*Wednesday, February 28:* Max 54° Cambridge; Min. 48° Scotland, N.

SALES FOR THE ENSUING WEEK.

MONDAY AND WEDNESDAY—
Rose Trees, Fruit Trees, Perennials, Liliums, Trained Bay Trees, Palms, &c., at 12.30, at Stevens's Auction Rooms, 38, King Street, Covent Garden, London.

MONDAY AND FRIDAY—
Hardy Bulbs in Variety. Herbaceous and Border Plants, at 12; Roses and Fruit Trees, at 1.30; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

WEDNESDAY—
Perennials and Herbaceous Plants, Hardy Bulbs, &c., at 12; Roses and Fruit Trees, at 1.30; Palms and Plants, at 5; Trade Sale of Miscellaneous Bulbs, at 12; Japanese Lilies in Cases, at 2.30; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

Forest and Ornamental Trees in 1911.

The "wonderful year" 1911 has left its mark on all forms of vegetation. Shy seeders bore seed profusely; late-flowering plants proved precocious; drought scorched and destroyed whole hosts of plants; nor were the trees, those members of the vegetable kingdom which are generally less obviously dependent on weather and seasonal conditions, immune from the effects, good and bad, of the exceptional summer.

These effects will have in the coming season their after-effects, hence it is well to recall in general terms some of the more salient features of the tree-vegetation in 1911. The following remarks are based upon observations made by Mr. A. P. Long in Gloucestershire, Somersetshire, Devonshire, and in the neighbourhood of Cambridge.

At the beginning of spring the continued frosts, cold winds and generally wintry conditions affected Elms in particular, especially Ulmus montana, U. glabra, and the Huntingdon Elm. Many flowers were produced, but only small quantities of the fruit developed properly, and the percentage of germination was very low in the seed that did mature.

In Larch, Poplars and Willows the same effect was less marked, and the crop of Larch cones was fair on the whole. Poplars and Willows are generally propagated by cuttings and sets, and we are apt to forget that these trees reproduce themselves by seed; yet in one nursery about 200 seedlings of Populus nigra are raised annually. Birches produced but little good seed, whilst Alders were remarkably prolific in most cases.

The warm weather which set in soon after Easter brought out flowers of the Oaks as early as the first week in May. Those of Sweet Chestnut, Beech, Walnut, Pterocarya, Horse Chestnut, Sycamore, and Maple soon followed. All of these produced abundant flowers, and were in most cases very successful in maturing large quantities of fruit. Hence there were abundant crops of fruit, especially of the Oaks, Sweet Chestnut, Sycamore and Maples, providing a chance for foresters that probably will not recur for some years to come.

Beech was an exception in the south and Midlands of England, where the most produced was very poor in quality. There were only small quantities of Ash "keys," except on young trees.

Cyclonia cathayensis fruited in the summer for the first time at Tortworth Court, in Gloucestershire. Alder fruits were late in ripening, but Larch cones were mature in a great many cases as early as the second week in September. Cypresses and Thuyas produced large quantities of fruits, but many of them, like the Acorns and Chestnuts, fell early.

The effects of the long-continued drought and heat greatly influenced vegetative growth, especially in the case of recently-planted, broad-leaved trees, which had to contend with coarse grasses, brambles, and other rivals. Everywhere broad-leaved species suffered more from privation in early life than Conifers.

For example, at Portbury, Bristol, on the Ashton Court estate, a plantation, five years old, of Conifers and broad-leaved species, consists of three equal areas. One plot was formerly an old mixed wood, which was felled and later replanted with Chestnut. Adjoining this is another plot, which was an old pasture, but is now planted also with pure Chestnut. A third adjoining plot, also an old pasture, was planted with a mixture of Scots Pine, European Larch, Oak, Ash and Beech. The Chestnuts on the plot where there is no grass are healthy and vigorous, with an average height of 4½ feet to 5 feet, and were in no way affected by the drought. On the second plot, where there is a considerable growth of grass, the Chestnuts are stunted in growth, averaging 1½ feet to 2½ feet high, sickly in appearance, and many died from drought. On the third plot, where there is also a good deal of grass, the Conifers made good growth in height, averaging 4½ feet to 5 feet, and were unaffected by the drought; whereas the broad-leaved species mixed with them are in the same condition as the Chestnuts just referred to, reaching only 1½ feet to 2 feet high. In this plot Ash suffered least and Beech most of the broad-leaved species.

The plantation has a north aspect. This fact raises another interesting point worthy of further investigation. In every case noted this year trees planted on the north side of a slope succeeded better than those on the south side. On the Continent, even old woods and forests with a north aspect are much more vigorous in growth and produce a larger volume of timber than those with a south aspect. It would be instructive to see how far this applies to England, and to obtain figures relating to the comparative value of aspect.

In many places the drought killed a great number of plants both in young and older plantations; and in some cases total replanting will be necessary. Two notable exceptions, however, may be noticed. At Culford, near Bury St. Edmunds, land previous to planting is ploughed to a depth of about 16 inches with a forest plough. The extra cost of tillage is amply repaid, as there were scarcely any fatalities amongst the plants, even on coarse sand.

In the neighbourhood of Bristol, on very shallow soil overlying hard rock, and even in the rock itself, planting is done in holes made by a mattock, and filled with soil. Under these conditions plants succeeded last year where others of the same age near them in a good depth of soil were completely parched. In many cases, plants so treated are the only specimens remaining alive on the whole area.

Many species of Japanese trees suffered much from the drought. Young plantations in the south-west of England containing Japanese Larch (Larix leptolepis) were dotted here and there with scarlet tints due to parched and dead trees of this species. It appears that this was generally the case with most plantations of this tree that are under 10 years of age. The Japanese Larch is evidently unsuitable for planting on hot or dry banks, especially those having a south aspect. The trees bear a greater quantity of foliage when young than the European species, and probably on this account make a greater demand on the water contained in the soil. The European species suffered very little from drought in the past season, and when it did suffer it made a more rapid recovery on the termination of the drought.

Cryptomeria japonica and some Japanese Maples were similarly overcome in not a few localities. Young Beech plants almost everywhere were killed or suffered greatly, but Pedunculate Oak, Elms and Sycamore survived the ordeal better.

The Sessile Oak, Ash, Sweet Chestnut and Norway Maple made good growth

YUCCA GLORIOSA, IN UPPER HALL GARDENS, LEDBURY.

Printed by Temple Press Ltd., London, E.C.

in many cases and withstood the drought, the best being the broad-leaved species.

Of the Conifers, Scots Pine suffered little, whilst the Corsican Pine flourished remarkably. The latter tree is a very valuable species for planting in hot, dry places, as it resists drought well, grows at an enormous pace and yields valuable timber.

Apart from the fact that Spruce and Larch should never be planted together on account of their intimate connection in the spread of aphis attacks, which probably are followed by Larch canker, there is another reason against this mixture, which was noticed last season. In every case where the two species have been planted side by side, the Larch suffered badly from drought, owing to the large quantities of moisture absorbed by the superficial root-system of the Spruce, which suffered little.

Thuya gigantea, Cupressus Lawsoniana and Birch showed themselves capable of adaptation to either moist or dry conditions.

In older plantations the effects were not so marked. Larch, in mixture with Beech or Chestnut, suffered less than when grown pure or mixed with other Conifers.

Many old stag-headed trees of Oak, Elm and Beech did not survive the dry season.

As many ponds and small streams were dry during last year for the first time for a long period, some of the older Willows and Alders in such places lacked moisture and died or, at the least, suffered.

General remarks upon premature leaf-fall cannot be made, as trees were affected differently in this respect even in the same locality. The Lime, however, seemed to be the least affected, for most trees of this species preserved their foliage until the usual time.

In the nursery those plants which were "lined out" in late winter or early spring throve much better than those transplanted later, as they were able to establish themselves before the warm weather began. Beech seedlings showed this plainly in many instances. Nursery plants withstood the drought much better than those in young plantations, no doubt owing to the deeper cultivation of the nursery soil.

Parasitic diseases and insect pests were not generally very troublesome during the hot weather. Aphis, Pine-weevil and Larch canker attacks were rare and less virulent than usual. Pine-beetle, however. was abundant in some places.

Our Supplementary Illustration.—Yuccas rarely enjoy so favourable a season as that of last summer, when the flowering of the plants was a common occurrence in all parts of the country. In the Supplementary Illustration is shown a single plant of Yucca gloriosa in the gardens at Upper Hall, Ledbury, the residence of W. A. H. Martin, Esq. It developed no fewer than 18 fine spikes of bloom. Mr. A. C. Matthews, the gardener, informs us that the plant has a girth of 45 feet, some of the individual branches being as much as 20 inches in circumference. The plant is growing on elevated ground, and is sheltered on the north side, but is fully exposed to the south. Yucca gloriosa is a favourite plant for town gardening, and in suburban districts it is commonly employed as a centrepiece to the garden forecourt, taking the place of the conventional vase. The flowers are white or pale creamy-grey.

Professor Bateson on Genetics.—In the last lecture of his course, Professor Bateson again laid stress on the difficulties of applying the theory of natural selection in a vast number of cases of specific variation. If it is to natural selection that specific characters are due, then it is evident that when two nearly allied species inhabit contiguous areas we should expect to find transitional forms in the intermediate districts. But, as a rule, a mongrel population is found, consisting of hybrids, as in the case of Lychnis dioica and L. vespertina, and of the American butterflies Basilarchia astyanax and B. arthemis. In many cases, the forms inhabiting contiguous areas seem to be adaptive; for example, the mountain forms of many species of plants, as distinct from the lowland forms. In a gradual

Fig. 56.—Royal International Horticultural Exhibition.

(Cup presented by the Royal Horticultural Society of Ireland.)

passage from one set of conditions to another, such as exists in ascending the high Alps, it might be expected that a series of transitional forms would be found. But, in general, two distinct forms occur, and the problem is, how has the change from one to the other come to pass. Although it is rare to find intermediate populations, on the other hand there are cases that seem to fit in with orthodox views on the subject. For instance, in Egeria, the speckled wood butterfly, there are three European forms. The common English form is yellow. In Spain, and as far north as Poitiers, in France, a brown form occurs, and further north we come to a form intermediate between the two, which extends through Brittany and the Channel Islands. This case Professor Bateson considered to be one of the most striking he could give of a transitional form occupying an intermediate area. Yet by breeding experiments he had found that the intermediate type is produced by the cross between the northern and southern forms. So that the intermediate population might be accounted for by the crossing of the two types, and the absence of segregation in the hybrids. Further investigations into this case are necessary before a positive statement can be made. Having reviewed, in these lectures, many of the difficulties which prevent the acceptance of the theory of natural selection as an explanation of the processes by which evolution has come to pass, Professor Bateson said that, nevertheless the great mass of evidence leads to the belief that evolution has taken place. Historical examples of evolution are rare, but in the phenomenon of mechanism there are some interesting cases. For instance, quite recently several of the British moths have given rise to black forms, and these are gradually ousting the older types. In the case of the pepper moth a black form appeared near Manchester in the first half of the 19th century, and it has spread northwards, and as far south as the London district. It has also become established on the Continent, in the neighbourhood of certain large towns, and it has been suggested that the black colour has a survival value, where smoke has blackened the surroundings. Nevertheless in certain completely rural districts in England there exist strong colonies of the black form. Again, in the case of the Honeybird, Cœreba, in the West Indian Islands, the black form, which was first noticed in the 'seventies, has nearly replaced the yellow form. Yet it cannot be said that the dark colouring has any special survival value.

The Flowering of the Almond.—The first flowers on a tree situated in a favourable position in Wandsworth, five miles south-west of London, expanded fully last Saturday, the 24th ult. Previous dates for the flowering of this tree are March 11 last year; March 12, 1910; April 1, 1909; March 23, 1908; March 20, 1907; February 28, 1906; March 7, 1905; and March 21, 1904.

Royal Horticultural Society.—The next meeting of the Committees of this Society will be held on Tuesday, the 5th inst. On this occasion there will be a special exhibiton of Spring Bulbs, which will be continued on the 6th inst. At 3 p.m. on the 5th inst. a lecture on "Stimulation of Plant Growth" will be delivered by Prof. Armstrong, F.R.S., LL.D.

New Class for the R.H.S. Daffodil Show.—In connection with the Daffodil Show to be held at the Royal Horticultural Hall, Westminster, on April 16 and 17, Mr. Chester Jay Hunt, of Montclair, New Jersey, has offered £1 10s., £1, and 10s., as 1st, 2nd, and 3rd prizes, in an open class for six varieties of Leedsii Daffodils, distinct, three stems of each, the varieties shown to cost not more than two guineas per 100 bulbs.

Royal International Horticultural Exhibition.—We are indebted to Sir Frederick Moore for the opportunity of illustrating the Cup (see fig. 56) to be presented by the Royal Horticultural Society of Ireland at the Royal International Exhibition next May for the best exhibit of flowering and foliage plants arranged for effect in a space not exceeding 400 square feet. The cup is a copy of a celebrated piece of Irish plate known as the Moira Cup, and was manufactured by Messrs. West & Son, Dublin.

Leaf Curl.—This common fungus disease of Peach trees, grown out-of-doors is said by Professor L. Cæsar (*The Canadian Horticulturist*, vol. 35, No. 1, January 1912) to be capable of control by the use of lime sulphur spray. The spray fluid to be effective should be of ordinary strength, 1 pint of the commercial wash to 10 pints of water, and must be applied early in the spring before the buds have begun to swell.

Gardeners' Royal Benevolent Institution.—Sir Jeremiah Colman, Bart., will preside at the 73rd anniversary festival dinner in aid of the funds of the Gardeners' Royal Benevolent Institution on June 25, at the Grocers' Hall, City, kindly lent by the Guild. Ladies will be welcomed.

Royal Gardeners' Orphan Fund.—Sir Edwin Durning-Lawrence, Bart., will preside at the 24th annual dinner in aid of this fund, which has been arranged to take place at the Hotel Cecil on Wednesday, May 8 next.

National Dahlia Society.—A Dahlia Conference will be held by this society at Carr's Restaurant, Strand, on Friday, March 8, at 6.30 p.m. Mr. G. Gordon, V.M.H., will preside. Mr. George Davidson will read a paper on "The Cultivation of the Dahlia in Suburban Gardens," and Mr. J. B. Riding one on "Collarette, Pæony-flowered, and Decorative Dahlias." Members of the society and others interested in the Dahlia are invited to send questions before the conference to the Hon. Secretary, Mr. E. F. Hawes, Ulysses, Fortune Green, Hampstead. The questions will be answered at the meeting after the papers have been read.

North of England Horticultural Society.—This Society has arranged to hold shows of spring flowers at the Central Baths, Bradford, on Thursday, March 14, and in the Corn Exchange, Leeds, on Wednesday, April 24. Delegates will also attend the Liverpool Spring Show on March 27 and 28. Particulars may be obtained from the Secretary, Rev. J. Bernard Hall, Rawdon, Leeds.

Compulsory Spraying.—The State of Ohio, U.S.A., has passed a law, which comes into force in May, requiring all orchards in which there are 10 or more trees to be sprayed at least once between November 1 and April 30. The preparation used must be such as will destroy San José, oyster shell, and scurfy scale. A fine of 25 to 100 dollars is to be imposed for each year spraying is not performed.

Kew Guild "Journal."—Although this *Journal* is concerned only with the doings of Kew men, it will be read with interest by every gardener. The frontispiece of the issue for 1911-1912 is a portrait of Mr. R. A. Rolfe, accompanied by a biographical note of this well-known orchidist. The family affairs of the guild include accounts of the annual meeting and dinner, also the records of the Mutual Improvement Society and sports clubs. Kew has a more cosmopolitan character than any other garden in the world, and the notes from old Kewites contributed from remote quarters of the globe are always interesting. It is not surprising to find that Kew was well represented at the recent Coronation festivities in India. Mr. A. E. P. Griessen, writing from Durbar Gardens, Delhi, states: "Johnson came up from Calcutta, 900 miles, to lay out the Government of India and Bengal camps; Little from Bombay, 950 miles, to attend to the Government of Bombay camp; Krumbiegel from Mysore, 1,500 miles, Cavanagh from Baroda, 800 miles, to carry out their respective camps; Mustoe, from Lahore, 500 miles, to bring the Punjab camp to its beautiful setting. Leslie from Nagpore also turned up for the Central Provinces camp, and Head from Allahabad. Locke, who is resident here, had his share of the work to attend to, that which appertained to the local authorities. As to myself . . . our biggest undertakings were the laying out of three polo grounds, review ground, where fully 2,000,000 men could be paraded, and the great amphitheatre, where the Durbar was held." Truly a good share in this great epoch-making festival. The Guild mourns the loss of one of its most distinguished members in the death of Sir Joseph Hooker, who built Kew gardens on foundations laid by his father, Sir William Hooker.

L.C.C. Parks.—The Education Committee of the London County Council recently agreed to co-operate with the Parks Committee by selecting annually four boys from the public elementary schools for employment in the London parks. The head teacher of each provided and non-provided school in London will be invited to nominate one boy; the final selection being made by a sub-committee of the Education Committee. Candidates must be at least 14 years of age on March 31 in the year of nomination, and they must be healthy and of good general physique, and free from any physical defect. Applications must be supported by the recommendation of head teachers in respect of intelligence, conduct, industry, and dexterity in handicraft, and parents (or guardians) of candidates will be required to sign a declaration that they intend the candidates, if successful, to become boy labourers and to remain in the Parks Department of the Council's service.

Cambridge Agricultural Monographs.—In view of the rapid development of agricultural science in this and other countries, and the great variety of publications through which results are scattered, it is becoming more and more difficult for any one individual to keep abreast of recent work, or to appraise, at its true value, any particular paper not in his own branch. The Syndics of the Cambridge University Press are about to issue a series of monographs, to be called the *Farm Institute Series*, each of which is to contain a summary of the present position of some particular aspect or branch of agricultural science by an expert of acknowledged authority. The general editors of the series will be Professor T. B. Wood, School of Agriculture, Cambridge, and Dr. E. J. Russell, Rothamsted Experimental Station, Harpenden.

Sulphur for Use with Copper-containing Spray Fluids.—Sulphur suspended in water to which soft soap is added has the drawback, when used for mixing with copper sulphate or Bordeaux mixture, of not being wettable by the metallic salts. Messrs. Vermorel and Danbury (*C. R. Ac. Sc.*, Paris, cliii., p. 194) recommend instead of soap the use of a solution of oleic acid—the oleine of commerce—made by dissolving 200 cc. (about ½ pint) in two litres (3½ pints) of methylated spirits. This solution serves to wet about 200 lbs. of sulphur.

Chesterfield Chrysanthemum Society.—At the annual meeting, held on the 20th ult., it was unanimously decided to wind up this society. W. F. Hewitt, Esq., the hon. treasurer, presented the audited accounts, which were adopted, showing a balance in hand of £21 6s. 3d. On the proposal of W. T. G. Burr, Esq., it was decided to distribute this amount as follows:—£10 to the Royal Gardeners' Orphan Fund, £5 5s. to the Gardeners' Royal Benevolent Institution, and the remainder to the Chesterfield Hospital. The following sums have been given to charities since the formation of the society in 1893:—Royal Gardeners' Orphan Fund, £231 11s. 6d.; Gardeners' Royal Benevolent Institution, £184 16s.; Chesterfield Hospital, £85; and for placing seats in Queen's Park, Chesterfield, &c., £25 15s. 3d. Many regrets were expressed by the members that it was no longer possible to successfully continue the show.

Vegetable Growing in Canada.—A correspondent in *The Canadian Horticulturist* states that the culture of vegetables in Canada is entirely different to the method practised in Great Britain, "the climatic, customs of the country, manner of growing, and marketing are all different." He recommends newcomers to learn the business for a year or two with some grower in the colony. After gaining experience, a capital of from 500 to 1,000 dollars is necessary to carry on a market garden in the colony for vegetable growing.

The Coldest Spot on Earth.—Though more than one region might put in a good claim for this distinction, there appears to be good ground for awarding the palm—a most inappropriate reward—so far as inhabited regions are concerned—to the Siberian settlement of Werchojanst, which is situated in about 68° north latitude. According to a writer in the *Standard*, the thermometer, during the three winter months, never marks more than—24.3°C., about 76° of frost in the Fahrenheit scale, and occasionally registers more than 100° of frost. Yet in spite of these rigours Werchojanst is surrounded by forest trees—Conifers, which possess a power of resistance to extreme cold unsurpassed by any other form of vegetation, except perhaps the microscopic plants which flourish in the oceans of the Arctic regions.

The Phosphate Nutrition of Plants.—Cultures of Oats and Peas provided with phosphates of different kinds, namely, ferric phosphate, aluminium phosphate, and calcium phosphate, appear to show that the two former compounds are far more effective phosphatic fertilisers than is calcium phosphate. The experiments were made by Mr. Allan Bagley, and the results, which are published in the *Journal of Agricultural Science* (January 3, 1912) show that, whereas pot plants of Oats and Peas grown with ferric or aluminium phosphate made good growth, those supplied with calcium phosphate either germinated badly and died (Oats) or made but puny plants (Peas). It should be observed, however, that in the case of Peas, super-phosphate gave better results than either ferric or aluminium phosphate, though the latter fertilisers proved the better in the case of Oats. It would seem worth while experimenting with these phosphates on lawns which are deficient in phosphatic compounds.

Tomato-leaf Rust.—An illustrated account of this disease is given in the current number of the *Journal* of the Board of Agriculture. This troublesome pest is well known in this country to growers of Tomatos under glass, and it is prevalent also in other countries of Europe and in the United States. The disease is due to the fungus Cladosporium fulvum (see *Gard. Chron.*, October 29, 1887, figs. 106, 107). It attacks the leaves, stem, and fruit of the Tomato plant, the leaves being particularly liable to injury. The fungus first appears on the leaves in the form of spots, which increase in size and become darker in colour. The spores are produced in enormous numbers on the under-surface of the leaves, to which they give a rust-coloured appearance. The disease spreads with great rapidity. Spraying should be done in the earliest stages of attack, or it will be of little use. The need of covering the entire surfaces of the plants with the fungicide is emphasised, and, consequently, repeated applications of the spraying fluid are advised. Growers are recommended to use Bordeaux Mixture at half-strength when the plants are young, and liver of sulphur, 1 ounce in 4 gallons of water, when flowers and fruit are present. It may be noted that, although this disease is known amongst growers as Tomato "rust," the fungus causing it is not related to rust fungi proper.

Children and Gardening.—Two hundred pupils at the Southfield Road Council Schools, Bedford Park, London, are at present growing bulbs, which will be exhibited at the flower show to be arranged by the head-master of the school.

Nitrogen in Rain Water.—Careful estimates of the amount of nitrogen compounds (ammonia and nitrates) in rain made by J. Hudig at the Experiment Station, Groningen, Netherlands, and published in the *Journal of Agricultural Science* (iv., January 3, 1912), show that, with an average rainfall of 23 inches, only about 50 lbs. of nitrogen per acre are deposited by rain during the year.

"The Scottish Botanical Review."*—We extend a hearty welcome to this new quarterly magazine, the first number of which was published recently. We are pleased to observe that, whilst the interests of "pure" botany are not neglected, space is found for a contribution on applied botany, a subject which, in this country, has no special journal. The article to which we refer consists of the presidential address delivered by Dr. A. W. Borthwick before the Botanical Society of Edinburgh in November of last year. Dr. Borthwick points out in the course of his paper many of the various directions in which botanical science may be made of service to horticulture and agriculture. Thus, the study of the plant in relation to its surroundings, now known as ecology, has led to discoveries of practical importance to foresters, and may be expected to be of yet greater value in the near future. In illustration of the practical value of applied ecology, Dr. Borthwick mentions Kienitz's investigations into the shapes and types of the Scots Pine. This observer has demonstrated that two well-marked types of Scots Pine exist and that each breeds true. The one, a strong-branched, strong-crowned tree, is the typical Scotch form. The other, slender and pyramidal, occurs generally in the Baltic provinces. Each of the two types is specially fitted for certain localities. The Scottish type holds its own best in milder regions; the Baltic type is the better adapted to more rigorous conditions, where wind and heavy snow prevail. Evidently, therefore, planters must take these facts into consideration when selecting seed or planting seedlings in any given locality.

* No. 1, January, 1912. (Edinburgh: Neill & Co.) 2s. 6d.

The Wheat and Oat Crops.—The *Bulletin* of Agricultural Statistics for February, which has just been published by the International Institute of Agriculture, contains preliminary returns of the Wheat and Oats harvests in the Southern Hemisphere. The crop of Wheat is estimated in Argentina at 91,348,000 cwts.; Chili, 20,662,000 cwts.; Australia, 40,357,000 cwts.; New Zealand, 3,475,000 cwts.; or, expressed in percentages of last year's production in the individual countries, these figures work out at 125.1, 106.9, 79.2, and 78.4 respectively. If to these figures be added the Wheat production of the Northern Hemisphere in 1911, as published in last month's *Bulletin* for the following countries: Germany, Austria, Belgium, Bulgaria, Denmark, Spain, France, Great Britain and Ireland, Hungary, Italy, Luxemburg, Norway, Netherlands, Roumania, Russian Empire, Sweden, Switzerland, Canada, United States, India, Japan, Algeria, Egypt, Tunis, and a total Wheat production of 1,845,203,000 cwts. is obtained, which is 99.5 per cent. of the production in 1910. The production of Maize in Argentina is estimated at 137,750,000 cwts. as against 13,775,000 cwts. last year, when an abnormally low yield was obtained owing to the drought. The area sown to Wheat during the autumn of 1911 in Belgium, France, Great Britain, Hungary, Roumania, and Japan is greater than that sown during the corresponding period of 1910, but that sown in Spain, Canada, United States, and India is less than in the autumn of 1910. The condition of the winter cereal crops in the Northern Hemisphere is good.

Fig. 57.—Eucharis grandiflora as cultivated at Kelsey Park.

Publications Received.—***A Guide to the National Insurance Act, 1911,*** by H. Wippell Gadd. (London: Effingham Wilson.) Price 1s. net.—***The Complete Gardener,*** by H. H. Thomas. (London: Cassell & Co., Ltd.) Price 10s. 6d.—***Everybody's Gardening Book,*** by the Editor of *Garden Life*. (London: Garden Life Press.) Price 1s.—***Monthly Reminders,*** by Leslie Greening. (London: Agricultural and Horticultural Association.) Price 1d.—***Royal Horticultural Society of Ireland.*** Eighty-second Annual Report, with Statement of Accounts for 1911. (Dublin: G. F. Healy, 23, Lower Ormond Quay.)—***The Hardy Plant Society's Year Book, 1912.*** (Burnley: The Horticultural Printing Co.) Price 1s. 3d. post free.—***Board of Agriculture and Fisheries.*** Agricultural Statistics: Returns of Produce of Crops in Great Britain. (London: Wyman & Sons, Ltd.) Price 4½d.—***Official Catalogue of Sweet Pea Names, 1912.*** (National Sweet Pea Society. Secretary, Chas. H. Curtis, Adelaide Road, Brentford.) Price 6d.

EUCHARIS GRANDIFLORA.

Eucharis grandiflora is an old plant in gardens, where it is commonly known as E. amazonica. It forms an excellent subject for the stove, and the beautiful white blossoms are produced at a season when flowers are scarce, making them specially valuable. We are indebted to Mr. Mark Webster, Kelsey Park Gardens, Beckenham, for the opportunity of illustrating the magnificent specimen shown in fig. 57. Our correspondent contributes the following particulars:

"The plant is six feet in diameter and it produced 36 spikes, with an average of five blooms to each. It was grown from a small specimen, and has been planted in loam mixed with old mortar siftings. Some years ago the plant was badly attacked by Eucharis mite, showing distinct red streaks above and below the soil on the leaf-stalks; but repeated applications of lime water gave good results, and further trouble was prevented by adopting a different rooting medium, no leaf-mould or manure being used in the compost. The plant flowers twice a year; it is placed in extra heat some six weeks before the blooms are required. During active growth the plant is provided with an abundant supply of moisture, and weak liquid manure is afforded throughout the flowering and growing periods. When growth is complete rest. Perfect drainage is essential to success."

IRELAND.

SWEET PEAS.

I have been asked by a well-known English contributor to the *Gardeners' Chronicle* what I, as an Irish gardener and exhibitor of Sweet Peas, believed to be the best 12 varieties. The following is my selection:—Moneymaker, white; Clara Curtis, cream; Doris Usher, pink and cream; Stirling Stent, orange; Helen Lewis, salmon; Flora Norton, blue; Nubian, maroon; Mrs. W. J. Unwin, white and orange; Earl Spencer, orange-pink; Hon. Mrs. E. Kenyon, primrose; Countess Cadogan, deep blue; and Paradise Ivory, ivory-pink. For Moneymaker could be substituted Dorothy Eckford, as there is not much to choose between these two white varieties.

RECLAIMING BOG LAND.

The following letter is from Mr. G. B. Thompson, formerly gardener for a great number of years at Calderwood Castle, Lanarkshire, Scotland, and who has made bog-reclaiming one of his chief studies for the past 12 years. "Adjoining my garden was a plot of bog land about 1 acre in extent. I had the whole drained, and the Heather cut and burned, preparatory to turning it into orchard land. Holes were then dug in rows made 12 feet apart, and spaces of 10 feet were allowed between the holes in the rows. They were made 4 feet deep, and 5 and 6 feet wide, being afterwards filled with road scrapings mixed with old pasture. These materials being placed firmly in the holes to within 1 foot of the ground level. The trees were ready, and planting was commenced on January 21, 1900, the orchard being wholly planted by the following year. After planting I mulched the trees with farmyard manure." Mr. Thompson and myself tried this method of reclamation in a small way some time before. I planted fruit trees in the same way on the same sort of land, and this orchard would be hard to surpass for abundant fruiting, freedom from disease, and general good condition of the trees. *W. A. Maxwell, Coolfin, Banagher, King's Co.*

KEW NOTES.

LONICERA FRAGRANTISSIMA AND L. STANDISHII.

THE mild winter has been favourable to early-flowering shrubs. Prominent amongst these at Kew, Lonicera fragrantissima and L. Standishii, two Chinese Honeysuckles, introduced by Robert Fortune, have flowered especially well. From a superficial examination there appears to be very little, if any, difference between the two species, but growers familiar with both plants distinguish them as follows :—L. fragrantissima, semi-evergreen, except in very severe winters, leaves short and round in comparison, mature leaves glabrous, flowers slightly larger and a little later in flowering; L. Standishii, deciduous, leaves ovate-lanceolate, very hairy beneath, flowers in December and January.

Although comparatively small the flowers of both species are freely produced and deliciously fragrant. They are creamy-white, with a faint tinge of lilac on the outside.

A sunny, sheltered spot should be selected for the plants, which, although perfectly hardy, are benefited by a little protection in very severe weather.

Mr. E. H. Wilson has sent home from China a variety of L. Standishii, named lancifolia. This plant also has flowered this season in Kew Gardens. It has narrower, more pointed leaves than the type, and appears to be partly evergreen. *A. O.*

SCOTLAND.

SANQUHAR HORTICULTURAL SOCIETY.

MR. J. MILLIGAN has been appointed secretary of this society in succession to Mr. T. C. Salmon, who has resigned.

EDINBURGH CHRYSANTHEMUM SHOW.

THE Chrysanthemum Exhibition of the Scottish Horticultural Association will be held in the Waverley Market on Thursday, Friday and Saturday, November 14, 15 and 16. The heating and proper ventilation of the market having entailed a considerable expense, the rent of the building for the show has been increased.

THE ARBUTUS IN SOUTH SCOTLAND.

ARBUTUS UNEDO is not quite hardy in the South of Scotland. In some places, it is true, it is only killed to the ground in severe winters, and makes fresh growth from the base, whilst in a very few gardens it is satisfactory, and then the ivory-white flowers and scarlet fruits are welcome indeed. The writer has not found the fine A. U. Croomei any hardier than the type, but it is such a fine thing that it is worthy of cultivation, even though subject to being killed to the ground in severe winters.

HYMENANTHERA CRASSIFOLIA.

THIS neat little trailing shrub from New Zealand fruits but irregularly here, yet it is a useful subject for a little slope in the rock garden. It owes its value to its rigid, trailing, ash-coloured branches, with their small, leathery leaves. The violet-coloured flowers are small and scarcely visible a little distance from the plant. The berries are white, but with me they are not borne freely enough to be effective. Possibly my cultivation is at fault, but my plants are in light, peaty soil, and they have been hardy for several years.

GRANT FOR POTATO-GROWING EXPERIMENTS.

THE Development Commissioners have agreed to give a grant of £20 to Miss E. C. Dudgeon, Lincluden, Dumfries, towards the expenses of her experiments in the growing of Potatos by electricity. They will be continued at Lincluden Mains Farm, Dumfries. Miss Dudgeon's experiments with the Cooper Hewett lamp on plants under glass are still in progress

PRINCES STREET GARDENS, EDINBURGH.

THE Parks Committee has adopted the report of the sub-committee appointed to consider the proposed alterations at Princes Street Gardens, Edinburgh. The additional entrances will not be constructed for the present, as it is considered that the railings may be removed from their present position.

A FORESTER'S RUBY WEDDING.

MR. and MRS. MALCOLM M'GREGOR, Arden Cottages, Arden, have just celebrated their ruby wedding. Mr. M'Gregor, who has thus celebrated the sixty-fifth year of married life, and his wife, are both in their ninety-second year. He is still able to attend to his work as a forester.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

PROLIFEROUS HYACINTH.—I am sending, for your inspection, a photograph of the pink Hyacinth Moreno grown in a glass. The bulb produced six inflorescences, the flowers being all expanded at the same time, and there is still another spike developing. The spikes are from 5 to 5½ inches in length, covered with flowers, and the individual blossoms are large and full. I am interested to know if my specimen is a unique one. The growth of the bulb was curious from the start, as six of the spikes came out together (not one after the other as is usual) and the foliage came up intermixed with the flower-spikes. The whole had the appearance of a vase of cut flowers arranged with leaves. The bulb had to be secured to the glass and the flowers tied to each other as they were too heavy to support themselves. I have grown this specimen and others very successfully in glass vases without a glass-house. I put them at the end of September in a dark wardrobe, then after some six weeks they were brought into a cold room to grow slowly, and later stood in a warm room where the blossoms developed. I have another bulb with three flower spikes (Admiral de Ruyter), but the growth is not unusual. *M. C. Mawson, 7, Upper Park Road, Hampstead.*

SPRAYING FOR BIG BUD.—I am always pleased to read the remarks of *A Southern Grower*, they are so eminently practical, and it would give me great pleasure at some time to make his acquaintance and to visit his plantations. As I have had a somewhat heavy correspondence during the past week upon this subject, I think I cannot do better than follow out his suggestion to rewrite briefly in your columns the treatment I have used for Black Currant mite. I use quassia and soft soap, 4 ounces of the former and 2 ounces of soap to the gallon of water, applied with a fountain sprayer, the best implement I know for the purpose, and I commence to spray as soon as the buds unfold and spray at intervals of 10 days until the first week in June. As your correspondent says this covers a period of at least nine weeks and means half a dozen sprayings, which is rather a tall order when the plantation extends to 27 acres. I have never had to deal with an area of this size, the most I have sprayed would be three or four acres. I am careful to point out to correspondents that one or two sprayings are not of much use, for, although they may destroy countless mites, there are multitudes more to take the places of the slain, and they are migrating from the end of March till the beginning of June (varying, of course, with the season); in a favourable season for spraying, that is, when storms of wind and rain do not prevent the work being done with regularity, the pest ought to be practically got rid of in one year, but if the trees are very badly infested, or the number of sprayings much reduced by bad weather, a second season may be needed to effect a cure. I quite agree with *A Southern Grower* that it is a wise practice to pick off any big buds which may be seen at this time of the year where they are not too numerous, but I have seen gardens in Nottinghamshire and plantations in Sussex where this would entail picking off nearly all the buds, an even greater labour than spraying. There may be much excuse for a grower with large plantations studying the cost of getting rid of this pest, but surely in private gardens the owner should either attempt to clean his trees or destroy them, as there can be no doubt that his trees are likely to spread the mite to his neighbour's gardens. If one examines the mites with a powerful glass on a warm day they appear to be standing on their heads with feelers sticking up in the air, and I believe they attach themselves to any bees or other insects visiting the bushes, and are thus carried to fresh fields and pastures new. I fear the above description is not very scientific, but I hope it will be sufficient to call the attention of amateurs to an obvious duty, which is to endeavour to stamp out this pest. May I in conclusion ask if any of your readers who have tried this remedy during the past eight years will be good enough to relate their experiences? *A. H. Pearson.*

LARKSPURS AND ANTIRRHINUMS (see p. 91).—The general use of the Antirrhinum as a summer bedding plant synchronised with the appearance—for a like purpose—of the Larkspur. Each plant has many good qualities in common, and they may successfully be employed in combination. They are suitable for furnishing large beds where a blaze of colour is desired, and there are but few other subjects which will give such satisfactory results in this respect. Particularly effective last season were several large crescent-shaped beds planted with the violet-coloured Larkspur Victoria, with Antirrhinum Fire-King freely intermixed, the beds being finished off with a broad edging of Pelargonium Flower of Spring. Other beds of rose-coloured Larkspur, intermingled with white Antirrhinum, were scarcely less effective. Other combinations will suggest themselves according to individual taste. The taller-growing varieties of these popular plants should be selected. *Fred. W. Jeffery, Woodend Gardens, Renfrewshire.*

SOLANUM JASMINOIDES.—I have only seen this plant winter well in South Wales, Minehead, Weston-super-Mare, and similar western and seaside places, with the exception of one fine plant reaching the eaves of a house at Englefield Green, Surrey. I should like to know the experience of gardeners in inland places in the South and Lower Midlands with respect to the plant's hardiness. *Harold Evans, Llanishen, Cardiff.*

LEPTOSPERMUM BULLATUM.—This shrub is probably hardier than Mr. Fitzherbert's interesting account (see *Gard. Chron.*, February 17, p. 100) of it would indicate, for I have seen fine bushes of it smothered with flowers in North Wales. It has not been my good fortune to meet with specimens as large as those mentioned by Mr. Fitzherbert, but even the smaller examples I met with in Cornwall were decidedly ornamental. In colder districts it is very interesting to watch this shrub on the approach of spring. All through the winter the leaves and stems present a dry, withered appearance, and the flower-buds look very like hard seed vessels. To the uninitiated the plants seem doomed, and doubts arise as to its ability to make any fresh growth. But even a few days of genial weather have a wonderful effect; the leaves become fuller and lose their shrivelled appearance, the flower-buds show more green colouring matter, and in an incredibly short time the erstwhile dying shrub becomes starred with white flowers, the very picture of health and beauty. To hope for success with Leptospermum bullatum outside the Riviera districts of our islands, a warm, well-drained position is essential, and I am decidedly of the opinion that comparative dryness at the roots during cold weather is most necessary. This, of course, means that water must be regularly given during the summer months. *A. C. Bartlett.*

LEPTOSPERMUM SCOPARIUM (see p. 105).—Leptospermum scoparium is hardy in the gardens of Sir Herbert Maxwell, at Monreith, Wigtownshire, where it has attained considerable proportions, and flowers freely, although not planted against a wall. The climate at Monreith is very mild, but others may well try the plant out-of-doors in places which enjoy a mild winter. *S. Arnott.*

THE VALUE OF LIMESTONE AS A FERTILISER.—On p. 76 Mr. John Smith unreservedly recommends limestone in preference to burnt lime. The statement that 1 cwt. of limestone (carbonate of lime) is worth 2 cwts. of burnt lime is a peculiar one to make, because the latter is reconverted into carbonate of lime before it has been very long in the soil, and it can be distributed throughout the soil as well, if not better than limestone. My teaching regarding the effects of lime in the soil is contained in the following general statement:—(1) Lime is an essential plant food, and of special value to leguminous and root crops (Potatos excepted). Burnt lime is no better for this purpose than carbonate of lime (ground limestone, chalk, waste lime, &c.). (2) Lime neutralises acids, and therefore sweetens the soil as well as forming useful lime salts with the soil acids. Here, again, the carbonate of lime is as useful as the burnt lime, because any acid will drive out the carbon-dioxide of the limestone and take its place. (3) Lime is necessary for the formation of nitrate of lime in the soil, which is the chief natural nitrogenous food of plants. The carbonate is better for this purpose than the burnt lime, as the nitrifying bacteria, unlike most others, obtain their carbon from mineral carbonates, instead of from organic matter. Sulphate of ammonia is slow in its conversion to nitrate of lime unless carbonate of lime is present. Of course, burnt lime soon becomes carbonate again in the soil. (4) Lime sets potash free for plant use, only burnt lime being able to do this. Burnt lime is a rapid breaker up of organic matter, and is therefore very profitable to use on newly-broken up turf, or on peaty soils, or in old gardens that have been heavily manured for many years. It should not, of course, be applied to light sandy soil, because the object with such soils should be to accumulate organic matter, so as to make them more retentive. (6) Burnt lime can liberate phosphate of alumina or iron, and bring it back again into the phosphate of lime condition. This frequently happens on heavy land. (7) Lime is a prevention of "finger and toe" which revels in sour land. The carbonate will sweeten the land as well as, although much more slowly, than burnt lime. No doubt the latter will also kill the spores of the disease if these are brought into contact with it in the caustic state. (8) Burnt lime makes clay less adhesive or sticky by flosculating it, ground limestone will not do this. (9) Burnt lime should not in its fresh state be brought into contact with living and growing vegetation, such as pastures, because it retards growth, as carbonate, or in compost, it is most valuable. In summing up these considerations, I conclude that the use of ground limestone is to be preferred to burnt lime on light land or poor land that contains very little accumulated organic matter. On the other hand, burnt lime is preferable for use on strong land that has been well farmed or gardened, or on peaty soils. In this district ground limestone is about twice the price per ton of burnt lime, and this is a very important thing to consider. If burnt lime is allowed to slake and stored in the dry it will be reconverted into carbonate, and will then of course answer the same purpose as ground limestone. *W. B. Little, Carlisle.*

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

FEBRUARY 20.—*Present:* Mr. E. A. Bowles, M.A., F.L.S. (in the Chair); Sir John Llewelyn, Sir Everard im Thurn, Dr. Rendle, Messrs. J. O'Brien, W. Hales, C. E. Shea, G. Massee, G. Gordon, W. Cuthbertson, and F. J. Chittenden (hon. sec.).

Oncoba Routledgei.—Mr. SHEA remarked with reference to seedlings of this plant, that of 17 raised by him from one fruit 15 were spiny and two quite without spines (see *Gard. Chron.*, figs. 145, 146 and Supplementary Illustration, May 27, 1911).

Cœlogyne venusta—Sir FREDERICK MOORE Glasnevin, sent an inflorescence of this interesting species. It is a native of Yunnan. On the motion of Mr. O'Brien, seconded by Mr. Shea, it was unanimously resolved to recommend the award of a Botanical Certificate.

Violets with branched peduncles.—Miss DALTON sent from Sway, Hants., a number of Violets bearing branched peduncles, and apparently more or less fasciated. They had been cultivated in the ordinary way, but in some two or three specimens double flowers were produced at the apex of the common peduncle; in others the peduncles separated lower down. Several examples of a similar nature have been sent to the Committee during the present season from widely-separated localities, otherwise it appears that Violets are but rarely fasciated.

New Orange.—Mr. H. S. RIVERS sent a variety of Orange newly introduced, known as "Oonshin," "Satsuma," and "Kü Seedless." It is a Japanese variety somewhat like a Mandarin. The somewhat flat fruits shown were from maidens, and the variety is said to be almost hardy, ripening its fruit very early. The skin is thin and deep yellow; the flesh juicy, sweet, and well-flavoured; quite seedless. One of the calyx lobes in one fruit was somewhat foliose, an unusual character in the Orange.

Pyronia ×.—Messrs. J. VEITCH & SONS sent a fruit raised from Quince × Pear Bergamotte Esperen." A fruit from this cross has already been shown under the name Pyronia × "John Seden." The present example was borne on a second seedling from the same parent fruit. It was highly aromatic and much more rounded than the fruit previously shown. The flesh was firm and cream in colour, the eye sunken and the cells open, one containing an apparently well-developed seed.

Diseased Tulips.—Messrs. LOWE & SHAWYER sent some Tulips having poorly-developed and brown blotched leaves, the vascular tissue being marked with brownish streaks. They were referred to Mr. Massee for further examination.

Fumigation with hydrocyanic acid gas.—Mr. HALES referred to some results obtained at Chelsea Physic Garden lately in fumigating with hydrocyanic acid gas. The fumigation had been done on a very dull day, and the house had not been damped down for two days previous to the operation. The fumigation was with material of ordinary strength, but it had failed to destroy all the mealy bug, and had caused considerable injury to many plants, especially those with somewhat succulent leaves, such as Clivias.

LECTURE ON SWEET PEAS.

The following are extracts from the paper on "New Sweet Peas," read by Mr. W. Cuthbertson at the meeting of the Royal Horticultural Society, on the 20th ult.:—

By New Sweet Peas I mean the Waved or Spencer type, first shown by the raiser, Mr. Silas Cole, at that time gardener to Earl Spencer, at the exhibition of the National Sweet Pea Society in London in 1901. The first of this new race was named "Countess Spencer."

Writing to me in January of last year, Mr. Cole stated:—

"With respect to the origin of 'Countess Spencer,' I will tell you what happened. Being always very fond of Sweet Peas, I turned my attention specially to them in 1898. That summer I crossed the variety Lovely with Triumph, saved the seed, and the following year, 1899, there were two or three promising seedlings, the rest being rubbish.

"The good ones I crossed with Prima Donna, and the next season, that was 1900, there was one plant among the seedlings much stronger than any of the others, and it flowered much later than the other varieties. That proved to be the original 'Countess Spencer.' I just managed to save five seeds—one pod only. The following spring, after sowing them, I lost three of them in one night through mice. The stock was thus reduced to two plants, but from them I saved 90 seeds. It was from these plants I exhibited the flowers at the old Royal Aquarium for the first time. In 1902 I sowed all the seeds, every one came true, but, owing to it being a wet summer, I only managed to save about 3,000 seeds: 2,200 of these were sent, in 1903, to America to be grown for stock by Mr. Sydenham. Those that came back from America were a mixture of all sorts, no more like my true 'Countess Spencer' than night is like day. With me 'Countess Spencer' has never sported to this day. It has thrown reversions; that is, it has reverted to its parents, such as Lovely and Triumph, and on rare occasions to Prima Donna, but nothing else.

Some colour is given to the theory, held by some, that the variety Countess Spencer was a simple mutation by the fact that Mr. Eckford had in his grounds at Wem a flower of the same form and colour, though he had never shown it. Mr. Unwin obtained the variety Gladys Unwin about the same time. It came as a variation in Prima Donna, one of the parents of Countess Spencer, according to Mr. Cole. I have asked Mr. Eckford if he will throw light on the subject by making public the origin of his stock of Countess Spencer.

Mr. Sydenham sent the stock of Countess Spencer to America to be grown for seed purposes, and when these seeds were grown in this country the following year they produced, besides the true variety, a multitude of sorts entirely different from Countess Spencer. Out of the seed Mr. Sydenham distributed came directly and indirectly many of the waved varieties, which were introduced during the next few years. Immediately Countess Spencer was available as a parent, cross-fertilisation with it began, but the progeny took time to fix, and it was not until 1907 and 1908 that many varieties, the result of crossing, found their way on to the market. All others were selections from the original stock.

It is a simple operation to cross Sweet Peas, but it is by no means an easy task to follow it up. In 1907 I made a number of crosses, including The King × Primrose Seedling. I got seven seeds in the pod. These seven seeds were sown in the spring of 1908. It was a good summer, and from the seven plants I got 17¼ ounces of seed—over 5,000 seeds. 1909 was a bad season for Sweet Peas, and my seedlings and selections were reduced by 90 or 95 per cent.

In the continuous raising of Sweet Peas there is a constant renewal of varieties—re-invigorated no doubt, but practically the same as the named varieties already on the market. It is from this fact that all the trouble about naming arises. Take lavender-coloured Sweet Peas as an instance:—Mr. Breadmore is identified with Lavender George Herbert, Mr. Bolton with R. F. Felton, Messrs. Dobbie with Masterpiece, Mr. Burpee with Florence Nightingale, Mr. Morse with Asta Ohn, Mr. Unwin with Nettie Jenkins, Messrs. Bakers with Mrs. Charles Foster, and Miss Hemus with Lavender Paradise.

Rev. J. Bernard Hall said not long ago that "At present, apart from the National Sweet Pea Society's list, all seems chaos in Sweet Peas to the amateur." Let me remind you that there is another list—a very good one, too—the list issued by the Floral Committee of the Royal Horticultural Society last summer, after a very excellent trial had been made at Wisley. There the flowers were not judged from an exhibitor's standpoint, but as they appeared growing naturally in clumps in the border. They were commended "on account of their strong growth, and because of their non-burning qualities which add so immensely to their value for garden decoration."

The Spencer or Waved varieties recommended are Asta Ohn, lavender; Aurora Spencer, cream ground, flaked salmon-pink; Colleen, rose and white bicolor; Countess Spencer, pink; Dobbie's Sunproof Crimson; Elfrida Pearson, large pale pink or blush; Elsie Herbert, white, edged with rose; Etta Dyke, pure white; Gladys Unwin, pale rosy-pink: Ivanhoe, mauve; Isobel Malcolm, ivory; Lady Althorp, white, tinged with pale peach; Princess Victoria, clear blush pink; and Tennant Spencer, mauve.

If 14 be considered too many, the best six will include Etta Dyke (white), Dobbie's Sunproof Crimson, Elfrida Pearson, Elsie Herbert, Asta Ohn (lavender), and Nubian.

The Sweet Pea is going through a transformation similar to that which many other flowers have gone. From the old hooded or erect-standard type we have moved to the Wavy or Spencer types, and the next movement is in the direction of flowers with double standards. People who have not seen these double varieties imagine they are lumpy and ugly—quite the opposite is the case; the double standards give the flower a richness and intensity which for many purposes adds immensely to its value.

It is the practice of the best growers to sow the seeds in boxes or pots during January, February, or early March, and plant out the plants, in well-prepared land, in April, giving them plenty of room—never closer than 12 inches, often 18, 24, sometimes 30 inches apart if land is in specially good condition.

That is the only way to get grand flowers—flowers two or more inches across the standard, three and often four flowers on each stem, the stems being from 12 to 18 inches long.

In an average season flowers such as these should be available for three months in the South of England, and for four or five months in the North of England and in Scotland if the plants are well looked after, and not a single pod of seed allowed to form.

Sweet Peas are being sown more and more every season under glass. By sowing in September and growing the plants under cool conditions till January, when they should be potted and grown in a little heat, Sweet Peas may be had in good bloom during April, May, and early June.

HORTICULTURAL CLUB.

ANNUAL MEETING AND DINNER.

February 20.—On this date, at the Hotel Windsor, the home of the Horticultural Club, the annual meeting was held under the chairmanship of the president, Sir John T. D. Llewelyn, Bart. The report of the management committee for 1911 as read by the hon. secretary, Mr. R. Hooper Pearson, stated that the committee had the satisfaction of being able to point to a year in which the basis of the Club had been strengthened by the election of 46 new members. The losses by death and resignation numbered five,

SIR JOHN T. D. LLEWELYN, Bart.
Retiring President of the Horticultural Club.

showing a net gain of 41. The membership was now 161, this being the largest number the Club has recorded since its establishment in 1875 by the late Rev. H. H. D'Ombrain, Dean Hole, Dr. Maxwell Masters, Mr. Harry J. Veitch, Sir Edward Lee, and others. A separate report, prepared by Mr. Harry Veitch, the honorary treasurer, showed that the income of the Club for the year amounted to £172 18s. 9d., and the excess of income over expenditure to £12 18s. 1d., notwithstanding the fact that considerable sums had been spent on printing (list of members, rules, &c.). The present funds amounted to £450 in Consols, and £100 18s. 11d. bank balance.

During the past year monthly dinners and lectures were held as usual, excepting in June, August and September.

Concerning the management of the Club, the committee had to record the resignation of the hon. secretary, Mr. E. T. Cook, which took place at the last annual meeting. Following this resignation, the committee obtained the consent of Mr. R. Hooper Pearson to fill the position. Another change in the personnel of the Club had now to be made. The committee regretted to state that the esteemed president, Sir John Llewelyn, had felt it necessary to resign the position, which he had occupied since 1892, as he found it no longer possible to attend evening meetings. The Club would desire to offer Sir John Llewelyn their thanks for the services he had rendered for so long a period.

Following the resignation of the president, the committee asked the vice-president, Sir Frank Crisp, to allow them to nominate him for the office of president, and Sir Frank had kindly acceded to that request.

Sir John Llewelyn moved the adoption of the report and balance-sheet. He said that he had obtained great pleasure and profit from the Club during the 20 years he had been president. He had formed friendships in that room that he hoped would last as long as life, but he was nevertheless certain that the best interests of the Club would be served if a younger man than he accepted the presidency, for, unfortunately, he could no longer attend evening meetings with any degree of regularity. At the same time, he would always retain his interest in the Club and attend the meetings as often as possible. Sir John Llewelyn then proposed the election of Sir Frank Crisp to the office of president, and the motion was carried with acclamation. The committee was re-elected, and votes of thanks were passed to Sir John Llewelyn and the Hon. Secretary.

The meeting was followed by the annual dinner, which was attended by 75 members and friends, including ladies. The proceedings were enlivened by a musical programme, generously supplied by Sir Frank Crisp, who presided. The tables were tastefully decorated with flowers by Messrs. Jas. Veitch & Sons. Sir Frank Crisp, in proposing the toast of his Majesty the King, laid particular emphasis upon the courage evinced by the King and Queen in undertaking the visit to India. The toast of "The Club" was proposed in happy terms by Mr. W. A. Bilney, and responded to by Sir Frank Crisp. "The Royal International Horticultural Exhibition," proposed by Mr. P. Rudolph Barr, was responded to by Mr. J. Gurney Fowler, who took the opportunity of giving his audience a clear and detailed account of the various arrangements made in connection with that great horticultural enterprise. Mr. Fowler's speech was followed by a statement from the president to the effect that the Club would contribute a cup, value £25, to be awarded at the exhibition.

Mr. W. Cuthbertson proposed the toast of "The Visitors," and this toast was appropriately responded to by Mrs. H. W. Nutting. Mr. Harry J. Veitch proposed the toast of "The President," and, in a few happily-chosen words, welcomed Sir Frank Crisp to his new office. The toast was received with musical honours. The president replied, and next proposed the toast of "The Hon. Secretary, Mr. R. Hooper Pearson." The hon. secretary responded, and the proceedings afterwards terminated.

SCOTTISH HORTICULTURAL.

THE GARDEN CITY MOVEMENT.

(Concluded from p. 128.)

"Other things essential to the success of the garden city are a reasonably good soil, and a fairly pure atmosphere; above all, there must be no crowding of the dwellings and there must be plenty of open space. Comparisons have been made between Bournville boys and girls, and boys and girls reared in the slums of Birmingham. At the age of six, the weight of the Bournville boy exceeded that of the Birmingham slum boy by 6 lbs., and at the age of 12 by 8.6 lbs., while the difference in their heights at these ages were 2.2 and 2.5 inches respectively; in the case of the girls, the balance in favour of the Bournville girl at the ages of 6 and 12 were in weight 4.1 and 9 lbs. respectively, and in height 2.5 and 2.9 inches respectively. These bear out the accuracy of the experiment made by Glasgow School Board on over 70,000 school children, when it was found that children of families living in one room were shorter than the children of two-roomed families, and that the height of the children increased further as the rooms occupied by the family increased. The influence of the garden city environment, as compared with the slum environment, or even our modern tenement environment, on the improvement of the intellectual and moral condition of the people must be immense. The idea that tenement houses are essential in our climate, as seems to be believed by some, is a delusion, as is also the idea that gardening cannot be so successfully prosecuted among the working classes.

"Nowadays, we hear a great deal about school gardening in connection with the education of our children, and a very laudable effort is being made by the Open Spaces Committee of the Outlook Tower to convert waste spaces in the old town of Edinburgh into gardens for the people; and quite recently a proposal was made to establish gardening allotments in the Gorgie district. There can be no doubt about the propriety of instilling into every boy and girl by a little practical demonstration, no matter what walk in life he or she may afterwards tread, a love for gardening, and it can have nothing but an elevating influence, if nothing else, on the minds of our slum children, to draw them from the streets into these open spaces, in order, if possible, to give them a little interest in the art; but in our garden city all this would be part of their existence. The allotment idea is all very well in a way. To the town dweller who, perforce, has to live in one of these tenements I have been alluding to, the allotment affords a means not only of indulging in a hobby, but of providing healthy recreation for both mind and body, but to my mind the allotment is only a makeshift at the best. The tenant himself may benefit, but

SIR FRANK CRISP.
President of the Horticultural Club.

as the allotment must of necessity, in the majority of cases at any rate, be at some distance from his home (and the distance will generally be found to be greater or less according to whether he happens to live in a more or less densely populated part of the city), it cannot afford much in the way of facilities for obtaining fresh air and healthy enjoyment to his wife and family. Possibly, in some cases, it may even be the means of drawing the husband away too much from his family circle, whereas the garden city mode of life would have the opposite effect. In any case, the allotment garden is no solution of the housing question.

"Given cheap land and cheap and rapid transit I have said that all the other difficulties would vanish. Let us now refer for a moment to some of the advantages we now enjoy in the possession of plant materials of all kinds compared with what our forefathers had. We have now a wealth of hardy flowers and shrubs which were unobtainable, and in many cases unknown, 50 years ago. I need only mention the decorative Roses and Chrysanthemums, the new types of Sweet Peas, and the hardy herbaceous plants and bulbs which can be grown by the humblest cottager.

"It has often been remarked that in Scotland the working classes are far behind their English brethren in the cultivation of flowers, fruit, and vegetables, but I believe the reason for

this difference is largely due to the different conditions under which they are housed, though no doubt there are other reasons. But all this will, no doubt, soon be changed when we adopt the garden city plan of housing, which, after all, is based in its inception on 'the cottage homes of England.' I can conceive nothing which would have such a potent influence in the bringing about of more temperate habits in the people, of lessening vice and crime, of staying that mad rush after sport which seems to have seized our youth, and even some of our elders, in our large towns, than the cultivation of a taste for gardening, and the opportunity to prosecute it in one's own ground, for which the garden city offers such an inducement. Not that I condemn sport as such, for in our garden city we would have cricket and football fields, tennis courts and bowling greens, and every facility for healthy recreation by both old and young. But the mode of life would certainly have a steadying influence on our youth, and in what more delightful way could the artizan spend his leisure time than in his garden? What more wholesome influence could he exert on his children, to say nothing of the benefits which they would derive from it otherwise, than in the cultivation of his plants and flowers."

Obituary.

Thomas Sim.—Mr. Thomas Sim, of Greenmyre, Fyvie, Aberdeenshire, died recently at an advanced age. Mr. Sim was a keen lover of nature, and had studied the flora and fauna of the Buchan district of Aberdeenshire. Many successes followed his experiments in the hybridisation of plants, and he studied carefully the habits of bees, more particularly in their relation to cross-fertilisation of plants. For many years he took an active part in the affairs of the local horticultural society, and always filled a prominent place in the prize lists.

W. A. Garaway.—We regret to announce the death of Mr. William Alexander Garaway, of the firm of James Garaway & Co., Bristol, which occurred suddenly on the 19th ult., at the age of 75. Mr. Garaway, who had been in indifferent health for several months past, had carried on the business since the death of his father.

Thomas Muir.—Mr. Thomas Muir, gardener to Mrs. Hamilton Ogilvy, Biel, Prestonkirk, died on February 26. Mr. Muir was appointed gardener at Biel about 30 years ago, and he has since carried on the work of these beautiful gardens with satisfactory results.

THE WEATHER.

THE WEATHER IN WEST HERTS.

Week ending February 28.

The third week in succession of unseasonably warm weather.—The present warm period has now lasted three weeks, during which time there has not been a single unseasonably cold day, and only one cold night. The past week proved the warmest of the three, the highest day temperatures ranging between 50° and 56°, and on the warmest night the exposed thermometer never fell lower than 46°—making this the warmest February night for nine years. The ground is now unusually warm, the reading at 2 feet deep being 5° warmer, and at 1 foot deep 7° warmer, than is seasonable. Rain fell on five days, but to the total depth of little more than half-an-inch. About 3 gallons of rainwater came through the bare soil gauge during the week, and 2½ gallons through that on which short grass is growing. The sun shone on an average for only 1½ hours a day, which is less than half the mean duration for the same period in February. On three days no sunshine at all was recorded. The strength of the wind has been very variable; for instance, on two days the average velocity amounted to little more than a mile an hour; whereas, on two other days it averaged about 10 miles an hour; and in the windiest hour the mean velocity reached 18 miles—direction W.S.W. This, although by no means an unusually high wind for the time of year, was the highest recorded here for over seven weeks. The mean amount of moisture in the air at 3 p.m. fell short of a seasonable quantity for that hour by 3 per cent. *E. M., Berkhamsted, February 28, 1912.*

MARKETS.

COVENT GARDEN, February 28.

Cut Flowers, &c.: Average Wholesale Prices.

	s.d.	s.d.
Arums (Richardias)	2 0	2 6
Azalea, doz. bnchs.	3 0	3 6
Camellias, per box of 18's and 24's	2 6	—
Carnations, p. doz. blooms, best American var.	1 6	2 0
— smaller, per doz. bunches	18 0	21 0
— Carola, crimson, extra large	6 0	—
Eucharis, per doz.	2 6	3 0
Freesia refracta alba, p.dz. bun.	1 6	2 0
Helleborus (Christmas Roses), p. dozen	1 6	2 0
Hyacinth (Roman), pr. doz. bnchs.	4 0	6 0
Lilac, per bunch white	2 6	3 0
— mauve	3 0	3 6
Lilium auratum per bunch ...	4 0	5 0
— longiflorum, long, per doz.	2 6	3 0
— short, per doz.	2 6	—
— lancifolium alba, long ...	2 6	—
— — short ...	2 0	2 6
— speciosum rubrum, dz. blooms:		
— long	2 6	—
— short	0 9	1 0
Lily of the Valley, p. dz.bunches:		
— extra special ...	15 0	18 0
— special... ...	10 0	12 0
— ordinary ...	8 0	—
Marguerite, per doz. bunches:		
— Yellow... ...	2 0	2 6
Narcissus, per doz. bunches:		
— Double Van Sion	4 0	6 0
Narcissus, per doz. bunches:		
— Emperor ...	3 0	4 0
— Empress ...	3 6	4 0
— Golden Spur...	2 0	5 6
— Henry Irving	1 9	2 0
— Paper white ...	3 6	4 0
— Poeticus ...	2 6	3 0
— Princeps ...	2 0	3 0
— Sir Watkin ...	3 6	4 0
— Soleil d'Or ...	2 0	—
— Victoria ...	4 6	5 0
— Barrii	2 6	3 0
Orchids, Cattleya, per doz. ...	12 0	—
— Odontoglossum crispum ...	3 0	4 0
Pelargoniums, p. dz. bunches:		
— Double Scarlet	8 0	12 0
Roses, 12 blooms,		
— Bridesmaid,	4 0	5 0
— C. Mermet ...	4 0	5 0
— Liberty ...	3 0	6 0
— Niphetos ...	2 0	3 0
— Richmond ...	3 0	5 0
Snowdrops, p. doz. bunches ...	1 0	2 0
Tulips, per bunch:		
— double pink ...	1 0	1 6
— — yellow ...	1 0	1 6
— — scarlet ...	1 3	1 6
— p. dz. bunches:		
— white	6 0	8 0
— yellow	6 0	7 0
— scarlet ...	6 0	8 0
— bronze... ..	8 0	9 0
— pink	6 0	8 0
Violets, per dozen bunches ...	1 3	2 0
— Princess of Wales, per doz. bunches ...	3 0	4 0
— Parma	1 9	2 0
Wallflowers, per dozen bunches	2 0	2 6

Cut Foliage, &c.: Average Wholesale Prices.

	s.d.	s.d.
Adiantum Fern (Maidenhair), best, dz. bnchs.	7 0	8 0
Agrostis (Fairy Grass), per dz. bunches ...	2 0	4 0
Asparagus plumosus, long trails, pr. ½ doz.	1 6	2 0
— medium, doz. bunches ...	12 0	18 0
— Sprengeri ...	10 0	12 0
Carnation foliage, doz. bunches...	4 0	—
Croton foliage, various, per dozen bunches ...	12 0	15 0
Cycas leaves, artificial, per doz.	3 0	12 0
Eulalia japonica, per bunch ...	1 0	1 6
Moss, per gross ...	6 0	—
Myrtle, dz. bchs. (English), small-leaved ...	6 0	—
— French ...	1 0	—
Smilax, per bunch of 6 trails ...	1 0	1 3

Plants in Pots, &c.: Average Wholesale Prices.

	s.d.	s.d.
Aralia Sieboldii, p. dozen	6 0	7 0
Araucaria excelsa, per dozen ...	18 0	21 0
Asparagus plumosus nanus, per dozen	10 0	12 0
— Sprengeri ...	8 0	9 0
Aspidistra, p. dz., green	21 0	30 0
— variegated ...	30 0	60 0
Azaleas, per doz.	36 0	42 0
Cinerarias, pr. dz.	8 0	9 0
Cocos Weddeliana, per dozen:		
— 60's	6 0	12 0
— larger, each ...	2 6	10 6
Croton, per dozen	18 0	30 0
Cyperus alternifolius, per doz.	5 0	6 0
— laxus, per doz.	4 0	5 0
Daffodils, per dozen	6 0	8 0
Dracæna, green, per dozen ...	10 0	12 0
Ericas, per dozen:		
— hyemalis ...	10 0	12 0
— alba	10 0	12 0
Ferns, in thumbs, per 100... ...	8 0	12 0
— in small and large 60's ...	12 0	20 0
— in 48's, doz. ...	6 0	—
Ferns, choicer sorts, per doz.	8 0	12 0
— in 32's, pr. doz.	10 0	18 0
Ficus elastica, per dozen	9 0	12 0
Genistas, 48's, doz.	10 0	12 0
Geonoma gracilis, 60's, per dozen	6 0	8 0
— larger, each ...	2 6	7 6
Hyacinths white & clrd., p. dz. pots	10 0	12 0
Kentia Belmoreana, per dozen	5 0	42 0
— Fosteriana, 60's, per dozen	4 0	6 0
— larger, per doz.	18 0	60 0
Latania borbonica, per dozen ...	12 0	30 0
Lilium longiflorum, p. doz.	20 0	24 0
— lancifolium rubrum in pots, per dozen ...	15 0	18 0
— lancifolium alba	15 0	18 0
Marguerites, white, per dozen ...	8 0	10 0
Pandanus Veitchii, per dozen ...	36 0	48 0
Phœnix rupicola, each	2 6	21 0
Spiræa japonica, p. dozen pots ...	10 0	12 0

Fruit: Average Wholesale Prices.

	s.d.	s.d.
Apples (English cookers) bushel	6 0	12 0
— Nova Scotian, per barrel ...	17 0	22 0
— Californian Newtowns, pr. case	9 0	11 0
— (Canadian), per barrel	20 0	—
— Oregon (Hood River), per case	16 0	18 6
— American, per barrel	20 0	32 0
Bananas, bunch:		
— Doubles ...	10 0	12 0
— No. 1 „ ...	8 0	10 0
Bananas, bunch:		
— Extra	10 0	12 0
— Giant „ ...	14 0	18 0
— Loose, per dz.	0 6	1 0
— Red coloured...	5 6	6 6
— Jamaica Giants, per ton ...	£10	£12
— Jamaica Ordinary, per box (9 doz.) ...	4 0	5 0
Cranberries, per case (30 qts.) ..	10 0	11 0
— Cape Cod, per case (30 quarts)	9 6	—
Dates (Tunis) doz. boxes	4 6	5 6
Grape Fruit, case: — 96's ... ... — 80's ... ... — 64's ... ... — 54's	14 0	20 0
Grapes (English), per lb.:		
— Black Alicante	2 0	3 0
— Gros Colman...	1 6	3 0
— (Belgian), Gros Colman, p. lb.	0 9	1 3
— Almeria, p. brl.	11 6	15 6
Per dozen lbs.	3 0	4 6
— (Cape) per case	4 0	10 0
— „ White...	6 0	8 0
Lemons:		
— (Naples), case	26 0	30 0
— Messina, per case	7 6	17 0
Limes, per case ...	4 0	—
Mangoes, per doz.	4 0	6 0
Melons (Cape) ...	0 10	1 6
Nuts, Almonds, per bag	52 6	—
— Brazils, new, per cwt. ...	85 0	160 0
— Spanish, p. sack	40 0	42 0
— Barcelona, bag	35 6	36 6
Nuts, Chestnuts, per bag ...	3 6	12 0
— Cocoanuts, 100	18 0	23 0
— English Cobs per lb.... ...	0 3	—
— Walnuts (Naples) kiln dried, cwt. cases	54 0	—
Nuts, French Grenobles, per bag	6 6	7 0
— Boeris, per bag	6 0	7 0
Nectarines (Cape) per box ...	4 0	6 0
Oranges, Jamaica per case ...	9 0	10 0
— Californian ...	20 0	22 0
— Dons, case ...	16 0	34 0
— Valencia ...	10 0	12 0
— Jaffa, per case	9 6	—
— Blood, per case	8 0	9 0
— Mandarins, per box ...	0 6	3 6
— Butter, per ½ chest	16 0	18 6
— Seville Sour ½ chest ...	15 0	18 0
Peaches (Cape), pr. case	3 0	8 0
Pears (Californian), per case ...	10 6	16 6
— Glou Morceau	11 6	12 6
— Easter Beurré	8 6	—
— Winter Nelis	12 6	13 6
— (American) per barrel, 180 lbs.	25 0	26 0
— cases	7 0	—
— (Cape)	3 0	4 0
Pineapples, St. Michael ...	2 6	5 0
Plums (Cape), per case	2 0	4 0
— Apple, per box	5 0	7 0
Strawberries, p. lb.:		
— A quality ...	24 0	—
— B quality ...	16 0	—

Vegetables: Average Wholesale Prices.

	s.d.	s.d.
Artichokes (Globe), per dozen ...	3 0	4 0
— Ground, per ½ bushel ...	1 0	—
Asparagus, Sprue..	0 9	—
— Cavaillon ...	3 0	—
— Laurie ...	5 0	6 0
— Paris Green ...	4 6	5 0
Beans, Madeira, per basket... ...	5 0	8 0
— Guernsey, Dwarf, per lb.	3 0	3 6
— French, per packet, lb. ...	1 6	1 9
Beetroot, p. bshl.:		
— Long	2 0	2 6
Broccoli, sprouting, per bag ...	3 0	3 6
Brussel Sprouts, per ½ bushel ...	1 6	2 0
— half bags ...	2 0	3 0
Celeriac, per doz.	2 6	3 0
Cabbages (French) per dozen ...	3 0	3 6
— (English), per tally	6 0	10 0
Cauliflowers, p. dz.	2 0	2 6
— (Italian), p. pad	2 0	3 0
— (Cornish), per crate	10 0	12 0
Celery, doz. bndls.	10 0	14 0
— (washed), per dozen bundles	10 0	16 0
Carrots (English), pr. doz. bun....	1 6	2 0
— per cwt. ...	3 6	4 6
— (washed) p. bag	4 0	5 0
Chicory, per lb. ...	0 4	—
Cucumbers, p. doz.	8 0	12 0
Endive, per dozen	2 0	—
Greens, per bag ...	2 6	3 6
Herbs (sweet), pkts., p. gross	7 0	—
Horseradish, 12 bundles ...	12 0	14 0
Leeks, per doz. ..	2 6	3 0
Lettuce (French), per doz. ...	1 6	2 0
Mint, pr. dz. bchs.	5 0	6 0
Mushrooms, cultivated, p. lb. ...	0 7	0 8
Mustard and Cress, pr. dz. punnets	1 0	1 6
Onions (Dutch) per bag	7 6	8 0
— English ...	8 6	9 0
— (Spanish), per case	8 6	9 6
Parsley, ½ sieve ...	2 0	2 6
— per doz. bun.	2 6	3 0
Parsnips, per bag	4 6	5 0
Peas (French) p. pad	5 0	6 0
— (Guernsey), lb.	3 6	—
Radishes (English), per dozen ...	0 9	1 0
Rhubarb, forced, per 12 bundles	0 8	0 10
Savoys, per tally..	10 0	12 0
Spinach, per bushel... ..	3 0	4 0
Seakale, p. punnet	1 0	1 3
Tomatos (Canary Islands), per bundle... ...	12 0	16 0
Turnips (English), per dz. bunches	2 0	2 6
— bags (washed)	4 6	5 0
— (unwashed) ...	3 6	4 0
Turnip Tops, per bag	2 6	3 0
Watercress, p. dz. bunches ...	0 6	0 6½

Remarks.—Heavy shipments of Apples are arriving weekly from Nova Scotia and California. Home-grown Apples are limited to the varieties Bramley's Seedling, Dumelow's Seedling (Wellington) and Annie Elizabeth. Prices for both English and Belgian-grown Grapes are firmer owing to a gradually-decreasing supply of the home-grown bunches. Two thousand four hundred and ninty-four boxes of Grapes have been received from Cape Colony, consisting principally of the variety Black Hermitage. The remainder of the consignment of Cape fruits consisted mainly of Plums, Pears, Peaches, Nectarines and Melons, amounting to about 20,000 boxes in all. There has been a considerable decrease in supplies from the Canary Islands this week due to the stranding of the s.s. "Salerno" off Cape Finisterre, with a cargo consisting of 20,000 packages of Bananas, Potatos and Tomatos, valued approximately at £12,000. There was a further heavy loss of Bananas which arrived per s.s. "Avondale Castle" in an inferior condition through overheating, the whole of the bunches being over-ripe. A few forced Strawberries are arriving daily from the Worthing district. The market is glutted with forced Rhubarb, which can only be cleared at very low rates. Supplies of forced vegetables are expected to increase daily. Outdoor vegetables have been plentiful and their prices are well maintained. *E. H. R., Covent Garden, February 28, 1912.*

Potatos.

	per cwt. s.d.	s.d.		per cwt. s.d.	s.d.
Kents—			**Lincolns—**		
Queen's ...	4 0	4 6	Maincrops	4 3	4 6
Up-to-Date	4 0	4 6	Blacklands	2 9	3 3
Lincolns—			**Bedfords—**		
Up-to-Date	3 9	4 6	Up-to-Date	3 9	4 0
British Queen	3 9	4 3	Puritan ...	4 0	4 3
King Edward	4 0	4 6	**Dunbars—**		
Epicure ...	3 0	3 6	Up-to-Date	5 0	5 3
Northern Star	2 9	3 6	Maincrop	5 3	5 6
Evergoods	3 0	3 9			

Remarks.—Trade is not good, and stocks in London are still very large. But the bulk of the tubers are only of second-rate quality, and best Potatos are not plentiful. *Edward J. Newborn, Covent Garden and St. Pancras, February 28, 1912.*

ANSWERS TO CORRESPONDENTS.

*** *The Editors will be glad to receive, for consideration, large photographs of horticultural subjects, suitable for reproduction in this Journal.*

AZALEA (RHODODENDRON INDICUM): *H. F. C.* Indian Azaleas are usually propagated from cuttings of half-ripened shoots inserted in sandy soil and placed in gentle bottom heat. They may also be increased by layering, or by grafting on stocks of the type.

BELL-BIND (CONVOLVULUS SEPIUM): *A. G.* The best plan to eradicate the underground stems of this Convolvulus is to trench or dig the ground deeply and remove and burn every portion of the plant met with. Frequent hoeings in summer time would enfeeble the plants, but they are very persistent, and it is doubtful if you would rid the ground of the pest by this means.

BOOKS: *J. W., California.* One of the best of the smaller text books dealing with morphology and classification is that by Professor Groom, entitled *Elementary Botany*, which can be obtained from our publishing department, price 3s. 10d., post free. It is not so easy to recommend a small book giving instruction in the use of the microscope; but you will probably find the *Elementary Practical Botany* of Professor Bower useful for your purpose.—*E. Sanders. Natural History of Plants*, by Anton Kerner, obtainable from our publishing department, price 31s., free by post.

GLASSHOUSES FOR MARKET PURPOSES: *Constant Reader.* Let the side and end walls of the glasshouses consist of 4½-inch brickwork with 9-inch footings, 9-inch piers being built into the 4½-inch work at intervals of 7 feet on 14-inch foundations, and flush with the walls inside. Two rows of piers built as indicated above will support the valley gutters and plates for fixing the rafters to in connection with plates on the side walls and the ridges. We should advise you to have a 4½-inch division wall between the third and second houses (west side of the block) to enable you to maintain a higher atmospheric temperature for forcing Roses or Carnations into flower. The walls and piers may be 4 feet high from the floor line. Ventilating boxes, 6 inches wide and 15 inches long, should be built into the outside walls, two courses of bricks below the wall plates and between the piers, with shutters attached for opening and fastening from the outside. The items of wood necessary in the construction of your three houses are as follow:—Wall and end plates, 3 inches by 4 inches; rafters 1½ inch by 3 inches and about 11 feet long; ridges 1½ inch by 7 inches, these being grooved on both sides in a line with the bed of the rafters to receive the top square of glass; coping 1 inch by 5 inches, with the upper angles slightly rounded. The door-frames should be made of timber 3 inches by 4 inches (the lentel being bevelled to prevent water lodging), with oaken sills of the same size; the doors, 6 feet 6 inches by 2 feet 8 inches, should be hung on substantial hinges, and provided with galvanised rim locks. The woodwork should receive two coats of paint before being fixed, and a third afterwards. The wood should consist of well-seasoned yellow deal. The rafters should be fixed 18 inches apart by nailing them to the wall plates and ridges of the individual houses. The roofs of houses, 20 feet wide or more, should be strengthened by and nailed to purlines, fastened on the rafters and supported vertically by lengths of gas-tubing 1½ inch in diameter (outside measurement), resting on brick or cement piers at intervals of 8 or 9 feet. Each span house should be provided with two sets of roof ventilators, one row on either side. The ventilators, 3 feet long and 18 inches wide, should be hung on watertight hinges secured to the ridge on either side at intervals of four bays, and the ventilators on one side should be fixed anglewise to those on the other side, and be regulated by Wolland's or other approved continuous opening gear. The roof should be glazed with 21-ounce glass, using panes 18 inches wide and 22 inches long (stock size), six panes to each pair of rafters. Bed the glass in best quality putty. Leave out the top panes in every fourth and fifth pair of rafters where the ventilators are provided. A transom, 1½ inch by 3 inches, should be made to fit flush with the upper surface of the rafters, so as to enable the ventilators to shut down quite close. In the matter of staging, you might have a stage along the centre of each house, with a narrower one on either side, with narrow pathways between the wide and the narrow stages. Employ six rows of 4-inch water pipes in the house partitioned off from the other two, and a No. 2 horizontal tubular or other approved boiler will heat the three houses. The two outside walls should be strengthened from the inside of the houses by iron stays, with a foot, turned up 1 or 2 inches at the end, let into the ground at intervals of 10 feet, about 15 inches from the base of each wall, and secured on the top of the wall plates by a coach-bolt. A bucketful of concrete should be put into each hole on top of the foot of the individual stays.

IMPORTED ORCHID: *H. S.* The plant is a species of Eulophia (some of which are often called Lissochilus), a genus widely distributed in South and Tropical Africa. The species belong to the chain-rooted section, the flattened, underground tubers forming a series joined at their ends. The plants do not flower until they have formed from three to a dozen tubers connected with each other. The plant collector generally collects pieces of one or two tubers, and, when received in gardens, the plants have little chance of growing or blooming. Consequently, when offered for sale they realise but a very low price,

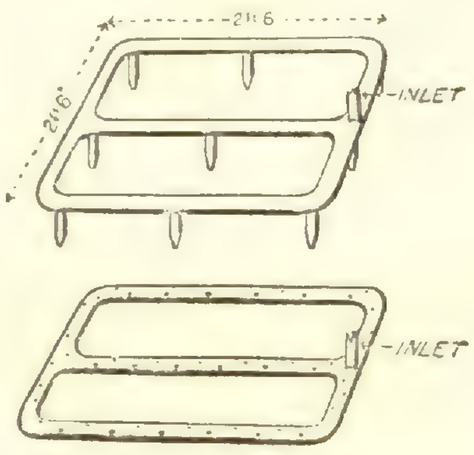


FIG. 60.—THE "HARROW" AND "GRIDIRON" METHODS OF STERILISING SOIL.

unless they are purchased by someone who is ignorant of their nature. Eulophia having a Phaius-like growth, although very difficult to import, grow well and provide very beautiful flowers. These include L. Horsfalliæ and L. giganteus. Another section which includes Eulophia streptopetala and Lissochilus Knebsii are also beautiful and free-growing Orchids.

LAWN TENNIS COURT: *A. G.* As the lawn has made such an exceptionally fine sward, it would be unwise to apply an iron rake for the purpose of scarifying and thinning the grasses, which is only practised when the turf is weedy or moss is present in quantity. By rolling and mowing on frequent occasions, and applying some nitrogenous manure at intervals during the spring, the lawn should continue in a satisfactory condition.

NAMES OF FRUITS: *W. Riddell.* Golden Russet. —*J. W. Miles.* 1, Minchull Crab; 2, Byford Wonder.

NAMES OF PLANTS: *T. P. A.* 1, Abies Pinsapo; 2, Picea excelsa; 3, Sequoia sempervirens; 4, Thuya occidentalis; 5, Abies cilicica; 6, A. Nordmanniana; 7, Thuya plicata (gigarteum); 8, Cupressus Lawsoniana; 9, 10, 13, 14, C. Lawsoniana; 11, Thuya plicata; 12, T. orientalis; 15, T. occidentalis lutea.—*N. F. P.* A species of Acer, probably A. dasycarpum.—*Staffs.* Acacia longifolia.

PINES AT BOURNEMOUTH: *Essex.* The majority of the trees are the common Scots Fir, Pinus sylvestris, but P. Pinaster was introduced in 1805, and is now locally abundant and self-propagating. See note on Bournemouth Parks and Gardens by *H. S. T.* in *Gard. Chron.*, July 16th 1910, p. 38.

PLANTS CAUSING SKIN IRRITATION: *E. S.* An article on plants causing skin poisoning was published in *Gardeners' Chronicle*, August 8, 1908, p. 110. We know of no series of post-cards such as you require.

PRUNUS TRILOBA: *H. F. C.* This plant is commonly propagated by budding it on the Mussel or Myrobella Plum stock; but it is not, as a rule, satisfactory when worked, the best and longest-lived plants being those obtained from layers or from cuttings. The latter are rather difficult to root, but, when struck, they make good plants.

SOIL STERILISATION: *Constant Reader.* The subject of apparatus for soil sterilisation is not very far advanced, and there is considerable room for ingenious and useful work on the part of the horticultural engineers. Good results have been obtained (1) by leading steam into the soil through a series of pipes made of gas-piping shaped like a harrow with nine tynes out of the ends of which the steam issues (see fig. 60). The instrument may be 2 feet 6 inches square and tynes 9 inches long; the best dimensions, however, are not settled. It is placed tynes downwards in a wooden case without top or bottom capable of holding about a cubic yard or more of soil. Soil is filled in, and steam at a pressure of 50-80 lbs. is blown in for 20 minutes. As each yard of soil is done it is thrown into a heap to cool gradually. By having two instruments at work the boiler is kept constantly going. The heap should not be exposed unnecessarily to rain as valuable plant food speedily forms and is liable to be washed out. (2) A grid-iron instrument may be used in exactly the same manner with a series of small holes drilled in the pipes (see fig. 60). (3) In the United States of America drainage pipes are sometimes laid in the house at about 9 inches below the surface, steam is then blown in for two hours and allowed to escape through the soil. This method has obvious disadvantages for English greenhouse practice. (4) Another American device successfully used for sterilising tobacco seed beds is to make a steam-tight oblong box of stout galvanised iron 10 feet by 6 feet by 6 inches, lay it on the soil prepared for sowing, and push it down 1 or 2 inches, then blow steam in at 80-100 lbs. for 40 minutes. On the principle of the warming pan the soil speedily becomes heated. This is sometimes done by contract at a charge of ¾ cents per square foot; its advantage is that it does not necessitate moving the soil from the house.

YOUNG VINES: *F. Spicer and Anxious.* Young vines should not be cut back at this stage, or they will bleed freely. They should have been cut back in December, before the sap commenced to rise. When the buds break, rub them off down to the point from which you decide to take up the leading growth which is to form this season's rod. Although it is desirable to take the young growth from as near to the base as possible, in some circumstances you would be quite justified in selecting a growth from 1 or even 2 feet above the ground. For instance, if the front wall of your vinery is 3 or 4 feet high, it would not be wise to take a growth from the base of the vine. If you intend to grow the vines on the single rod principle, you must not take up more than one leading growth. To bring up three growths as you suggest would rob the permanent rod of much strength. If the vines make good progress, you may stop them first when they have made about 5 feet of growth, and twice more before they reach the top of the house. A one-year-old vine is a plant which was propagated from an "eye" or cutting at the beginning of last year. A two-year-old vine is one which was propagated two years ago and cut hard back after the first season's growth. The plants are repotted in larger pots when they have started again into growth early in the following year, with a view to obtaining strong, fruiting canes. These vines are specially grown for fruiting in pots. Advice on the treatment of young vines is given from time to time in the weekly calendar on the cultivation of "Fruits under Glass."

Communications Received.—H. C.—S. & Sons—F. Z.—A. S. & Co.—E. B., Isleworth—A. P. L.—W. G. S.—A. H. S. A.—M. A. K., Amsterdam—H. R. D.—A. B. S.—H. R., Holland—R. J. W.—W. E. B.—F. J.—W. F.—W.M., Naples—F. S.—T. G. W. H.—H. H. S.—C. E. M.—A. R. W.—G. M. T.—J. H.—W. P. R.—W. B.—H. S.—E. S.—Correspondent—W. A. M.—T. F., Warlingham—J. T.—W. A. C.—W. B. L.—Anxious—W. K., Aberdeen—J. P. P. New Zealand—B. G. A.—W. Brown—Perplexed—J. H. C.

THE GARDENERS' CHRONICLE

ESTABLISHED 1841 — No. 3715

No. 1,315.—Vol. LI. {THIRD SERIES.} SATURDAY, MARCH 9, 1912. {Registered as a Newspaper. WITH SUPPLEMENT.} {PRICE 3d. POST-FREE, 3½d.

SUBSCRIPTION—Inland, 15/-; Foreign, 17/6 [22fr. 10c.] [$4 26c.] per annum. Entered at the New York Post Office as second-class matter.

Postal Address—41, Wellington Street, Covent Garden, W.C. Telegraphic Address—"Gardchron, London." Telephone—Gerrard, 1543.

☞ For CONTENTS see page 147.

The Best Potatos.

WEBBS' COLONIST (First Early).
4s. per peck; 14s. per bushel.
Mr. M. BAILEY, Hindlip Park Gardens, writes:—"Your 'New Colonist' is a marvellous cropper, of good size, and without disease."

WEBBS' GUARDIAN (Second Early).
3s. 6d. per peck; 12s. per bushel.
Mr. E. BECKETT, Aldenham Gardens, writes:—"Unquestionably one of the very finest potatos yet raised; the heaviest cropper and best disease-resister we grew."

WEBBS' GOLDFINDER (Main Crop).
3s. 6d. per peck; 12s. per bushel.
Mr. T. H. BOLTON, Powderham Castle Gardens, writes:—"By far the best main-crop variety I grow; good quality, entirely free from disease, and a great cropper."

WEBB & SONS, The King's Seedsmen, WORDSLEY, STOURBRIDGE.

RITCHIE'S SWEET PEAS.—Universally acknowledged to be the best procurable; Exhibition collection, containing the best 12 Spencers, viz., Asta Ohn, Clara Curtis, Edna Unwin, Elsie Herbert, Gladys Burt, Jno. Ingman, Marj. Linzee, Maud Holmes, Mrs. Sykes, Mrs. Breadmore, Prince Asturias, Tennant Spencer, 30 seeds each, 2s. 6d., post free; Sweet Pea list free on request.—
A. S. RITCHIE & CO., Seedsmen, Belfast.

HUTS FOR THE GARDEN.—Fruit Rooms, Potting Sheds, Workshops, Cycle Houses, Boot Rooms, Servants' Mess Rooms, Children's Playrooms, &c. Send for Illustrated Catalogue, free.
BOULTON & PAUL, Ltd., Norwich.

DICKSONS Horticultural Manure & other high-class Fertilizers; also Dicksons Improved Mushroom Spawn. Priced Circulars free on application to DICKSONS, Royal Seed Warehouses & Nurseries, Chester

THE Popularity of "XL ALL" Specialities increases every year. All gardeners proclaim that nothing equals these celebrated preparations. "XL ALL" NICOTINE VAPORISING COMPOUND, the gardeners' favourite Fumigant, both Liquid and Cake. "XL ALL" NICOTINE INSECTICIDE WASH for Syringing, Dipping and Dressing Fruit Trees and Plants; Mealy Bug, Scale, etc., cannot exist where this is used. "XL ALL" INSECTICIDE WASH B (*sine* Nicotine), best non-poisonous Wash on the Market. No licence required to sell this. Other preparations of great renown, both poisonous and non-poisonous, are:—"XL ALL" WEED KILLER, "XL ALL" FERTILISER, "XL ALL" ROSE MANURE, "XL ALL" WINTER WASH for Fruit Trees, etc. Don't forget to ask your Nurseryman, Seedsman or Florist for Richards' small pink list.—G. H. RICHARDS, Manufacturer, 234, Borough High Street, London, S.E.

WALTERS & CO., Morland Rd., Croydon, Makers of Lath Roller Greenhouse Blinds; Trellis Screens and Fences, Arches, Arbours, Rose Pillars. Established over 20 years. Write for new 1912 Catalogue.

DOUGLAS'S CARNATIONS & PINKS, border and perpetual, are noted all over the world. 5 Gold Medals, R.H.S., 450 Medals and Cups. Newest and best varieties at most reasonable prices, all ready for planting or potting on. Finest hand fertilized seed only sold. Carnation and Picotee seed, all types, 1s. 6d. to 2s. 6d. packet. Auricula, Pink, Polyanthus, finest strain in existence, all 1911 fine crop, now ready for sowing. Send for catalogue, Edenside, Gt. Bookham.

MACKENZIE AND MONCUR, Limited, Hothouse Builders and Heating Engineers, London, Edinburgh, and Glasgow. By Special Appointment to H.M. The King,
London Office: 8, CAMDEN ROAD, N.W.

SUTTON'S CENTENARY PEA.
Per pint, 2s.; quart, 3s. 6d., post free.
Mr. W. EASTHOPE, Gardener to Miss Pittar, writes:—"Centenary as a Mid-Season Pea is very hard to beat. I had a fine crop, some pods containing 11 or 12 peas of excellent flavour."

SUTTON & SONS, The King's Seedsmen, READING.

GISHURST COMPOUND is harmless in use; its soluble Sulphur, &c., has for 40 years cured Blights and Fungus on Plants, and is good for washing unhealthy dogs. Gishurstine keeps boots dry in all weathers; they will polish. Good for Harness.
Wholesale from—
PRICE'S PATENT CANDLE CO. LTD., London.

OSMUNDA for Orchids.—Consignments arrive fortnightly. 2s. 6d. per bushel; per bag, 8s. 6d.
SANDER & SONS, St. Albans.

ALPINES & HERBACEOUS PLANTS, —Himalayan and other rare Rhododendrons, rare Shrubs, Construction of Rockeries. Catalogues ready.
G. REUTHE, Keston, Kent.

TO NURSERYMEN.—THE NEW PATENT MULTI-DIBBER. Indispensable to all who raise seedlings in boxes, frames, or in the open ground. Send for special list with prices.
BOULTON & PAUL, Ltd., Norwich.

AUTO SHREDS FUMIGANT kills Leaf-mining maggot, insects in greenhouses, frames. For 1,000 cubic feet, 6d.; 10,000, 3s. 6d. No apparatus.
WM. DARLINGTON & SONS, Patentees, Hackney, N.E.

BARR'S VEGETABLE AND FLOWER SEEDS of finest selected strains and tested growth. Descriptive Catalogue, with Cultural Notes, free.

BARR'S BEAUTIFUL LILIES, GLADIOLI, MONTBRETIAS, CANNAS, TIGRIDIAS, etc. for Spring planting. Special Catalogue free.
BARR & SONS, 11, 12 & 13, King St., Covent Garden, London.

BARR'S REMOVAL SALE OF HARDY PLANTS.—Clearance List of surplus plants at greatly reduced prices (prior to removal of nurseries from Surbiton to Taplow), post free.
BARR & SONS, 11, 12 & 13, King St., Covent Garden, London.

To the Trade.

COOPER, TABER & CO., Ltd., have posted their Wholesale Catalogue of Agricultural Seeds to all their customers. If not received, another copy will be sent on application.—90 & 92, Southwark Street, London.

GREENHOUSE PAINTING & GLAZING "Vitrolite" superior to White Lead Paint, 9/- per gall. "Plastine" supersedes Putty, 16/- per cwt. Full particulars from W. CARSON & SONS, Grove Works, Battersea.
Agents throughout the country.

FIDLER'S NEW ILLUSTRATED CATALOGUE of CHOICE GARDEN SEEDS will be sent post free to any address on receipt of postcard. Write at once for a copy; it may help you to save 50 per cent. on your seed bill this season.
FIDLER & SONS, Royal Berkshire Seed Stores, Reading.

LANDSCAPE GARDENING.—W. INNES STUCKEY, Landscape Gardener, Piccadilly Mansions, Piccadilly Circus, W. (With the late Mr. H. E. Milner).

BATH'S SELECT SEEDS.—New Illustrated Catalogue of Choice Vegetable and Flower Seeds, with full cultural notes, is now ready, and will be sent post free on application.
(Dept. A), R. H. BATH, Ltd., The Floral Farms, Wisbech.

FRUITING VINES IN POTS.—Muscat of Alexandria, and leading Market varieties. We make Vines a speciality.
G. COLEMAN, The Vineries, Burgess Hill, Sussex.

For Advertisement Charges see page x.

KELWAY'S "Manual of Horticulture" is the best of all Garden Books, 2s., post free. From —, Esq., Northwood, Middlesex, September 28th, 1911: "I find that I have never forwarded 2s. for your lovely Catalogue you sent me some weeks since. It would be cheap at five times the price, and I sincerely regret the oversight."—KELWAY & SON, Langport, Somerset.

THE MODERN HERBACEOUS BORDER.—Full particulars and prices of Kelway Borders packed, arranged for planting, to flower in tasteful schemes of colour, from—KELWAY & SON, The Royal Horticulturists, Langport, Somerset. From ——, Esq., Pittsburg, Pa., U.S.A. "I take pleasure in advising you that I have had some very excellent results from the flowers shipped."

NOW is the time to plant Kelway's Delphiniums—fine, bold upstanding plants with a wealth of bloom in all shades of blue and purple. They are from strong country-grown stocks, and flourish under almost all conditions. From ——, Callander. "It is gratifying to find that plants raised so far south do so well here, but the climate evidently suits Delphiniums." Choice named collections, 15s., 24s., 34s., 56s. a dozen.—KELWAY & SON, The Royal Horticulturists, Langport, Somerset.

BUNYARD'S CATALOGUES, free on application.

FRUIT TREES AND VINES.

SHRUBS AND CONIFERS.

ROSES AND OTHER CLIMBERS, in Pots.

HERBACEOUS & AQUATIC PLANTS for present planting.

GEORGE BUNYARD & CO., LTD., Royal Nurseries, Maidstone. Established 1796.

ORDER TRELLIS-WORK NOW.—Get our book on Trellis-work, showing Screens, Wall Panels, Window Surrounds, Arches, Arbours, &c., post free.
BOULTON & PAUL, Ltd., Norwich.

GARDEN PESTS.—Cross's "Clubicide" is the Gardeners' Insurance against damage by Eelworm, Wireworm, Slugs, Maggot, and all Disease Germs and Insect Pests. Kills all harmful Bacteria, reinvigorates the soil, stimulates plant life. In 1s. flasks and ½-gall. and 1 gall. drums. From all Seedsmen.
Sole Manufrs.: A. CROSS & SONS, Ltd., Glasgow.

New Phloxes.

GUNN & SONS were Awarded a Silver Cup at the Great Show at Olympia. New Lists now ready. Address: Olton, Warwickshire.

LISSADELL ALPINE & HERBACEOUS PLANTS.—Write for our new illustrated and enlarged List, containing many beautiful novelties at moderate prices. Also List of Seeds collected from above in 1911.
J. A. COOPER, Lissadell (No. 2), Sligo, Ireland.

Roses and Herbaceous Plants.

GUNN & SONS were awarded the 25 Guinea Challenge Cup in each collection at the Leamington Show. Up-to-date List for each now ready.
Address: Olton, Warwickshire.

LAVENDER.—Common, Giant and Dutch, 3s. per dozen, 21s. per 100; also the dwarf Compact variety, 5s. per dozen, 35s. per 100, and the White-flowered, very sweet-scented, 7s. 6d. per doz., 55s. per 100.—THE GUILDFORD HARDY PLANT NURSERY, Guildford.

WM. DUNCAN TUCKER & SONS, Ltd., 27, Cannon Street, London, E.C.; Works, Tottenham. Conservatories, Winter Gardens, Vineries, Peach-houses, Portable Buildings, etc. Catalogue gratis.

SALES BY AUCTION.

Monday, Wednesday and Friday next.

MONDAY and FRIDAY NEXT, MARCH 11th and 15th, at 12 o'Clock.—A choice assortment of Hardy Perennials and Herbaceous Plants, Lily of Valley, Spiræas, Iris, Pæonies, &c., Japanese Liliums, Gladiolus, Begonias, and other Hardy Bulbs.

At 1.30 o'Clock.—1,500 ROSES, Standard, Dwarf, Climbing, &c., also Fruit Trees in variety.

WEDNESDAY NEXT, MARCH 13th, at 12 o'Clock. Japanese Liliums in large variety, Begonias, Gloxinias, Gladiolus, Tuberoses, Lily of Valley, Iris, Carnations, Pinks, &c., Herbaceous and Rock Plants, and Perennials.

At 1.30 o'Clock.—3,000 ROSES, English and Continental, Standards, Dwarfs, Climbers, &c., Standard, Pyramidal, and other Fruit Trees.

At 5 o'Clock.—100 lots of Ornamental and Decorative Palms and Plants, Azalea indica, Rhododendrons, Aspidistras, Standard Bays, &c., from Belgium, also Stove and Greenhouse Plants.

MESSRS. PROTHEROE & MORRIS will SELL the above by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, E.C. On view mornings of Sale and Catalogues had.

Friday Next, March 15th, at 12.45 o'Clock.

400 lots of choice established Orchids, partly the property of a private gentleman and from various sources, including a quantity of large plants of Cattleya Trianæ, C. labiata, C. Schröderæ, C. Gaskelliana, C. Harrisoniæ, Lælia purpurata, and Oncidium splendidum, Cypripedium Earl of Tankerville, C Lord Ossulston, C. minos Youngii, and others, and 100 strong bulbs of Calanthe W. Murray and Veitchii; 150 lots of imported Odontoglossum grande, Oncidium leucochilum, Lælias anceps and Skinneri, also Disa grandiflora tubers.

MESSRS. PROTHEROE & MORRIS will SELL the above by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, E.C. On view morning of Sale and Catalogues had.

ROSE TREES, FRUIT TREES, PERENNIALS, LILIUMS, etc.

Mr. J. C. STEVENS begs to announce that his

SALES by AUCTION

are held every **MONDAY** and **WEDNESDAY at 12.30.**

Catalogues post free.

Lots purchased, packed, and forwarded to all parts.

STEVENS' AUCTION ROOMS

(ESTABLISHED 150 YEARS),

38, King St., Covent Garden, London, W.C.

ROSE TREES.—Sales every Tuesday, Wednesday, and Friday of Roses, Shrubs, Lilies, Gladioli, &c., at Moorgate Auction Rooms, 23 and 25, Moorfields, E.C. (near Moorgate Street Station). Catalogues post free.

BUSINESSES FOR SALE, &c.

WORTHING.—FOR SALE with possession, by order of Executors, Maybush Nurseries, about 3½ acres; Freehold land; 12 glasshouses, 2,000 feet; large packing shed; artesian well; Vines, Cucumbers, Tomatos, 573 good Apple trees, Flowers, &c.—POLLARD & POLLARD, Solicitors, Brighton.

TO GARDENERS.—Beautiful Market Garden, Poultry Farm, &c.; splendid scope; nice home; good living; very cheap; rent low.—BASSIL, Reddish Farm, Sonning Common, Reading.

TO BE SOLD, Owner going abroad, capital NURSERY BUSINESS, situate in riverside town and within easy reach of London markets; good local trade; five greenhouses, outbuildings, lights, &c.; dwelling house and shop on main road; rent £50; extra ground if desired, £22; price for stock and goodwill, £400.—Particulars of Messrs. PROTHEROE & MORRIS, 67, Cheapside, E.C.

BUSINESSES TO LET.

NURSERY, close to high road; three greenhouses and show house; could add Fruit; rent 10s. weekly.—CORNWALL NURSERIES, Devonshire Road, Balham.

BUSINESS CARDS.

AGENTS WANTED for New Manure; will sell itself; liberal commission.—BIRD BROS., Duxford, Cambs.

PARTNERSHIPS.

RETIRING GARDENERS, &c.—Employment and small investment; suit married man.—Write, H. E., Box 21, 41, Wellington Street, Covent Garden, W.C.

EXHIBITIONS.

The Perpetual Flowering Carnation Society.

GREAT SPRING EXHIBITION,

THURSDAY and FRIDAY, MARCH 21st and 22nd, 1912, Horticultural Hall, Vincent Square, Westminster,

9 Silver-Gilt and Silver Challenge Cups offered for competition. Special Classes for Amateurs. Also Conference on Carnations (First day of Show), March 21st, at 3.30 p.m. Admission 1/- For Schedules, etc., apply—E. F. HAWES, "Ulysses," Fortune Green, London, N.W.

Southampton Royal Horticultural Society.

GREAT JUBILEE SHOW,

JULY 16th and 17th.

£250 in Prizes for Carnations, Sweet Peas, Plants, Miscellaneous Cut Flowers, Fruit and Vegetables.

Schedules of C. S. FUIDGE, Secretary, 7, Silverdale Road, Southampton.

PUBLISHERS' NOTICES.

KYNOCH'S "Wild Flowers of Barmouth," fourth edition, including Salwey's Scarce List, Habitats and Notes, published 1863, pp. 50, price 6d.—J. KYNOCH, 8, College Road, Brighton.

"IRISH GARDENING," monthly; illustrated; 3s. per annum, post free; SIR F. W. MOORE'S account of his recent visit to the United States, dealing with Parks, Gardens, and Orchards, commenced in the January No. Published at 53, Upper Sackville Street, Dublin.

Present-Day Gardening.

Edited by R. HOOPER PEARSON, Managing Editor of the GARDENERS' CHRONICLE. Now Ready. Post free, **1/9** each.

Numerous Beautifully Coloured Plates are contained in Each Volume.

1.—**Sweet Peas.** By HORACE J. WRIGHT, late Secretary and Chairman of the National Sweet Pea Society. With Chapter on "Sweet Peas for Exhibition," by THOS. STEVENSON.

2.—**Pansies, Violas, and Violets.** By WILLIAM CUTHBERTSON, J.P., and R. HOOPER PEARSON.

3.—**Daffodils.** By the Rev. J. JACOB.

4.—**Orchids.** By JAMES O'BRIEN, V.M.H., Secretary of the Orchid Committee of the Royal Horticultural Society.

5.—**Root and Stem Vegetables.** By ALEXANDER DEAN, V.M.H., Chairman of the National Vegetable Society.

6.—**Carnations and Pinks.** By T. H. COOK, Head Gardener at Sandringham; JAMES DOUGLAS, V.M.H., and J. F. MCLEOD, Head Gardener to Mr. Pierpont Morgan. Contains 8 full-page coloured plates.

7.—**Rhododendrons and Azaleas.** By W. WATSON, with preface by Sir F. W. MOORE, M.A. (the first popular volume published on this subject). Contains 8 full page coloured plates.

8.—**Lilies.** By A. GROVE, F.L.S., with preface by H. J. ELWES, F.R.S. Contains 8 coloured plates.

9.—**Apples and Pears.** By GEORGE BUNYARD, V.M.H. Contains 8 coloured plates.

10.—**Roses.** By H. R. DARLINGTON, with 8 full-page coloured plates. A double volume, price **2/10**, post free. Special presentation edition, with beautiful cover design, in cloth gilt, gilt top, price **3/10**, post free

THE PUBLISHER,

"Gardeners' Chronicle" Offices, 41, Wellington St., Covent Garden, London, W.C.

PLANTS, &c., WANTED.

WANTED, large KENTIA PALMS, from 5 feet to 25 feet in height; large, well-coloured Dracænas and Crotons, also Aspidistras; for cash or exchange.—ROBERT GREEN (1911), LTD., 28, Crawford Street, London, W.

WANTED at once, two large Vitis Coignetæ or V. Thunbergii in pots.—State size and price to H. R. WHITELAW, The Gardens, Hever Castle, Hever, Kent.

PLANTS, &c., FOR SALE.

PERPETUAL CARNATIONS.—Our 1912 Illustrated Catalogue free. Read our "Cultural Treatise," 1s.—YOUNG & CO., Carnation Specialists, Hatherley, Cheltenham.

CUTHBERT'S SPECIALITE MUSHROOM SPAWN.—NEW SPAWN NOW READY. We continue to receive the most gratifying testimonials as to the productiveness and good quality of our Spawn. Per bushel, 5s.—R. AND G. CUTHBERT, Seed and Bulb Merchants, Southgate, Middlesex.

PERPETUAL FLOWERING CARNATIONS; strong, established plants in pots, from 4s. per doz., carriage paid; 20s. per 100, carriage forward; illustrated catalogue, describing 75 leading varieties with cultural hints, post free.—C. F. A. VAN DER SLUYS, F.R.H.S., Ramee, Guernsey.

AZALEA INDICA, named, well set with buds, 18s., 24s., 30s., 36s. doz.; Azalea mollis, grand plants, 21s. doz.; Lilacs for forcing, very fine, 3s. 6d. each; Deutzia Lemoinei and gracilis, pot grown, 9s. doz.—MORLE & CO., LTD., 156, Finchley Road, London, N.W.

ALL JAPANESE and other LILIUMS at lowest prices; Spiræa Queen Alexandra, 6s.; Gladstone, 5s.; Helleborus niger maximus, fine clumps, 4s. doz.—MORLE & CO., LTD., as above.

GLADIOLUS, early-flowering, all best sorts, 2s.; Brenchleyensis, top size, very fine, 8s.; fine bulbs, 6s.; Gandavensis, 6s.; Childsii, 7s. 6d., all per 100; Begonias, erect flowering Gold Medal strain, singles, in six separate colours, 2s. doz., 14s. 100; doubles, ditto, 2s. 6d. doz., 18s. 100; Gloxinias, hybrids of crassifolia, in eight named varieties, 2s. doz., 14s. 100.—MORLE & CO., LTD., as above.

LILIUM GIGANTEUM, the finest Lily grown, superb bulbs, 2s. 6d. and 3s. 6d. each; Amaryllis, Veitch's and Kerr's hybrids, mixed, 12s. per doz., named varieties showing flower in pots, 5s. each.—MORLE & CO., LTD., as above.

LAWN GRASS SEED.—Morle's celebrated special mixture for all classes of Lawns, 1s. per lb., 17s. per bushel of 21 lbs.; special for shady places, 1s. 6d. per lb. Write for our general catalogue, post free.—MORLE & CO., LTD., 156, Finchley Road, London, N.W.

FERNS! FERNS!!—Tree, Climbing, Basket, Stove, Greenhouse, and Garden Ferns; catalogues free.—SMITH, London Fern Nurseries, Loughboro' Junction, London, S.W.

CUT FLOWERS AND FOLIAGE.—A. W. REDFORD, Wholesale Bulb Grower, Stevenage, offers choice Daffodils, Narcissus, and Tulips in variety daily; boxes free; price lists forwarded on application.

VERBENAS.—The best sorts are Miss Willmott (pink), Princess of Wales (deep blue), Queen of Whites, King of Scarlets, and Lovely Blue (light blue); clean, healthy, strong young plants; carriage paid; 10s. per 100, cash.—H. DUDDERIDGE, The Dorset Nurseries, Blandford.

CALCEOLARIAS, Golden Gem.—Strong cold grown plants 2s. 100; free on rail.—ENGLAND & FURNESS, Freelands Road Nurseries, Bromley, Kent.

GARDEN FERNS, 20s. 100.—Cyclamen, Genistas, Acacias, Ericas, Palms, Begonias, Crotons, Dracænas; catalogues free.—SMITH, London Fern Nurseries, Loughboro' Junction, London, S.W.

JAPANESE IRIS.—Imported Clumps, 24 all different choice varieties, named, 15s.; choice named Gladioli, six each America, Augusta, Baron Hulot, Hollandi, King of Yellows, Pink Beauty, Princeps, 9s.—ELLISON, 45, West Bromwich.

HEAD GARDENERS who do not exhibit will save their employers money by purchasing Ellison's Pedigree Vegetable Seeds. I give the value in Seeds, not prizes, large adverts, or elaborate catalogues.—ELLISON, 45, West Bromwich.

BEGONIAS.—Choice Liliums, named Achimenes, named Cannas, named Iris, named Montbretias, Arums, Gloxinias, Spiræas, Tritomas, Tigridias, Tuberoses, 1s. 6d., 2s. doz., 10s. 6d., 14s. 100. Catalogue free.—ELLISON, 45, West Bromwich.

PEAS, BEANS, ONIONS, LEEKS, CARROTS are dear this season; as long as my stock lasts I can offer the above at most reasonable prices; quality is absolutely reliable.—ELLISON, 45, West Bromwich. 24 Gold and Silver Medals, 1911.

LONDON PLANES.—Specimen trees, 15 to 25 feet, straight stems, symmetrical heads, good roots, 5s. to 21s. each.—W. FROMOW & SONS, Sutton Court Nursery, Chiswick, W.

SPECIMEN PALMS. — Six Kentia Fosteriana, 10 to 15 feet; two K. Belmoreana, in tubs; 12 Bamboo aurea, 9 to 10 feet; six Pans Cœlogyne Russelliana; also 20,000 Norway Spruce, 9 to 12 inches; nominal price to clear.—W. KERSHAW, The Nurseries, Saltaire, Yorks.

CHRYSANTHEMUMS.—5,000 well-rooted, 17s. 6d. per 1,000, 12 good market sorts.—Apply, THE MANAGER, Glazenwood, near Braintree, Essex.

THE
Gardeners' Chronicle

No. 1,315.—SATURDAY, March 9, 1912.

CONTENTS.

Ant plants	156	Orchid notes and gleanings—	
Apples from Australia	156	Hybrids of Lælia superbiens	151
Big bud, spraying for ...	158	Papaw in Queensland, the	156
Birds, essay competition on	156	Plants for a dry border	159
Blickling Hall, Norfolk	157	Pope, Mr. Samuel, presentation to	155
Brambles, Chinese ...	147	Potassium in plants ...	157
Carnations, perpetual-flowering	158	R.H.S. examination of public parks' employees	155
Charlock, spraying for	157	Rosary, the—	
Cucumber canker ...	155	Cultural notes for March	151
Dairy-Research Institute, a	154	Roses under glass ...	151
Flora of the Upper Gangetic Plain, the ...	156	Rothamsted experimental station, grant for	157
Flowers in season ...	156	Rubber pest, the ...	157
Foreign correspondence—		School of Agriculture, Cambridge	155
The Avocado Pear in California	150	Scotland, notes from ...	158
Forest and ornamental trees in 1911	158	Societies—	
Forestry—		Durham Botanical and Hort.	162
Raising Conifers from seeds	158	Linnean	161
Fruits, the artificial ripening of	156	Manchester Botanical	164
Fuel, trees for	159	National Chrys. ...	155
Gardeners' Royal Benevolent Institution ...	156	Royal	155
International Horticultural Exhibition ...	154	Royal Horticultural ...	159
Ireland, notes from ...	157	Southampton Royal Hort.	155
Kew Gardens, visitors to, during 1911 ...	155	Surveyors' Institution	155
Lettuce Petite Noire for a winter supply	151	United Hort. Benefit and Provident ...	155
Lilies and sunshine ...	159	Soil fertility, some factors of	150
Market fruit garden, the	148	Soil, poisons in the ...	154
Newstead, Prof. R. ...	155	Solanum jasminoides ...	158
Obituary—		Week's work, the	152, 153
Adams, Herbert J. ...	162		

ILLUSTRATIONS.

Blickling Hall, Norfolk, views in the gardens at 156, 157 (and Supplementary Illustration)
Brambles, some Chinese 149
Cattleya Brenda 155
Lettuce, a good crop of winter 151
Rubus, a new species of white-stemmed 147
Rubus bambusarum, a fruiting spray of 148

CHINESE BRAMBLES.

FOR SHRUBBERIES, PERGOLAS, AND PLEASURE GROUND.

THE newer Chinese species of Rubus include several handsome plants suitable for the embellishment of the pleasure grounds, wild garden, and woodland. Their beauty lies chiefly in their ornamental foliage and coloured stems, which are very attractive in winter. Several are evergreens. The plants of the various species vary considerably in the shape of their foliage and habit of growth, whilst certain of them have agreeably-flavoured fruits of fair size, and may prove of use to the hybridist. Rubus biflorus var. quinqueflorus (see fig. 63), a plant of particularly vigorous growth, produces rich, golden-yellow Raspberry-like fruits, of pleasant flavour and good size.

Mr. A. Henry collected many specimens of Rubi in China, and he has described how rich the country is in Brambles. He sent home seeds of several species, notably R. lasiostylus, which was figured in the *Botanical Magazine*, tab. 7426, from specimens raised at Kew from Mr. Henry's seeds. To Mr. E. H. Wilson, however, belongs the credit of introducing by far the larger number of species, first when collecting on behalf of Messrs. James Veitch & Sons, during 1907 and 1908, then for Harvard University, and again in 1910. Wilson's 1907-1908 expedition yielded the largest number of new species. According to *Plantæ Wilsonianæ*, published in July, 1911, seeds of 51 species and varieties were collected by Wilson during those two years. Of this number more than 40 are in cultivation at Kew, where a border near to the Pagoda is planted exclusively with them. They were planted mostly in the autumn of 1909, and after two seasons' growth it is possible to form some idea of their value for garden decoration. Their flowers, of no great beauty, are inferior to those of several of the North American species. The leaves, however, are very beautiful and far superior to those of any of the American or European species. In habit of growth and leaf variation the Chinese Brambles provide valuable garden plants. A number form large, straggling bushes with stout stems and more or less arching branches varying in different species from 5 feet to 12 feet or more in height. Plants of this type are suitable for grouping in the shrubbery border, or for massing in the wild garden and woodland,

[*Photograph by C. P. Raffill.*

FIG. 61.—AN UNNAMED SPECIES OF WHITE-STEMMED RUBUS.

whilst several, notably R. thibetanus (Veitchii) and R. biflorus var. quinqueflorus, are worth planting in beds on the outskirts of the pleasure grounds. In public parks they may be employed either as ornamental subjects or to form impenetrable fences and masses along the shrubbery borders.

The species with long, slender, trailing shoots, most of which are evergreen, are admirably adapted for clothing arches, pergolas, pillars, verandahs, old tree stumps, or as a change from Ivy to cover sloping banks.

The Himalayan R. biflorus, the "white-washed"-stemmed Bramble was, until within the last two or three years, the only species cultivated for its showy winter stems, but several of the new-comers have a white bark, as, for example, the new species represented in fig. 61. R. lasiostylus has a purplish bark that turns almost white in winter, whilst amongst the newer introductions from China are at least half-a-dozen worth growing for their coloured stems in winter.

The members of the Rubus family thrive in most soils and positions, but they do best in well-cultivated, rich loam. It is worth while recording the fact that the two evergreen species, R. irenaeus and R. tricolor, judged by their behaviour during the summer of 1911, apparently require a moist, half-shaded position.

Species growing in close proximity will, in all probability, inter-cross freely. Although Brambles are raised readily from seeds, layers root freely, and this is the best method of propagating the plants true to kind. Only recently, whilst tying up some of the long, slender shoots made by the plants last summer at Kew we found the ends which were lying on the ground had commenced to push out young shoots.

The aim of the cultivator should be to encourage the development of vigorous growths, for these have the most attractive stems in winter, and flower and fruit best the succeeding year. The beauty of the deciduous kinds is improved by cutting out the old growths in autumn. R. Lambertianus and R. Thunbergii var. glabellus were killed to the ground level in the winter of 1910 at Kew, but pushed up growths freely the following spring, and at the present time are equal in vigour to their associates. As, however, R. Lambertianus passed through the winter in other gardens unharmed, the dying-back of the shoots may not have been due to frost.

The following evergreen species are the best for clothing pillars, pergolas, and verandas:—R. bambursarum (see fig. 62), R. chroösepalus, R. flagelliflorus, R. Parkeri, R. Playfairii, and R. Swinhoii.

A selection with attractive stems in winter should include:—R. biflorus var. quinqueflorus (see fig. 63), R. Giraldianus, R. lasiostylus, R. adenophorus, R. thibetanus (see fig. 63), and R. trianthus.

The best for their fruit are:—R. adenophorus, R. biflorus var. quinqueflorus, R. corchorifolius (see fig. 63), R. ichangensis, R. innominatus, and R. Kuntzeanus.

In addition to the evergreen species, R. thibetanus and R. biflorus var. quinqueflorus have particularly attractive foliage.

New Species.

A more detailed description of some of the newer introductions may be useful.

R. ADENOPHORUS, Rolfe.—This new species was introduced by Mr. E. H. Wilson, and resembles R. phœnicolasius. The glandular hairs, to which the plant owes its name, occur thickly on the stems and on the veins of the undersides of the leaves. Young growths at Kew last summer grew 7 feet to 8 feet in length. The more exposed parts of the stems and petioles are dark-red, the former having red prickles $\frac{1}{5}$th inch in length. The leaves are pinnate, generally consisting of three leaflets, but occasionally five, the terminal one being the largest; they are dull-green, pubescent beneath, up to 12 inches in length, and two thirds as wide as they are long. The flowers are borne on short terminal panicles; the fruit is of the size of a small Raspberry, the drupes being red with black tips. They are of an agreeable flavour, and ripen in September. The plant is worth cultivating for its red stems in winter, and the ornamental foliage in summer. The growths require no support. R. sagatus, Focke, is a synonym.

R. BAMBUSARUM, Focke (see fig. 62).—This species is a very distinct and elegant evergreen plant. The long, trailing shoots are from 10 feet to 15 feet in length, and furnished with a few spines, also, when young, with a dun-coloured tomentum. The leaves consist of three, rarely

five, leaflets, which are lance-shaped, 3 inches or more in length, and ¾ inch in width; they are a rich dark-green colour above, the undersides being clothed with a thick tomentum. The somewhat insignificant pink flowers are borne in terminal racemes, 2 inches to 3 inches in length; the shining black fruits are of a moderate size, and their flavour is not unpleasant. Both Mr. A. Henry and Mr. E. H. Wilson met with this species in China, growing at an elevation of from 4,000 feet to 7,000 feet. The long, slender, trailing shoots furnished with the evergreen leaves make this Rubus a particularly desirable plant for covering pergolas, arches and pillars. R. Henryi, Hemsley and Kuntze, closely resembles this species.

R. BIFLORUS VAR. QUINQUEFLORUS, Focke (see fig. 63).—This is the most striking of all the Brambles introduced by Mr. Wilson. He collected seeds in West Szech'uan, south-east of Tachien-lu, at an altitude of 5,000 feet to 6,000 feet. The growths are particularly strong, being 12 feet in height, and the stems 4½ inches in circumference at the base. The waxy-white bloom on the stems is a particularly striking feature. They are armed with large, stiff spines, ½ inch in length. The leaves are pinnate, about a foot in length, and generally consist of five leaflets, which are white beneath and green above. The flowers are white, ¾ inch in diameter, being borne in terminal and axillary panicles of about five flowers. The fruit is a rich, golden-yellow colour, equal in size to those of most of our cultivated Raspberries, and of a good flavour. This species, so far as I am able to judge, is likely to prove the most useful of the Chinese Raspberries to the hybridist for raising new fruits.

R. CORCHORIFOLIUS, Linn. (see fig. 63).—The plant is more or less erect in habit. The stems grow from 4 feet to 6 feet in height, are clothed with a lightish down, and armed with small spines. The leaves are simple, ovate-cordate, sometimes three-lobed, dull green above, pubescent beneath. They are 4½ inches to 5 inches long and 3 inches wide; the petioles are 1 inch in length, and clothed with prickles, which extend along the midrib beneath the leaves. The flowers are white, and are followed by large, bright-red fruits, which Mr. Wilson describes as delicious. R. corchorifolius grows at an elevation of about 7,000 feet in Central and Western China.

R. COREANUS, Miquel (see fig. 63).—This species is more upright in growth than most of the Chinese Brambles, and is self-supporting. The bluish-white stems are 7 feet or more in length, and furnished abundantly with elegant pinnate leaves, which are 7 inches to 9 inches in length, and generally consist of seven or nine leaflets. The stems are armed with straight prickles, while those on the petioles are hooked. The flowers and fruit are of no value. Mr. Wilson records finding this Bramble at an elevation of 6,000 feet in Central and Western China.

R. OMEIENSIS, Rolfe (see fig. 63).—The growths of this Rubus are long and slender, 11 feet to 12 feet in length, and unarmed. Their colour is reddish-brown on the exposed surfaces. The leaves are simple, prominently lobed and toothed, dull-green above, light-green or greyish and downy beneath. They are 4 inches to 6 inches in length and the same width. The purplish flowers are produced in panicles and the fruits are black. It is a common species in Western China. Mr. Wilson collected the type specimen on Mount Omiei, hence the specific name. R. clemens, Focke, is probably synonymous. The long, straggling growths of this Bramble lying on the ground root freely; no doubt the plant would spread rapidly over a large area of ground if allowed to grow unchecked.

R. THIBETANUS, Focke (see fig. 63).—This is one of the handsomest of all the Chinese Brambles. The name R. Veitchii, Rolfe, which is a synonym, will be more familiar to readers in this country, but according to botanical rules it must be dropped in favour of R. thibetanus, which is a slightly-older name given by Focke, who first described this species. The plants grow to a height of 6-7 feet, have blue-white stems and attractive, much-divided, fern-like foliage. At first erect, the stems arch gracefully with age. Both stems and petioles are plentifully furnished with spines. The pinnate leaves are 6 inches to 9 inches long, and consist of four or five pairs of leaflets, with a larger terminal one. The leaves are dark-green above and white beneath. The purple flowers are borne in small, terminal panicles; the blue-black fruits are of moderate size. It is interesting to note that Mr. Wilson collected this species in Western China in the dry regions of the Min Valley. The blue-white stems and handsome, fern-like leaves make it a useful species for a large bed or group in the shrubbery border.

A. O.

(To be continued.)

FIG. 62.—FRUITING SPRAY OF RUBUS BAMBUSARUM.

THE MARKET FRUIT GARDEN.

IT is hardly too much to say that, after five months of drought, we have had an equal period of mud. Except for small portions of October and November, and during about a week of hard frost at the end of January and the beginning of February, the land has been constantly in a waterlogged condition since the drought broke up. Never before, since I began to keep notes of the weather—and that is long ago—has there been an equally wet season. Those of us who got most of our fruit-planting done in the latter part of November have reason for self-congratulation, as the land has never been in even passable condition since the end of that month. Those who had much planting to do, it may be supposed, have most of the work still undone, and it is earnestly to be hoped, for this and other reasons, that March will prove a dry month.

Arrears of Work.

In consequence of the great waste of time caused by the frequent rainfall, all kinds of work in fruit plantations are sadly in arrear. For months some of us have been deferring the forking-over of the orchards, in the hope of the land getting into fair condition for the operation. Winter spraying also has been postponed, because of the reluctance to perform the work with the probability of rain following it immediately. A beginning was made in my case over a month ago, and has been only just resumed, at the end of February. Soon it must be finished, or left undone altogether for the season, as fruit-buds will shortly be too forward for the safe application of caustic washes. Even pruning has been delayed by the frequent wet days, and so has the carting of manure into the orchards and the forking-in around the trees. If a dry time sets in, everyone will be anxious to get on with cultivation and hoeing, and these classes of work will clash with arrears that should have been cleared up long ago.

A Fungous Season.

After one of the driest summers on record, fruit-growers were congratulating themselves upon a remarkable immunity from attacks of fungous diseases. Never was there greater immunity from scab, and even brown rot and canker seemed to have had a severe check. It is to be feared, however, that the wet winter has cancelled the benefits to a great extent. This may not be the case with scab, which I do not find to any considerable extent on young Apple shoots. But there is grave reason to fear that a bad development of brown rot will show shortly in Plum orchards that have been affected with the malady. In an old-established plantation of Plums there was a bad attack last season, in spite of the drought, and probably there will be a worse one this year, unless it can be checked by spraying. Investigations as to the treatment of this destructive disease have been sadly neglected, and now that funds have been granted for research in fruit diseases, this should be one of the first subjects to receive attention. As to the effect of the wet winter upon the development of canker, there is, unfortunately, no doubt whatever. Small patches of canker have spread quite round young branches, so that there is nothing to be done but the complete removal of the shoots. The diseased bark has become a wet and spongy mass of rot. Well-grown Cox's Orange Pippin trees planted some six and some seven years ago, include many trees badly attacked. They were treated for the disease when they were summer-pruned, but the malady has developed afresh since that time. By the way, it is a necessary precaution, I think, to apply Stockholm tar after a surgical operation for canker well beyond, as well as within, the limits of the portion of the bark cut out, in order to prevent the spread of the disease beyond the margin of the excised portion.

Ties Girdling Trees.

It is necessary, as a rule, to renew the ties where trees are tied to stakes at least once in two years as the swelling of the trunks causes a beginning of girdling within that period, if not before. Where tarred cord, commonly known as "ropeyarn," is used, it should be stout; haycord is softer and cheaper, and, although it will not last as long, it is less liable to girdle the trees.

A Note as to Stakes.

We learn as we live. Having been persuaded to accept some hop-poles for stakes, striped instead of entirely stripped of bark, and some short ground-end stakes not even partially stripped, I found that two years after the planting the bark was loose, so that it afforded shelter for hibernating insects and pupæ. With this experience, any stakes purchased by me in future will have to be completely stripped of bark, as hop-poles usually are. It may be added that a hop-pole 14 feet long makes three stakes 4 feet long, after cutting off the tip, which is often a little crooked. For short stemmed, half-standard Apples or Plums stakes should be only about 3 feet or 3 feet 3 inches above the ground level after having been driven in, as it is objectionable to have them high enough to bruise the branches which may be blown against them by a strong wind. Another "wrinkle" is the desirability of shaving off the sharp edge of the sawn top of a stake and any knots on it, for although a wisp of straw or some other pad should be placed between the stake and the tree in tying, it often gets shifted, and then a wound may easily be made in the trunk of the tree by its chafing against anything sharp or rough when the wind blows, and canker is apt to set in where there is such a wound.

A Great Brood of Ladybirds.

One of the desirable legacies of the last hot summer is an extraordinary number of ladybirds. Never before have I seen a tenth part of the number that I have noticed while pruning Apple trees in the course of the present winter. They were found protected in straw wisps used in tieing trees to stakes and under loose pieces

Fig. 63.—CHINESE BRAMBLES.

LEFT TO RIGHT: RUBUS COREANUS, R. THIBETANUS, R. CORCHORIFOLIUS, R. OMEIENSIS, AND R. BIFLORUS VAR. QUINQUEFLORUS.

(See pp. 147-148.)

of bark on the stakes. It is to be feared that many of these good friends of the fruit-grower are killed by spraying, and particularly by strong winter washes.

Methylated Spirit for Woolly Aphis.

In the autumn several young Apple trees were badly infested with the woolly aphis, miscalled "American blight." Nearly every shoot on an affected tree was covered along almost its entire length. The pest was brushed with a paintbrush dipped in neat methylated spirit. About 20 trees were affected, and although they were treated only once, all but two were quite clean when they were gone over recently for winter pruning. This shows how thoroughly effective methylated spirit is when used neat. There is nothing equal to it for penetrative capacity. It sinks into the wool in which the insects are enshrouded with a mere touch of the wet brush, and every one with which it comes in contact is killed at once. The remedy is perfectly harmless to the trees. Frequently, the buds of budded Apple stocks have been thoroughly wetted with it, when the woolly aphis was found upon and around them on taking off the raffia fibre used in budding, and no harm has been done to the buds, as was proved by labelling some of them.

Stages of Vegetation.

Considering the unseasonable mildness of the winter, it is remarkable that vegetation is not even more advanced than it is. Gooseberries, among fruit trees and bushes, are most strikingly forward. Many buds had burst by February 21, and a week later this stage was common. At first I thought that the former date was early beyond precedent in my experience, but reference to records of past seasons shows that this was not the case. In the very early season of 1894, Gooseberry leaf was nearly half out on February 8; in 1898, another very early season, it was a quarter expanded on February 20; and in 1908 the buds had burst by February 19. In 1909 the same stage was fully a month later than in 1908. In 1910 and 1911 the bursting was noticed on March 1, which may be regarded as the normal period for my district. Only once before in 18 years has the Almond blossom been so early as it was this season. It was fully expanded here on February 28. In 1898 the corresponding stage was reached on February 22. The Buds of Black Currants are not unusually advanced. The fruit buds of early Apples, Pears and Plums are forward, but not much more so, I think, than they have been in some previous seasons. This accords with the leafing of the Elder and the Forsythia, which are among the earliest leafers; also with the flowering of the Snowdrop, the Crocus, and the old double Daffodil, which has been common in my garden in the last 10 days of February in previous seasons, as well as in the present one. It is too early to tell, however, whether fruit blossoming will be dangerously early or not. In many a year the danger has seemed obvious at the end of February, and then frosts have occurred to check further advance, so that blossoming has not taken place before the ordinary dates. If mild weather should be unbroken for a fortnight, probably there will be much premature blossoming; but a March without many sharp touches of frost would be almost beyond precedent.

Promise of a Great Nut Season.

The show of blossom on Cob Nuts and Filberts is quite extraordinarily abundant. As for the catkins, I have never before seen any approach to their profusion. There are ten times as many as are needed to pollinate the female blossoms, and although about half of them, or three-fourths in some cases, were turned brown by the recent frost, there is an abundance of sound ones left, besides which the brown ones have some pollen in them. It is not at all improbable that we shall have frost to spoil all this fine promise, as so often happens with the uncertain Nut crop. Indeed, the prospects of most kinds of fruit are trembling in the balance, as they always are at this period of a forward season.

Good Prices for Late Apples.

Last month it was remarked that the keeping of Apples till the middle of January had not been very, if at all, profitable. But fruit kept a month later made somewhat high prices, good samples of Bramley's Seedling and Newton Wonder having made 7s. a bushel, while Cox's Orange Pippin has been quoted up to 10s. per half bushel.

Spraying for "Big Bud."

I am obliged to Mr. Pearson for the details of his plan of spraying for the control of mite attack on Black Currants (see p. 142). The number of sprayings required is a serious objection to the adoption of the plan on a large scale, and the quantity of quassia is more than twice as much as is required to kill the aphis or the Apple sucker, together with a very liberal quantity of soft soap. *A Southern Grower.*

FOREIGN CORRESPONDENCE.

THE AVOCADO PEAR IN CALIFORNIA.

Californians seem to be awakening to the possibilities of such fruits as the Avocado Pear, the Mango, the Guavas, and the Cherimoya. The interest that has developed in the Avocado Pear during the last year or two is remarkable. While this fruit has been grown in California for 30 years, it had never been given any thought as a commercial possibility until a few years ago. A few horticulturists who foresaw the important effect this fruit could have on the food supply of this country, and who realized the desirability of a wider cultivation of the plant, awakened an interest in it through the columns of the horticultural Press. Now the trees are being propagated by the tens of thousands. One firm alone, which grows tropical and sub-tropical fruits exclusively, has at the present time over 50,000 seedling Avocados in the nursery, ready for budding in the spring.

The entire southern part of the State has been searched over to find the choicest seedlings to propagate from, for the nurserymen have decided to start the industry by propagating the best possible varieties. When it was found that the seedlings which have fruited here were inferior to many that could be obtained by going to Mexico and Central America, where this fruit has been grown for centuries in countless numbers, private enterprise at once sent down horticultural explorers to obtain the choicest varieties to be had in the highlands, where the climate closely approximates that of Southern California, thus making it practically certain that the varieties would be a success here. The Mexican Avocados are probably as fine as any in the world, and are certainly found in as great a variety of forms and under as widely differing climatic conditions as anywhere. Those most desirable from every point of view—hardiness, shipping quality, form, flavour, and productiveness—were secured, and bud-wood sent to California for propagation. From this start commercial orchards will soon be established. It is worthy of note that California is already producing Avocados during 10 months of the year, and it is expected that within five years it will be possible to obtain ripe Avocados in this State during every month.

It is expected that a large demand for the fruit can be built up in all parts of the country, when it is marketed at such a price that it is within the reach of all, and its qualities are more widely recognised. *F. W. Popenoe, Altadena, California.*

SOME FACTORS OF SOIL FERTILITY.

Carbon-dioxide and soil-fertility.—There are one or two points regarding the value of carbon-dioxide to the plant, and bacterial activity in the soil, arising out of recent work. It is, of course, generally known that carbon-dioxide is probably the chief solvent agent excreted by the roots, that much is carried down by rain, and that it is also produced by the rotting of organic matter in the soil. The question thus arises as to the value of adding still further to these natural supplies by watering with water saturated with carbon-dioxide. Pot experiments have been tried by Mitscherlich with various manures, but the results have not shown that there is any advantage in using carbon-dioxide water.

Substances which are capable of producing carbon-dioxide in the soil were also added without result. It seems, in fact, that, under natural conditions, the requisite amount is nearly always present. The amount produced by the plant varies not only with the species, but also increases when the soil is naturally fertile; the enzyme in the root hairs, which is chiefly responsible for the production of carbon-dioxide, is a peroxydase. This is most active in neutral or slightly alkaline solutions of soil water, while acidity and lack of aeration are inimical. Calcium salts and phosphates are favourable to carbon-dioxide formation, whereas nitrates are not so, though better than ammonia salts. It will be remembered that most acid soils are wanting in lime, and when this is the case the phosphoric acid has an opportunity of combining with the iron and aluminium bases to form compounds which are not readily taken up by the plant. With respect to methods of determining the availability of phosphate in the soil, the usual English procedure is to treat the soil with a 2 per cent. solution of citric acid for one to seven days, according to the amount of shaking. Wisconsin experiments state that N/5 nitric acid (approximately 1¼ per cent.) for five hours at 40° C. is a very suitable solvent.

Boric acid as a manure.—The uses of partial sterilisation of the soil have become familiar from the Rothamsted and other experiments, as also the commercial preservation of milk, &c., by boric acid. Ideas from both have been combined and boric acid has been used as an indirect manure. It has been found that one part in 100,000 of a nutrient solution is distinctly beneficial. When applied to soils at the rate of 1-50th of an ounce per square yard Maize increased 50 per cent. and Turnips 32 per cent. Some other crops did not gain so much, but with none was there a loss. The ash of the crops taken from plots so treated did not show any increase in the normal amount of boron compounds present. The modification of the bacterial content was not stated, but we understand that further experiments are in progress. When we remember that boric acid at the rate of 6 lbs. per acre increased a Turnip crop by one-third, the economy of such a method, if successful on a larger scale, is very apparent, considering that boric acid costs about 5d. or less per lb.

Depth of cultivation—the bacteria of soil.—An interesting experiment on the effect of depth of cultivation on the activity of bacteria is reported in *Bulletin* 161 of the Kansas State Agricultural College. Plots were stirred to depths of 2, 4, 6, 8, 10, and 12 inches, and it was found that the most fertile were, naturally, those stirred to the greater depths; though stirring to 8 and 10 inches produced in many cases better results than stirring to a depth of 12 inches. There was also a corresponding increase in the amount of ammonia and a decrease in the rate of denitrification. As regards the distribution of the bacteria, most were found between 5 and 6 inches from the surface. More or less regular periods of increase and decrease were also noted. *J. W. Tayleur, Theale, Berks.*

LETTUCE PETITE NOIRE.

This variety of Cabbage Lettuce is grown extensively in the Paris district throughout the winter, and furnishes the bulk of the winter supply of Lettuce in our own markets. It appears, therefore, difficult to understand why its cultivation is not more common in private gardens. The method is simple enough, and plants raised from seed sown in August are fit for cutting in November. The plants exhibited at the R.H.S. meeting of February 20, from these gardens, were grown from seed sown at the end of September, our principal sowing for the winter supply. The plants commence to come into use about the middle of December. The seed is sown thinly under a cloche, or cloches, on ground prepared in the usual way, no attempt whatever being made to obtain bottom heat; the seedlings are pricked out under other cloches as soon as they are large enough to handle, and they are planted at the rate of five plants to a cloche, the cloche measuring 16 inches across, or they are planted in cold frames at distances of 10 inches apart each way.

The main details to be strictly carried out are to prick the plants out as early as possible, to apply shading when the sun shines strong in the autumn, and on no account or on any occasion to afford ventilation, as I have proved for several years that this variety grows better in confined air. If well watered at the time of planting, nothing further is required till the Lettuces are ready for cutting, with the exception of removing any weeds that may appear, and providing coverings of the ordinary description during severe weather. As the plants will grow equally well in cold frames and under cloches, the variety Petite Noire, which any seedsman can supply, has much to commend it for furnishing a winter supply, and the produce is particularly crisp, tender, and succulent. *W. H. Honess, Hopedene Gardens, Holmbury, Surrey.*

THE ROSARY.

CULTURAL NOTES FOR MARCH.

The chief work in the Rose-garden during March is pruning, an operation which calls for the greatest care and intelligence on the part of the operator. It is necessary to decide first for what purpose the pruning is undertaken—whether to secure quantity or quality of bloom. The various types of Roses need distinct treatment, but in my remarks I can only generalise, for to treat the subject fully would occupy too much space. First thoroughly eliminate all frosted, dead or deteriorating wood. Next cut away all superfluous shoots, more particularly those in the centre of the plant or any that tend to grow in that direction.

The chief reason for pruning Roses is to make the most service of their best wood. If the plants were allowed to grow at will they would soon be carrying a quantity of comparatively useless growths, a large proportion of which would not be in the necessary healthy condition to afford good results. The majority of the strongest growers need very little pruning at this season beyond cutting away unripened points from the maiden growths of last season. It is, however, sometimes well to thin these out from a mass, in the case of such kinds as Dorothy Perkins and a few of the Ayrshire Roses. The Crimson and Blush Ramblers simply need any short spurs thinned out from the centres, and the rods that flowered last season cut away entirely. In almost all cases it is the long, flowerless growths of the preceding year that are of most value. These shoots will produce flowers from almost every ripened eye or bud throughout their length. They will be even more floriferous if bent somewhat or brought into a horizontal position.

Some pillar Roses, such as Papillon, Gruss an Teplitz and Bardou Job, give better results if only slightly thinned, and the stronger growths shortened a little at the tips.

Moss and Provence Roses should be pruned fairly closely, but the China and Dwarf Polyantha Roses need only the decaying flower growths of last autumn cut away. Rugosa varieties need no pruning except to keep the plants in bounds. The long growths upon Penzance Sweet Briars will throw the greater quantity of flowers, and should be retained so far as is possible. Avoid leaving any portion of the shoot above the last bud, and see that this is placed so that the resulting shoot will grow outward rather than towards the centre of the plant.

I would warn Rose-growers against pruning too early. I never prune until the end of March, no matter how tempting and promising the season may be. Teas and Noisettes I do not prune until the first and second weeks in April.

Planting may still be done, provided the roots are not placed in soil in an uncongenial condition. They should also be trodden firmer than in early autumn planting. Cut the plants down about half their length in the case of ordinary growers, when planting late; but those of extra vigour, such as the Wichuraianas, will need cutting down to the ground. Plants that have died should be replenished by specimens in pots. The roots should be turned out carefully and replanted in good soil. They will make the bed uniform during the first summer.

In an earlier note I advised the potting up of a few plants, both standards and dwarfs, for this purpose, and, where this has been done, suitable plants are available. After pruning, add a good mulch, and fork the materials very lightly in the soil about the plants. The spade, especially when inserted deeper than 4 inches, cuts off and otherwise damages a great number of roots. Retain as much as possible of the long maiden growth upon wall Roses, even if it necessitates crossing a few of the branches. They can be cut away after the flowers are over, and it is a pity to sacrifice any really good shoot because it is indifferently placed.

ROSES UNDER GLASS.

March is a trying month for Roses under glass; there is often a bright sun, making the house very warm, but accompanied by a keen wind which so often appears to be the forerunner of mildew and insect pests. With the exception of the need for maintaining a little more humidity in the atmosphere, there is not much to add to my remarks of last month.

There will be need of a slight shading on the glass during extra bright days, which will lessen the necessity for admitting air at such times. When cold winds prevail, feed the plants with liquid stimulants more freely, and, if a little manure water is sprinkled upon the walls and paths, the foliage will benefit in substance and health. *Practice.*

Fig. 64.—WINTER LETTUCES IN FRAMES AND CLOCHES AT HOPEDENE GARDENS.
(These Lettuces were awarded a Silver Banksian Medal at the R.H.S. meeting on the 20th ult. See p. 127, *ante*.)

ORCHID NOTES AND GLEANINGS.

HYBRIDS OF LÆLIA SUPERBIENS.

From the Right Hon. Lord Rothschild's gardens, Tring Park, Tring (gr. Mr. A. Dye), come flowers of three interesting and pretty hybrids of Lælia superbiens, one of which is specially interesting on account of the mystery of its parentage. The best known is L. Nemesis "Tring Park variety" (anceps Williamsii × superbiens), the two-flowered inflorescence having blooms 6 inches across, the sepals and petals white tinged with rose, the labellum bearing five prominent yellow ridges with dark purple veining on each side, the tips of the side lobes and broad, front lobe bright rose-purple.

Lælio-Cattleya Choletiana (C. Mossiæ × L. superbiens) has slightly larger flowers than L. Nemesis, but of the same colour, the chief differences being the suppression of the ridges on the lip, which is less distinctly trilobed, and expanded in front like C. Mossiæ. The third and largest flower is recorded as L. superbiens × Sophronitis grandiflora, the cross having been made at Tring Park by the late Mr. Hill in the presence of the Hon. Walter Rothschild. No evidence, however, of Sophronitis grandiflora appears, the flower being in most respects similar to L.-C. Choletiana; it is 6 inches across the petals, which are 1½ inches wide. The labellum suggests that it might be a cross between L. superbiens and C. Warscewiczii, the expansion of the crimped front lobe being similar to C. Warscewiczii. The flowers are white suffused with rose-pink, the disc of the labellum yellow, the base white veined with purple. The pollinia—four perfect, four imperfect—are of Lælio-Cattleya.

The Week's Work.

THE FLOWER GARDEN.

By J. G. Weston, Gardener to Lady Northcote, Eastwell Park, Kent.

Carnation Seedlings.—Carnations raised from seeds sown in January should be pricked off in boxes filled with sandy soil and grown in an intermediate temperature. Keep the plants close to the roof-glass to promote a sturdy habit of growth. When fairly established, remove them to cooler quarters to become thoroughly hardened before they are planted out-of-doors. The Carnations of the Marguerite and Grenadin types are easily grown from seed. The flowers are very sweet-scented and numerous: seedlings of a good strain will include a large proportion of plants having double flowers.

Flower-beds and Borders.—Beds and borders planted with Wallflowers, Polyanthuses, bulbs, and other spring-flowering plants should be hoed and made tidy before the plants come into bloom. The verges should be trimmed, if necessary, with the edging knife, making this quarter of the garden as attractive as possible. The flower-spikes of Hyacinths should be tied to neat stakes as soon as support becomes necessary, or many may be damaged during a single stormy night. Take care to tie the matting loosely around the stem, as a tight ligature may cause the growing inflorescence to snap off. Use sticks painted with a subdued colour. Where no dwarf plants are employed as a carpeting for Hyacinths and other bulbs, Cocoanut fibre refuse will give a better appearance than bare soil, and it will prevent the blooms from getting splashed with mud during heavy rains.

Lawns.—Lawns should receive attention almost daily at this season to ensure a good sward during the summer months. The grass has commenced to grow rapidly, and it should be swept and rolled constantly before the dry weather sets in. If the turf is weedy, it may be dressed with lawn sand, the present being the best time to apply it. Make good all bare places in the turf, and straighten turf edgings, bordering paths and flower-beds with the edging knife. Attention to these details results in a smart garden, having a well-cared-for appearance. If not already done, lawn mowers should be overhauled and put in good order at once.

Gravel Paths and Drives.—Ground operations entail much wheeling over the paths and roads, which become damaged thereby in bad weather, and they should be put in good order without delay. Fill depressions and ruts with rough materials, rolling them well in, and then spread a layer of fine gravel over the surface. A heavy roller should be employed as soon as the gravel is moderately dry, to provide a smooth surface.

Tuberous-rooted Begonias.—The tubers should be placed in boxes covered with leaf-mould and started into growth. There is no advantage in starting them too early, or they may become stunted and receive a check before the time for planting arrives. They should be placed in a cool house or frame, no fire heat being necessary, as this would cause them to grow too quickly, rendering them more susceptible to injury when exposed out-of-doors. If started as advised, the young shoots grow sturdy. Later on the tubers may be divided, if necessary, to increase the stock. They should then be potted or placed in boxes, the latter receptacles being the better, as the roots are liable to become matted in pots, causing a certain amount of check when separating them. The soil should consist of turfy loam, plenty of flaky leaf-mould, and a quantity of sharp sand. Pot lightly. The new bedding Begonia, Major Hope, created a very favourable impression last season, where seen in the public parks.

Canna.—Bedding varieties of Canna that have been resting in a cool house should now be potted: they will furnish good plants by June. Ordinary potting soil is suitable, and heat facilitates the starting of the plants into growth. After the shoots have commenced to grow, the plants should be grown as sturdily as possible, but Cannas will not thrive under cold and draughty conditions. Stand them in a frame or light house, where they will receive plenty of sunshine: on no account grow them under vines or Peach trees, a practice which is too often adopted with bedding plants, with the result that they become drawn and weakly.

THE FRENCH GARDEN.

By Paul Aquatias.

Hot-beds.—The Lettuces grown in the frames, prepared in the first place for Turnips and Strawberries, will be all marketed before the 10th inst. Lettuces grown with Carrots need to be kept very clean, and all decayed leaves removed carefully. The paths between the rows of frames should be filled again with dry manure, made level with the tops of the frames. The manure is not for the purpose of increasing the temperature of the frames, but to facilitate the raising of the frames when the Carrots require more head room late in the month. If available, a quantity of black soil should be passed through a ½-inch screen and kept in a shed, to be spread as a mulching among the Carrots when the Lettuces are marketed; a barrow-load is sufficient quantity for a frame of three lights. Cos Lettuces should now be planted between the cloches on the hot-beds; ventilation is afforded by pressing the soil with a triangular block of wood under the rim of each cloche. The paths should be filled with short and dry manure, made level with the soil of the beds.

Crops in Unheated Frames.—Cauliflowers should be planted without delay, if the work has not been done already. Ventilation should be afforded the "Passion" Lettuces during bright days, and the quantity of fresh air increased gradually. It is essential to cover all the lights and cloches with mats whenever frost is apparent. Sudden changes in the temperature are prejudicial to the welfare of the crops, and often the damage is only noticed 12 or 15 days afterwards, when Lettuce leaves become covered with brown spots.

Melons.—The first batch of Melons is ready to be potted in "60" pots. The plants may be grown in a greenhouse till the middle of March, when they should be placed on a hot-bed previous to their final planting. Successive sowings of Melon seeds should be made weekly till the end of March to have a supply of young and sturdy plants always at hand.

Tomatos.—Seeds of the main batch of Tomatos for planting out-of-doors should be sown in boxes. They will soon germinate, and the seedlings may be afforded a little ventilation when the cotyledons have spread out.

Open-air Crops.—The plants of "Passion" Lettuces should be set out at a distance of 9 or 10 inches apart. The Cos Lettuces should also be planted as soon as possible. Select ground that has been heavily manured, and plant at 14 to 16 inches apart. Spinach may be sown broadcast as an inter-crop, as it does not interfere with the growth of the Lettuces. We sow Radishes broadcast by themselves. The ground about spring Cabbages that were planted in the autumn should receive a good hoeing whenever the soil is dry. Onions and Spinach sown in the autumn will also be benefited by stirring the soil about their roots at the earliest opportunity.

THE ORCHID HOUSES.

By J. Collier, Gardener to Sir Jeremiah Colman, Bart., Gatton Park, Surrey.

Management of the Houses.—At this season of the year Orchids generally require very careful attention in the matter of ventilating and shading. The growths and leaves that are now developing are very tender, and are soon scorched and disfigured if exposed to bright sunshine. Discretion must be exercised in the use of the blinds. It is advisable to be on the safe side by not unduly exposing valuable plants to the sun's influence; at the same time the blinds should not be allowed to remain down longer than is really necessary. Already the warmth from the sun has, on several occasions, had the effect of raising the temperatures of the houses higher than is necessary for many of the occupants. Cold winds oftimes alternate with bright sunshine, the external temperature being perhaps only 40° or even lower. Under these conditions it is not advisable to admit fresh air in sufficient quantities to keep down the temperatures. On such occasions use the blinds. When the outside temperature rises to over 45° the amount of ventilation may be increased and shade afforded with discretion. Admit the air through the ventilators under the stages, if possible, on the side of the house that is most sheltered from the wind. These remarks apply more especially to the cooler houses, containing such plants as Odontoglossums, Masdevallias, Oncidiums and cool-growing Cypripediums. The Cattleya and intermediate houses will only require shading for an hour or so during the middle of the day. Any of the inmates of these houses that require more shade should be placed at one end, and be shaded independently. Many occupants of the East Indian house, such as Phalænopsis, Bulbophyllum, Cirrhopetalum, Angræcum and the warm-growing Cypripediums will require protection from the sun. Bollea, Pescatorea, Warsczewiczella and the small-growing Zygopetalums should be shaded at all times.

Cattleyas.—The autumn and early-winter flowering Cattleyas, both species and hybrids, including C. labiata and its varieties; C. Bowringiana, C. Mantinii, C. Wendlandii, C. Portia, C. Ashtonii, C. Pittiana, C. Fabia, C. Clarkia and others that have been resting since flowering, are developing new roots. Vigorous plants that require larger pots should be attended to. If the rooting material is still in a good condition, the plants may be shifted at once into larger pots, but specimens in sour soil should have all the old compost shaken away, dead roots cut off, and all useless pseudo-bulbs removed, as these will rob the plant of nourishment, and necessitate the use of larger pots than would be otherwise needed. Strong-growing and vigorous rooting kinds should be afforded more rooting space than those of a weaker habit.

Thunia.—Plants of Thunia should be repotted annually, and the work should be done as soon as they have commenced to grow. A suitable compost consists of two-thirds rich, fibrous loam, broken roughly and with all the small particles removed and one-third dried cow manure, adding some half-decayed Oak leaves, a little chopped Sphagnum-moss, with crushed crocks and charcoal. Place a layer of crocks about 1 inch deep in the bottom of the pot for drainage, and cover the crocks with a layer of Sphagnum-moss. Place three pseudo-bulbs in a 6-inch pot. Pot moderately firmly, placing the bases of the bulbs on the compost and securing the pseudo-bulb firmly to a neat stick. Afford the plants a light position in a warm house, and water them sparingly till they are well rooted. The foliage should be syringed whilst the plants are growing actively, as Thunias are subject to the attacks of red spider. At this stage water may be afforded the roots freely

PLANTS UNDER GLASS.

By Thomas Stevenson, Gardener to E. Mocatta, Esq., Woburn Place, Addlestone, Surrey.

Chrysanthemums.—Early-rooted plants of Chrysanthemums should be ready for repotting. If rooted singly in thumb pots, receptacles 4 inches in diameter (54's) are the most suitable, but if two or three have been rooted in the same pot large 60 pots should be selected. Pot firmly, using a rich, friable compost composed of loam, leaf-mould, sand, and wood ashes, more or less of the sand and wood ashes according to the nature of the loam. A low, span-roofed house provided with plenty of side ventilators is the most suitable structure for Chrysanthemums at this season of the year. The plants grow harder in such a glass-house than in frames, although the latter are often used for the purpose. The plants will do very well in a cold frame provided that plenty of space is allowed between the plants. Keep the atmosphere moderately close after potting to prevent the foliage from flagging, whilst light sprayings in the morning and first thing after dinner on all fine days will help them in this respect. A week after the potting the roots should be growing freely; fresh air may then be admitted, and the amount increased gradually till the lights are removed entirely on very fine days. Later rooted batches of plants should be seen to, removing them from the propagating frame as soon as they

are well rooted, and inuring them gradually to fresh air as advised in the case of recently potted plants. Stock plants in reserve for furnishing cuttings late in March and April must be afforded abundant ventilation to keep them stocky, as soft, pithy shoots are liable to flag considerably when inserted as cuttings and never make such fine plants as good, hard cuttings.

GLOXINIAS AND BEGONIAS. — Gloxinias and Begonias that were started early in boxes should be potted before the roots become matted together. I prefer to transfer them direct to their flowering pots. If a house is devoted to these plants, there is not much fear of the shoots becoming drawn, but where they have to be grown with other plants there is a danger in this respect, especially in the case of Begonias. If shelves are available in houses having a suitable temperature for the plants, Begonias and Gloxinias may be stood on them until the sunshine becomes excessive.

CYCLAMEN LATIFOLIUM. — The plants of Cyclamen are making a good display in the conservatory and greenhouse; it will be advisable to promote a fairly dry atmosphere in order that the blooms may keep fresh for a long time. Plants that are still throwing up flowers should be assisted with a little liquid manure; do not let any of the fluid reach the centres of the plant, or it may cause damping. Plants raised from seed sown last autumn are growing freely, and, if the potting has not been already done, they should be placed singly in "60" pots without delay. The compost may consist of loam and leaf-mould, mixed with a quantity of sharp sand, a little mortar rubble, and a few pieces of charcoal. Do not place the corms too deeply in the soil, only just sufficient to prevent them shifting when the pots are moved. A span-roofed house is a suitable place to grow them in, but a moderately warm frame will do equally as well, provided the plants are placed well up to the light. The roots will not need to be watered too liberally: syringings on bright days will help to provide sufficient moisture as well as to keep down insects, one of the most troublesome of these being thrips, which are favoured by dry conditions.

FRUITS UNDER GLASS.

By E. HARRISS, Fruit Foreman, The Royal Gardens, Windsor.

EARLY PEACHES AND NECTARINES IN POTS. —When the stoning period is passed, it will be safe to subject the trees to harder forcing if it is desired to have ripe fruits at an early date. There is not so much risk in forcing pot trees, as in the case of those planted in borders, as the roots of the former are more under control and the trees invariably set far more fruits than are necessary to furnish a crop. Nevertheless, forcing must not be carried to excess; rather take full advantage of warmth from the sunshine by closing the house early in the afternoon after syringing the trees thoroughly. All surplus fruits should be gathered, cropping each tree according to its size and capacity. From 12 to 18 fruits may be considered a fair crop unless the trees are unusually large. But on no account leave too many, as this would impair their quality. Any fruitless wood may be cut back to the growth nearest the base, and generally guard against overcrowding of the shoots, which will shade the light from the fruits and tend to weaken the trees. Stop the shoots at the fourth leaf. The soil should be examined frequently to see if water is necessary; if the pots are well drained, it is better to be generous than sparing in its application. Stimulants should also be given at shorter intervals than hitherto. When the second swelling of the fruits has commenced, place a layer of well-decomposed manure on the surface of the pots.

EARLY PERMANENT TREES. — When the shoots are about 6 inches long, remove all those which are not required. As a rule it will only be necessary to leave one at the base and another at the point of the current bearing wood, unless it is purposed at next season's pruning to discard some of the old, bare branches. In this case young shoots should be trained in to take the place of those to be removed. These young shoots should be secured to the trellis, taking particular care that they do not grow above the wires. The final thinning of the fruits should be delayed till the stoning period has passed, allowing one fruit to each square foot of space. A larger crop may be permitted on young, vigorous trees. In thinning, leave the fruits evenly distributed over the branches, retaining for preference those which are on the upper side of the trees. Spray the foliage with rain-water in the morning, and again at closing time; also damp frequently all the bare surfaces in the house. Should red spider appear on the leaves, syringe the foliage with a solution of soft soap and sulphur. Old-established trees will be much benefited if the borders are given a surface dressing of rich, farmyard manure.

MID-SEASON TREES.—Attend to the disbudding of mid-season trees regularly, commencing at their extremities first. Where the fruits have set very thickly all those on the under side of the tree may be pulled off at once. Syringe the foliage twice daily, and endeavour to keep the atmosphere always moist. Ventilate the house carefully, and remember that although the Peach enjoys plenty of fresh air, cold draughts should be avoided, these being favourable to attacks of red spider. Well-drained borders filled with roots should be watered regularly. Old trees carrying heavy crops of fruit will require stimulants.

LATE TREES. — Owing to the exceptionally mild weather, fruit trees have started into growth much earlier than usual. They must not be kept in too cold a house when the flowers are opening. Give them every assistance to set their fruits, then, if necessary, they can be kept backward by leaving the houses open later in the day than usual and maintaining a cool temperature at night.

THE HARDY FRUIT GARDEN.

By F. JORDAN, Gardener to Lady NUNBURNHOLME, Warter Priory, Yorkshire.

PEACH AND NECTARINE.—The trees having been detached from the walls for some time past, for the purpose of retarding the opening of the buds, preparations should be made for pruning and securing the branches again. Trees that were disbudded and relieved of useless wood in the autumn will need very little pruning at this stage, beyond thinning the young shoots to prevent overcrowding. The growths should be regulated at a distance not closer than 6 inches apart, so that the wood may become thoroughly ripened, which is one of the secrets of success in the cultivation of Peaches and Nectarines out-of-doors. In pruning, train in their entire length shoots of moderate growth, but removing altogether those of a gross nature. By giving careful attention to root-pruning in the autumn, disbudding properly and disposing the shoots so that sunshine and air have free access to the interior of the trees, the wood will become thoroughly ripened, the flowers stronger and hardier, being better able to withstand cold winds and frost. Use tarred string for tieing the main branches, and matting in preference to shreds for the smaller shoots, if the ties are not made too tightly, as shreds form a harbour for insect pests. After the training and tieing of the branches are completed, syringe the trees with a fairly strong insecticide, such as the A II. fluid or XL-All specific. The syringing should be repeated just before the flowers open, using a weaker solution. The soil of the border should be lightly pricked up with a fork and receive a dressing of bonemeal if this manure was not applied in the autumn. Take care not to tread the borders more than is necessary.

PROTECTING THE BLOSSOMS. — After the training of the trees is completed, get in readiness materials, such as old fish netting, tiffany or "scrim," for protecting the blossoms from cold winds and frost. Poles and copings should be fixed in position, so that when protection is needed, no time need be lost in fixing up the curtains and nets. These materials should be examined and repaired if necessary.

LOGANBERRY.—This bramble is a vigorous grower, the shoots growing 10 feet to 12 feet long in a single season. The fruits are valuable, especially as they ripen when the Raspberry crop is practically finished: they make excellent jam, and are appreciated as bottled fruits. The plant will grow in almost any position, and is suitable for training up poles, wire fences, and arches, giving a large quantity of fruit in proportion to the space occupied. It requires a rich soil and a similar treatment to the Raspberry. The old canes should be cut out after they have fruited, removing, at the same time, weak shoots, and retaining only the stronger ones, as the shoots require plenty of room. The roots should be planted at distances of 6 feet to 8 feet apart. Apply a liberal mulching of manure and cut the shoots to the ground level the first season.

BLACKBERRY.—Blackberries are useful and profitable plants for covering unsightly places, such as old fences or boards The varieties laciniatus, Wilson Junior and The Mahdi may all be recommended.

JAPANESE WINEBERRY.—Rubus phœnicolasius is one of the hardiest, handsomest and most vigorous of Brambles, and when established makes a charming pillar plant from July to September, its large clusters of scarlet edible fruits being very attractive.

THE KITCHEN GARDEN.

By EDWIN BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

RHUBARB. — The present is a suitable time to make fresh plantations of Rhubarb. Old stools may be taken up, divided carefully, and replanted in an open position in ground that has been trenched thoroughly and well dressed with farmyard manure. Plant the rows at a good distance apart, and allow plenty of room between the individual plants. After the work is completed, afford a good surface dressing of stable manure or long litter. Good varieties include Victoria, The Sutton, Hobday's Giant, Daw's Champion, and Paragon.

CABBAGES.—Cabbages are very forward owing to the mild winter. The short spell of frost injured the plants but very little, and many of the early varieties, particularly in sheltered positions, are almost ready for cutting. When the weather is favourable, the ground should be stirred deeply with the flat hoe. If this is done frequently it will have a stimulating effect on the growth of the plants. Any vacancies should be made good from the reserve beds, and, if further plantations are needed, they should be made at once, selecting well-enriched ground and making the plants very firm in the soil.

LETTUCES.—Autumn-sown Lettuces, both of the Cos and Cabbage varieties, which have been wintered in cold frames or sheltered positions, may be planted out on warm borders. The surface of the soil should be raked to obtain a fine tilth. Make the soil very firm about the roots. If the ground is infested with wireworm, measures must be taken to trap and destroy the pests. A capital plan is to place pieces of Carrot in the ground at regular intervals as traps. These should be examined every few days, and the pests collected and destroyed. Measures must also be taken to prevent sparrows and other birds from disfiguring the leaves. A simple protection against birds is black thread stretched along the rows, about 2 inches above the plants. Attend to the pricking-off of spring-sown Lettuces, and make a further sowing in boxes.

CELERY. — Plants belonging to the earliest sowings should be sufficiently large for pricking-out into other receptacles. Boxes are best suited to the purpose, and they should be filled with a fine, open compost made moderately firm, after taking the necessary precautions to ensure perfect drainage. Transplant the young plants carefully, at a distance of 3 inches apart each way, and water them well through a fine rose. Grow them in a house where the temperature is not excessively hot, and afford them a position where they will obtain plenty of sunlight. After they have recovered from the check caused by transplanting, accustom them gradually to cooler and more airy conditions.

GENERAL REMARKS.—Where it is the rule to incorporate decayed leaves with the soil when planting Potatos, the leaves should be finally turned over and a quantity of slaked lime added. Where the soil is heavy, the addition of decayed leaves is to be recommended. Attend to the transplanting of the various seedlings raised under glass, and thin as soon as they are large enough seedlings of Carrots and other crops growing in frames. Continue to force Rhubarb, Asparagus, Chicory, and Sea-kale.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, MARCH 11—
U. H. Ben. and Prov. Soc. Ann. Meet. at 8 p.m.

THURSDAY, MARCH 14—
Roy. Hort. Soc. Exh. of South African Products, including Cereals (3 days).
North of England Hort. Soc. meet at Bradford.
Brit. Gardeners' Assoc. Dinner at Holborn Restaurant.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—41·3°.

ACTUAL TEMPERATURES:—
LONDON.—*Wednesday, March 6* (6 P.M.): Max. 52°; Min. 39°.
Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—*Thursday, March 7* (10 A.M.): Bar. 29·6°; Temp. 48°; *Weather*—Sunshine.
PROVINCES.—*Wednesday, March 6:* Max 48° Cambridge; Min. 41° Liverpool.

SALES FOR THE ENSUING WEEK.

MONDAY AND WEDNESDAY—
Rose Trees, Fruit Trees, Perennials, Liliums, Trained Bay Trees, Palms, &c., at 12.30, at Stevens's Auction Rooms, 38, King Street, Covent Garden, London.

MONDAY AND FRIDAY—
Herbaceous and other Plants, Lilies and Hardy Bulbs, at 12; Roses and Fruit Trees, at 1.30; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

WEDNESDAY—
Japanese Lilies and Hardy Bulbs, Perennials, &c., at 12 Roses and Fruit Trees, at 1.30; Palms and Plants, at 5; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

FRIDAY—
Imported and Established Orchids, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.45.

Poisons in the Soil.

After nearly a century of investigation it has been found impossible to explain the action of fertilisers as due altogether to their direct value as plant foods. There is abundant evidence that artificial fertilisers influence crops in other and less direct ways. It follows, therefore, that a fertiliser properly used has more than one beneficial effect, and that the same fertiliser improperly used has more than one bad effect. Hence a thorough and complete understanding of the various effects of artificial manures on plant and on soil is greatly to be desired. The work of Dr. Schreiner and his colleagues of the Bureau of Soils of the United States Department of Agriculture, has brought, during the last few years, a new factor to our notice, namely, the presence in soils of organic compounds harmful to growth. One of these plant-poisons, termed dihydroxystearic acid, has been very fully investigated. This substance is found to hinder the growth of plants even in the presence of fertilisers, but the harmful effect is least when the ratio of these salts is a proper one for growth and greatest when the ratio is not well suited for plant growth. This poisonous soil substance is relatively much less harmful in the presence of nitrogenous fertilisers which tend to increase root oxidation. In continuation of this work the influence of three other organic compounds, coumarin, vanillin, and quinone has been studied. The first two are compounds which may often be brought into the soil by decaying vegetation, and quinone may arise from proteins. All three substances are toxic. Their effect has been studied mainly on Wheat seedlings grown in soils containing various ratios of one, two, and three constituents of the three fertilisers (salts of nitrogen, phosphorus and potash) which constitute a complete artificial manure. Each of the three poisons named above affects plants in a different way. Plants poisoned by coumarin have stunted tops and broad, distorted leaves; quinone causes the plants to be tall and slender, with thin, narrow leaves; vanillin strongly inhibits root growth, and also top growth. The effects of coumarin are most easily overcome by phosphatic manures, vanillin is best counteracted by nitrogenous manures, whilst the quinone effects are checked most readily by potash salts. The differences are very remarkable; and whereas vanillin produces toxic effects very like those set up by dihydroxystearic acid, quinone, which is an oxidizing agent, is antagonized by those manures which retard oxidation.

Dr. Schreiner regards it as abundantly proved that harmful organic bodies such as these occur in soils, and it becomes possible that a given field may have a different fertiliser requirement from year to year, according as the rotation of crop and the consequent alteration in the plant remains returned to the soil. Such questions as these can only be investigated at experimental stations, where the history of the soil for many years past is known accurately; there can be no doubt that they will repay amply the cost and labour that they entail.

A National Dairy-Research Institution.

As our readers may remember, the scheme for developing agriculture which has been drawn up by the Board of Agriculture and passed by the Treasury involves three departures. First, the creation of staffs of experts in the various agricultural colleges whose functions will be to give advice in the locality of the several colleges and to conduct experiments calculated to lead to practical results useful to the local agricultural community. Secondly, the establishment of farm schools in the counties, which schools shall serve as centres for instruction in agriculture. Third, the foundation of six research institutes, which shall perform for agriculture generally what the local colleges are destined to do for the agriculture of the areas within their several spheres of influence.

Of these institutes, those for the study of plant breeding and animal nutrition are to be located at Cambridge. Soil studies are to be carried on at Rothamsted.

We now learn from an announcement made by Mr. Runciman, President of the Board of Agriculture, that the institute for dairy research is to be attached to the University College, Reading. Speaking at Reading last week, Mr. Runciman stated that, subject to the compliance of the college with the conditions imposed by the Board, the college would receive from the Development Grant a sum up to a maximum of £2,500 per annum to provide two-thirds of the annual cost of the Dairy-Research Institute. The Board of Agriculture would also provide half the cost of the necessary buildings.

Mr. Runciman also expressed the opinion, which will be shared by all interested in the advance of agricultural education, that the time is ripe for the formation of County Council Agricultural Committees, whose function should be to deal with all agricultural matters other than those which concern agricultural teaching in the elementary schools.

With respect to the advisory work to which we have referred already, the President announced that the Board of Agriculture is prepared to make grants to county councils in order to enable them to co-operate with the colleges in establishing strong staffs of advisory experts.

It would seem, therefore, that a great scheme for agricultural advance is started auspiciously, and it only remains for the counties to rise to the responsibilities which are offered to them, to appoint strong and representative committees to carry out the work of organising farm schools, and to arrange for co-operation with the colleges. The Board of Agriculture and its President, Mr. Runciman, have earned the thanks of the agricultural community for the energy with which they have carried to a successful issue the difficult negotiations connected with the scheme. In joining in these congratulations, we desire to express emphatically the hope that the farm institutes of the counties will not all be of a kind, and that in those counties where market gardening, fruit growing, and other branches of horticulture form important industries, the farm institutes will be so organised as to give prominence, and, indeed, priority to these special departments of horticulture.

ROYAL INTERNATIONAL HORTICULTURAL EXHIBITION.—We have announced already that the Belgian State Railways and the South-Eastern and Chatham Railway Company have agreed to issue cheap tickets (50 per cent. under the usual price) for visitors to the Exhibition from all parts of Belgium. The Great Eastern Railway has now decided to follow suit. This will be of great benefit to those who prefer to travel by the Hook of Holland-Harwich route, which is in many ways a very convenient one, though the sea-passage is somewhat longer than viâ Ostend-Dover. The large party of American visitors who propose to come over to England in order to visit the Exhibition, under the auspices of the *Florists' Exchange*, will travel by the White Star liner "Titanic," a boat of 45,000 tons register. The departure from New York is fixed for May 11, and the visitors will arrive about the 18th. The return will be fixed for a date sufficiently late to allow the visitors to make a short excursion to the Continent after the closing of the Exhibition.

ROYAL GARDENERS' ORPHAN FUND.—The committee of the Royal Gardeners' Orphan Fund acknowledges its indebtedness to a gentleman who was unable to be present at the recent annual meeting, but who has since made a contribution that will enable the committee to pay 5s. a week for 12 months to one of the unsuccessful candidates on that occasion.

BRITISH GARDENERS' ASSOCIATION.—We are requested to remind our readers that this association's dinner will take place at the Holborn Restaurant, on Thursday, March 14. The President, the EARL of PLYMOUTH, will occupy the chair.

Photograph by H. N. King.

"EAST" GARDEN, BLICKLING HALL, NORFOLK.

Printed by Temple Press Ltd., London, E.C.

MAR

R.H.S

EMPLOY

ultural

ployees i

ast bee

aminatio

written.

of these

second,

aminers

written a

marked g

the work

individua

andidate

siderably

ication o

generally

the requi

ummer div

A and B

headed b

wins the

THE RO

recommen

Royal Soc

n the bot

to our kn

slands;

valuable

and Prof.

PROF.

ROBERT N

Society is

s thorou

Dutton M

Lon. Co

Liverpool

search in t

tions abro

ration.

behalf of

nnects in

ons to M

under wh

the third

nly at th

to investi

tsetse fly

NATION

society wi

Palace on

and 31 re

nference

Hall. Stra

THE SC

rdinary

held on M

cussion

The Sing

The annua

Rooms, H

UNITED

PROVIDEN

will be he

Vincent

March 11.

SOUTHA

SOCIETY.

anniversar

ccasion, s

A Rose sh

ism with

show will

ible inclu

Sweet Pea

ent flower

exhibits

terms and

R.H.S. EXAMINATION OF PUBLIC PARKS EMPLOYEES.—The results of the Royal Horticultural Society's seventh examination of employees in public parks, held on January 8, have just been published. As previously, the examination was partly vivâ voce and partly written. Forty-nine candidates entered, and of these 17 secured places in the first, 7 in the second, and 16 in the third class. The examiners report that the average quality of the written answers equals that of former years, no marked general improvement being noticeable in the work of the candidates. Many cases of individual improvement, however, were noticed—candidates of past years being found to have considerably extended their knowledge. The identification of specimens was better, the names being generally given unhesitatingly and correctly. At the request of the London County Council, the former division of the candidates into two groups, A and B, had been discontinued. The list is headed by Mr. J. NASH, Leicester, who thus wins the Society's Silver-gilt Medal.

THE ROYAL SOCIETY.—Among the candidates recommended by the Council for election to the Royal Society are Mr. L. COCKAYNE, whose work in the botany of New Zealand has added greatly to our knowledge of the flora and ecology of those islands; Mr. R. C. PUNNETT, who has made valuable contributions to the science of genetics, and Prof. NEWSTEAD.

PROF. R. NEWSTEAD.—The nomination of Mr. ROBERT NEWSTEAD to the Fellowship of the Royal Society is a signal honour for a gardener, and is thoroughly well deserved. Mr. NEWSTEAD is Dutton Memorial Professor of Entomology, and Hon. Consulting Entomologist to the City of Liverpool and the Institute of Commercial Research in the Tropics. He has made three expeditions abroad in the interests of scientific investigation. The first one was to Jamaica, where, on behalf of the Government, he went to study the insects infesting cattle. The second expedition was to Malta, to enquire into the conditions under which sandfly fever is disseminated, and the third expedition, from which he returned only at the end of last year, was to Nyassaland to investigate the part that is played by the tsetse fly in the transmission of sleeping sickness.

NATIONAL CHRYSANTHEMUM SOCIETY.—This Society will hold two exhibitions at the Crystal Palace on October 2 and 3 and October 29, 30, and 31 respectively. A third exhibition and conference will be held on November 20 at Essex Hall, Strand.

THE SURVEYORS' INSTITUTION.—The next ordinary general meeting of this society will be held on Monday, March 11, when the adjourned discussion on Mr. EDWIN SAVILL's paper on "The Single Tax Movement" will be resumed. The annual dinner will be held at the Whitehall Rooms, Hotel Metropole, on Tuesday, April 23.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.—The annual meeting will be held at the Royal Horticultural Hall, Vincent Square, Westminster, on Monday, March 11, at 8 p.m.

SOUTHAMPTON ROYAL HORTICULTURAL SOCIETY.—This society celebrates its fiftieth anniversary this year, and, in order to mark the occasion, several exhibitions have been arranged. A Rose show will be held on June 26 in connection with the National Rose Society. The Jubilee show will be held on July 16 and 17. The schedule includes 36 classes for Carnations, 12 for Sweet Peas, and over 60 for plants, miscellaneous cut flowers, fruit, and vegetables. The autumn exhibition includes many classes for Chrysanthemums and fruit.

VISITORS TO KEW GARDENS DURING 1911.—The number of visitors to the Royal Botanic Gardens, Kew, during the year 1911 was 3,704,606. These figures represent an increase of 158,304 persons over the year 1910, when there were 3,546,302 visitors, and are the highest yet recorded. The month in which the largest number of persons visited the gardens was July, when 737,946 visitors were recorded. There were 157,425 visitors on June 5, 1911.

CUCUMBER CANKER.—The Board of Agriculture and Fisheries desire to warn all growers of Tomatos that the disease known as Tomato and Cucumber canker (Mycosphaerella citrullina) is included among the diseases which, in pursuance of the Destructive Insects and Pests Order of 1910, must be reported to the Board by the occupier of any premises on which they appear. A description of the disease is given in the Board's leaflet No. 230, copies of which may be obtained free of charge and post free, on application to the Secretary, Board of Agriculture and Fisheries, 4, Whitehall Place, London, S.W. Growers who are in doubt as to whether or not the disease is present on their premises should submit specimens of affected plants to the Board for determination. Up to the present the disease has been chiefly confined to Tomatos grown under glass. Occupiers of premises on which the disease appeared last year are strongly advised not to plant Tomatos in the same soil, unless it has been adequately sterilised, and to spray all their plants during the early part of the season with Bordeaux mixture or a solution of liver of sulphur (1 lb. to 32 gallons of water).

THE SCHOOL OF AGRICULTURE, CAMBRIDGE.—Though it is but a few years ago that the agricultural laboratories of the University of Cambridge were erected, it is now found necessary to enlarge them to double their present size. This is due not only to the natural growth of the School of Agriculture, but also to the fact that Cambridge has been selected by the Development Commissioners as the centre for the special institutes for research in plant-breeding and in animal nutrition.

PRESENTATION TO A NURSERY EMPLOYEE.—To mark the retirement of Mr. SAMUEL POPE, Begonia specialist in Messrs. THOMAS S. WARE'S, LTD., nursery at Bexley Heath, after upwards of 50 years' service with the firm, the principals and his fellow-employees have made him a present of a marble clock. Mr. POPE commenced his gardening career in the nurseries of the late Messrs. LUCOMBE, PINCE & Co., Exeter, and for several years was with Messrs. JOHN LAING & SONS, Forest Hill. He retires on a pension.

FIG. 65.—CATTLEYA BRENDA (C. DUSSELDORFEI UNDINE × C. GASKELLIANA ALBA): A PURE WHITE VARIETY.

(Received R.H.S. Award of Merit on the 20th ult. See report on p. 126 *ante*.)

FLOWERS IN SEASON.—We have received some remarkably fine flowers of a dark-red, anemone-centred Camellia from Sir ALBERT ROLLIT, LL.D., gathered from a tree in the open garden, bearing altogether 150 expanded blossoms.

GARDENERS' ROYAL BENEVOLENT INSTITUTION (LIVERPOOL AUXILIARY).—The annual smoking concert in aid of the funds of the Gardeners' Royal Benevolent Institution, promoted by the Liverpool Auxiliary, was held on the 27th ult. under the chairmanship of the LORD MAYOR of Liverpool (Lord DERBY). The Auxiliary has recently forwarded to the treasurer of the Institution the sum of £50, making a total of £510 11s. as the contributions from friends in the Liverpool district during the past 10 years.

PROTECTION FROM BIRDS.—In the recent Essay Competition on the protection of agricultural and horticultural crops from attacks by birds, instituted by the Royal Society for the Protection of Birds, eight of the essays sent in were chosen as first-class. These are placed in their order of merit:—1st prize, E. PURNELL JONES, Crewe; 2nd prize, EDWIN JAMES PLATT, The Gardens, Borden Wood, Liphook; NELSON ROOKE, Risby, Bury St. Edmunds; FRANCIS J. LANSDELL, Inglewood Nursery, West Moors, Dorset; WM. MASON, Tuddenham, near Ipswich, and GEO. FRISBY, Quorn, Loughborough; JOHN JAMES, Cromere Farm, Felinfach, Cardiganshire, and THOS. BENJ. SMITH, Hewelsfield, St. Briand's. The judges were G. L. COURTHOPE, Esq., M.P.; CHAS. F. ARCHIBALD, Esq., lecturer in agriculture at Leeds University, and FRANK P. HAVILAND, Esq. The prizes are to be presented at the annual meeting of the Society, which takes place on March 5 at the Westminster Palace Hotel, by her Highness the Ranee of Sarawak (Lady BROOKE), when his Grace the Duke of RUTLAND will take the chair.

APPLES FROM AUSTRALIA.—The first shipment of Victorian Apples has just been despatched to the home markets. The quality of the fruit is said to be remarkably good, although at the present it looks as if the volume of the Apple exports this season will be slightly below that of last year.

THE PAPAW IN QUEENSLAND.—The *Queensland Agricultural Journal* for January, 1912, contains an illustration of a Papaw tree (Carica Papaya) bearing 130 fruits, ranging from 2 lbs. to 4 lbs. each in weight. The plant is only 12 months old, and is growing in the garden of Mr. J. C. HARRINGTON, Ascot, Queensland.

ANT PLANTS.—Few, if any, plants are more remarkable than the so-called myrmecophilous, or ant-plants, among which are the Javanese species Myrmecodia tuberosa and Hydnophytum montanum. These Rubiaceous plants are epiphytic, and possess tuberous stems of nearly a foot in diameter, which are chambered up into galleries generally infested with certain kinds of ants. TREUB showed long ago that the galleries are not formed in consequence of the presence of the ants, but occurred in the absence of these animals. Recent investigations of these wonderful plants by H. MIEHE are summarised by Mr. BOTTING HEMSLEY in *Nature*, February 29, 1912. MIEHE has shown that, in addition to the ants, the hollow chambers of the tuberous stem of Myrmecodia and Hydnophytum are occupied also by a fungus, probably a species of Cladosporium or Cladotrichum. The walls of the galleries are, so to speak, decorated in two colours: in certain parts they are smooth and yellow, in others black and warted. The messmates of these ant-plants affect one or other part of the galleries. The fungus, indeed, forming a thick layer on the walls, produces the black colour of the warty-walled galleries. These black areas are capable of absorbing considerable quantities of water. The ants, though they frequent all parts of the galleries, place their pupæ on the fungus-free yellow walls, and are careful to deposit their excrement only in the fungus-affected black parts of the galleries. Though it is easy to speculate as to the significance of these extraordinary relations between plant, fungus and ant, it must be admitted that we have as yet insufficient evidence on which to base our speculations. We can only wonder at the manifold contrivances of nature.

ARTIFICIAL RIPENING OF FRUITS.—A recent issue of the American periodical *Science* contains an article by Mr. F. E. LLOYD, of the Alabama Experimental Station, on the subject of the artificial ripening or "processing" of fruit, and is deserving of the notice of horticulturists. The article is mainly concerned with experiments on Persimmons, but it is clear that the results attained are applicable to other fruits. It appears that attention was first drawn to the subject by a practice followed by the Japanese for the ripening of the Persimmon fruit. It has been customary in Japan to pack this fruit in barrels which have recently contained Saké, the well-known spirit largely consumed by the Japanese. Under the influence of the Saké fumes, or possibly, as LLOYD suggests, owing to the absence of oxygen, the astringency of the fruit rapidly disappears. It has been found that Bananas can be ripened if kept in an atmosphere deprived of oxygen, and that Dates can be "processed" and finished for the market by exposing them to the fumes of acetic acid. LLOYD now announces that the process can be hastened by treating the fruit with carbon-dioxide under pressure. In an experiment with Persimmons six dozen of the unripe fruit were placed in an autoclave from which the air was expelled and replaced by carbon-dioxide at a pressure of 15 lbs. In less than 48 hours the fruits were removed, and, with one exception, were all found to have lost their astringency and to have become perfectly palatable. LLOYD is of opinion that the gas has a specific action, and that the disappearance of the soluble tannin is due to the coagulation of a colloid substance with which the tannin is chemically associated. The carbon-dioxide seems to accelerate all the processes of ripening except coloration, for a Persimmon fruit does not change from yellow to the normal ripe colour of deep orange under the influence of the artificial process. It is possible that these discoveries may find a practical application in this country in seasons when, owing to inclement weather, fruit fails to ripen satisfactorily.

FLORA OF THE UPPER GANGETIC PLAIN.—Mr. J. F. DUTHIE's descriptive work on the plants of the Indian District, of which Saharanpur and Dehra Deen may be considered the centre, has now reached the first part of the second volume, pp. 1-266. It contains the families Plumbaginaceæ to Plantagineæ in the sequence of Bentham and Hooker's *Genera Plantarum*. The first part of this publication appeared in 1903, and its completion has been retarded through the indifferent health of the author. The area embraced is partly subtropical, partly temperate, and the herbaceous and shrubby elements are prominent. The Scrophulariaceæ, Acanthaceæ and Lamiaceæ are numerously represented; yet there is no genus in any family numbering more than five or six species, except Heliotropium, eight; Ipomoea, twelve; and Leucas, nine. A very large proportion of the genera is represented by only one to three species each. Of the Acanthaceæ there are 25 genera and only 51 species; quite exceptional proportions. Among the trees of this region is the Teak, Tectona grandis, which is fully described, but all reference to its distribution, properties, and similar matters is wanting, whereas of the allied valuable timber tree, Gmelina arborea, full particulars are given.

FIG. 66.—BLICKLING HALL, NORFOLK.

Rothamsted Experimental Station.—The Government has decided to contribute a sum of about £2,000 annually to this institution to help the extension of new work on special lines of research.

A Rubber Pest.—Mr. Green, the entomologist at Peradeniya, describes in a recent issue of the agricultural *Journal* of the Royal Botanic Gardens, Ceylon, a new and very unexpected rubber-pest in the shape of the Rubber slug. The creature makes a habit of frequenting recently-tapped Hevea trees. Attaching itself to the wounds, it laps the latex. Crude rubber would not at first sight appear to be a likely article of diet even for slugs, but experiments show that when slugs are provided with saucers of latex, they take it as a cat laps milk.

Potassium in Plants.—Beyond the fact that potassium compounds are indispensable for plant-life, and apart from certain speculations, as, for example, that potassium compounds play a part in the manufacture of starch, little is known either of their distribution in the plant, or of the rôle of potassium in the economy of the plant. Recent investigations carried out by Dr. Weevers (*Recueil des Travaux Botanique Néelandais*, viii., p. 289), and summarised in *Nature*, January 25, 1911, add considerably to our knowledge on these heads. By the use of very delicate microchemical tests, Dr. Weevers has shown that potash compounds are not found in the cell-nucleus, nor in the chlorophyll grains; but that they are always present in a soluble form in the cytoplasm, where they occur mainly in vacuoles. Potassium compounds are found in the higher plants chiefly in the parenchyma, and particularly in that of the growing points and of reserve organs. Potassium compounds occur also in considerable quantity in the living elements of wood and bark, particularly in the cambium and medullary rays, the latter appearing to act as reservoirs of potash for the growth of new shoots. Dr. Weevers concludes that potash plays little or no part in carbon assimilation, but that it is, in all probability, concerned in the building up of new protoplasm, and in the synthesis and destruction of proteins in the leaf.

Charlock Spraying.—We have referred on several occasions to the beneficient effect of spraying with copper sulphate in keeping down this pestilent weed. A long series of experiments made by the Agricultural Department of the University College of North Wales (Bangor), and carried out at over 100 stations, demonstrate that in North Wales a spray fluid consisting of a 4-5 per cent. solution of copper sulphate, applied at the rate of 50 gallons per acre, destroys practically all the Charlock. For treating an acre of ground 25 lbs. of copper sulphate are required. For 100 square yards use ½ lb. in 1 gallon of water.

BLICKLING HALL, NORFOLK.

(See figs. 66, 67, and Supplementary Illustration.)

Blickling Hall, the residence of Robert Schomberg Kerr, tenth Marquis of Lothian, is situated about 1½ mile from Aylsham. The Manor of Blickling dates from remote times: it was held during King Edward the Confessor's reign by Harold, and formed one of the spoils of the Conqueror, who settled the entire manor and advowson on the See of Thetford. Blickling has further interest historically in its connection with the Boleyn family, for Anne Boleyn is said to have been born at Blickling in the old manor house built by Sir Nicholas Dagworth. This structure was demolished and the present mansion completed in 1623. Blickling came into the possession of the Lothian family by the marriage of William, sixth Marquis of Lothian, with Harriet, daughter of John, second Earl of Buckingham.

The formal garden was originally designed by Westfield, but the scheme was altered to the present plan by the late Constance Marchioness of Lothian. The principal garden (see Supplementary Illustration) is intersected by the broad pathway, leading with flights of steps at intervals to a pavilion. The effect is imposing viewed from either end of the pathway, belts of fine trees with clumps of shrubs encroaching in the sward providing a beautiful setting to the scene. The garden is adorned with statues and fountains, and includes remarkably well-trimmed hedges and borderings of Yew. The photographs from which our illustrations are reproduced were taken last summer when the beds were filled with flowering plants, and Mr. H. G. Oclee, who has been gardener at Blickling for more than 40 years, is to be congratulated on the excellent appearance of the gardens. Readers will remember the Blickling Pear, which was illustrated in *Gardeners' Chronicle*, February 22, 1908 (fig. 49); this Pear was discovered by Mr. W. Allan growing in these gardens. It received the R.H.S. Award of Merit on January 8, 1907. The original tree died a year or two ago, but not before it had furnished plenty of scions for purposes of propagation. The tree is a heavy cropper, and the fruits ripen in January.

[*Photograph by H. N. King.*

Fig. 67.—Blickling Hall: view in the flower garden.

IRELAND.

ROYAL HORTICULTURAL SOCIETY OF IRELAND.

At the meeting of this society, held on the 12th ult., it was arranged to hold the summer show on Thursday, July 11, and the autumn show on Tuesday, August 27. Both exhibitions will be held in Lord Iveagh's grounds. A spring show will be held in conjunction with the Royal Dublin Society's spring cattle and implement show on Wednesday and Thursday, April 17 and 18. Particulars may be obtained from the secretary, 5, Molesworth Street, Dublin.

SEASIDE SHRUBS.

Those who have gardens in close proximity to the sea-shore know the difficulty experienced in getting shrubs to thrive. Cold winds from the sea and the murky dampness that prevails during the autumn affect most kinds adversely, but the following genera will not only withstand the cold winds but actually thrive in places where other shrubs would perish: Escallonia, Euonymus, Cytisus (Broom), Choisya, Golden Privet, Viburnum Tinus, Olearia, Thuyopsis, shrubby Veronicas in variety, Rhamnus (Sea Buckthorn), Ribes (Flowering Currant), Fuchsia, Hydrangea, Golden Alder, Buddleia, Guelder Rose, and Cotoneaster. Some of these shrubs have coloured foliage and others produce bright berries, making a continual show from early spring till late autumn. If trees are desired a trial may be made of Pinus insignis, Cupressus, Abies, Silver Firs, Oak, Holly, Mountain Ash, Poplar, Beech, Sycamore, and Whitethorn. *W. A. M.*

THE BACKWARD SEASON.

Nearly 6 inches of rain fell in this district during January and February. Strong gales have been experienced, whilst frost, more severe than usually experienced here, extended over a period of nine days. Snow fell on Sunday, January 28. All early-flowering plants are much later than usual. During December, 1910, Wallflowers were flowering freely, and continued blooming throughout the winter. At the date of writing this note only one plant of Wallflower is in bloom, a self-sown seedling two years old. Polyanthuses are only just commencing to flower, and their flower-stalks are rather stunted. The first Narcissus opened its flowers on February 25. Iris reticulata, which last year flowered in January, has not yet shown its bud. Hepaticas at the foot of a south wall are in flower, but Anemones have not commenced to bloom, although Arabis and Aubrietia have a few flowers open. A few clumps of Lent Lilies have flowered freely. *Colin Ruse, Lambay Island, Rush, Co. Dublin.*

SCOTLAND.

SWEET PEA CULTURE.

Mr. JOHN GRIGOR, head gardener, Seapark, Forres, Elginshire, gave a lecture before the members of the North of Scotland Horticultural and Arboricultural Association on the 21st ult. Mr. Grigor said that sandy soil suited Sweet Peas very well, although the plants might remain longer in bloom in heavy soils. It was essential, said the lecturer, to procure fresh soil or turf each year to fill the trenches, the turf being stacked for a month or two before use. Some growers dig the trenches to a depth of 5 or 6 feet, and others to a depth of 3 feet. For his own part, he did not think anything was to be gained by deep trenching. He had proved that, and the trenches he made were 18 inches wide and 18 inches deep. Mr. Grigor then referred to the preparation of the soil which was put into the trenches, and said the best time for sowing seed to produce exhibition flowers was early spring. The composition of soil which he most favoured, and had found highly successful, was two parts fibrous soil, one part each of sand and manure from a spent Mushroom bed, with a few handfuls of charcoal. The strongest plants were obtained from seed sown in boxes. By the second week of March he had his plants transferred to a cold frame. The first week of April was a good time to start planting.

FORESTRY.

RAISING CONIFERS FROM SEEDS.

Mr. J. FERGUSON, Forester, Gregynog, Montgomeryshire, in a note on Raising Exotic Conifers from Seed, published in the *Transactions* of the Royal Scottish Arboricultural Society, gives the following table showing the approximate percentages of germination, and the time taken to germinate after sowing on May 1:—

Species.	When Collected.	Germinated after Sowing in.	Approximate Percentage of Germination.
		mths.	
Chamæcyparis nootkatensis	1st week of Oct.	13	75
		days	
,, Lawsoniana	,,	24	80
Cupressus macrocarpa ...	,,	28	20
Cryptomeria japonica ...	3rd week of Sept.	24	10
Wellingtonia gigantea ...	1st week of Oct.	18	30
Araucaria imbricata ...	3rd week of Sept.	60	75
Abies nobilis...	1st week of Oct.	60	70
,, grandis	,,	40	85
,, Nordmanniana ...	,,	24	40
,, Pinsapo	3rd week of Sept.	30	60
Pinus excelsa	1st week of Oct.	18	50
Thuja gigantea	End of Oct.	30	50
Cedrus Libani	,,	24	25

The cones were collected during dry weather, from trees ranging in height from 50 to 100 feet. They were placed in trays put into a frame on shelves close to the glass, and opened in a few warm, sunny days.

The seeds were sown in the beginning of May in boxes of sandy loam with a layer of cinders in the bottom, and were placed in cold frames on shelves, the surface of the soil in the boxes being about 9 inches below the glass. The frames were kept closed, except on hot, sunny days, when a little ventilation was afforded and the soil was watered. After germination, the seedlings were gradually hardened off, and by the end of July the lights were removed from the frames. The seedlings were left in the frames all the winter, being protected by mats during severe frost. In the late spring they were pricked out into lines in the nursery. There were practically no losses, except a few of the Wellingtonias which damped off in the autumn.

In most cases one box of each kind was sown. The box of Cupressus macrocarpa made a wonderful growth in the first season, the plants ranging from 9 inches to 1 foot in height, and when two years old they were over 2 feet in height. The box of C. nootkatensis, which was sown in the first week of October, did not germinate until 12 months afterwards. Its slow germination must be kept in mind when propagating this species.

Mr. Ferguson states that although some foresters prefer to keep seeds that lie dormant until the second year in sand pits for 18 months, and then to sow them in March, April or May, according to the species, he prefers to sow C. nootkatensis in the spring after it is collected, as he finds that the seeds then give a larger percentage of plants than they do if sown in the second spring. C. nootkatensis is also easily raised from slips or cuttings, which root readily if placed in a well-drained sandy loam in early spring or in autumn.

From a specimen of C. nootkatensis, 51 feet high, Mr. Ferguson gathered 1½ lb. of good clean seed; from one of A. nobilis, 90 feet in height, 7½ lbs. of cleaned seed; whilst a tree of Araucaria imbricata, 30 feet in height, yielded 8 lbs. of seeds.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

SPRAYING FOR BIG BUD.—I have been much interested by the correspondence on this subject. Much might be said in favour of both spraying and picking off the buds. I prefer the latter method myself, one of my reasons being that, if we spray to-day and it comes on to rain to-morrow, most of the spray fluid is washed off, and we only kill the mites that are reached by the fluid at the time of spraying. As the mites are continuously emerging from opening buds, it must be difficult to destroy them by that means, but if the buds are picked off before the period of migration, I think this ought to prove the better plan. The worst part of the matter, in my opinion, is in connection with people who let their bushes become badly infected and the mites to be carried to the bushes of people who do their best to keep them clean. Mr. Pearson is quite right in his assumption that the mites are carried by bees. I have found them on the legs of bees and on other insects, and the time when the bees are visiting the flowers is the principal period of the migration of the mites. Mr. Pearson is not quite right in assuming that the mites stand on their heads. I have watched them very many times; they have a sort of clasping apparatus on the posterior end of the body, by which they can stick on to almost any substance and place themselves at almost any angle, and by this means they place themselves vertically and wave their feet and legs in the air as if to catch some means of transit, and no doubt they are carried by various sorts of living organisms. We have numerous allotments in this district, in which were growing 10 or 15 years ago large numbers of Black Currant bushes; but, whilst taking a walk the other day I noticed the greater portion had vanished, due to the mite, and this in a great measure through neglect. If you tell people something about the life history of the mite, they take it to be a sort of fairy tale and do not trouble to remove the buds, which is not difficult in private gardens. I take a great interest in microscopic insects and their photography, but I have not yet been able to get what I consider a really good picture of the Currant-bud mite. *A. G. Blakey, The Gardens, Holmwood, Redditch*

PERPETUAL-FLOWERING CARNATIONS.—I was much interested in the notes (see p. 133) on the newer varieties of perpetual-flowering Carnations, and I quite agree with Mr. Usher that Lady Alington shows signs of its constitution having been weakened by over-propagation. With me the cuttings have come terribly slow and are stunted in appearance, although the stock plants appear healthy. Amongst the newer Carnations grown here Mrs. C. F. Raphael is probably the best. Countess of Onslow, a lovely shade of light heliotrope over a bright rose ground, was also good, and proved as free and persistent in flowering in mid-winter as Enchantress or Britannia. May I also say a word in favour of Rex? With me this has been far superior to Regina; it is a better colour, with perfect calyx, and the plant is a more profitable bloomer. Fire Glow is also a gem, and is a colour which is showing amongst this season's novelties somewhat, but I do not know if any will prove to have such good, all-round qualities as Fire Glow. Fairmount is a deep heliotrope, a huge flower, by far the biggest of its colour, but the constitution and habit of the plant seems to be somewhat weak. Duchess of Devonshire and Countess of Lathom, both dark crimsons, were disappointing here this year, and I trust they will do better in the coming season. Gloriosa is by far our best new pink, and has undoubtedly come to stay. Miss Winnie Pryor, grown side by side with Bay State, was preferred, and gave a larger percentage of blooms. Jessica, which is of a somewhat similar colour, does not pay to grow, except for exhibition, and I doubt even for this. Amongst varieties of earlier introduction, our best were Carola, Harlequin (which gives more flowers than Fire Glow, but is not so good), J. M. Crook (a beauty), Regal Mauve (a lovely and distinct colour), La Mode, and Lady Dainty. This last is so distinct that I wonder it is not grown generally. Wanoka, with 2½ feet stems, also must be mentioned; these all proved to be true winter bloomers, and gave a continuous supply from the end of September until the end of February. Mrs. C. W. Ward, Edith Waters, Alma Ward, Roseate Dawn all proved of exceptional merit, but bloomed in the autumn, and now that our main batch shows signs of going over, these are coming into full flower again. While these varieties have not been with us here true winter (December and January) bloomers, they have a niche to fill and are appreciated just now, when those which have been flowering freely for five months are seeking a rest from their labours. Those varieties that have had all their blooms cut will now be grown as cool as possible until the first week in May, when they will be planted out in a well-prepared border and give us cut flowers for another five months. Surely nothing in the garden gives a more grateful return for our labours than the Perpetual-flowering Carnations. This selection is made from over 70 varieties, gathered from all sources, and with the idea of getting the best from each. This year we hope to try 41 novelties in addition to the varieties I have mentioned. *C. C.*

FOREST AND ORNAMENTAL TREES IN 1911.—The observations on this subject on p. 138 are very interesting. Here, in South Hants., in a variety of soils, such as strong loam over clay with chalk below, in sandy soil, and in gravel, the results are quite opposite to those recorded in the case of Thuya gigantea (Lobbii), which suffered more here than any other tree evergreen or deciduous. Hundreds of specimens up to 20 feet high have died. In several instances whole hedges 12 feet high have perished; in one particular instance the subsoil is clay. Spruce suffered in strong soil very much; trees planted 30 years are much disfigured with dying branches, while some more recently planted died right out. In all cases the trees were growing on the flat; on a hill of chalk with a northern exposure they have not suffered at all. Specimens of Retinospora plumosa and Cupressus Lawsoniana 12 feet high in sandy soil over gravel succumbed. Too much praise cannot be given the Corsican Pine for planting in any kind of soil; here it thrives in stiff soil over clay and equally well in chalk with but a few inches of soil on the surface, and with a northern exposure equally well as those with a southern slope. It is infinitely better than the Scots or Austrian Pine for timber, trees 30 years old making useful material for estate work. As a wind screen no tree is so good as the Austrian Pine, and as a specimen it is handsome, the all-round growth and dark-green colour is pleasing. Larch 20 years old, growing in stiff soil, suffered much; hundreds, 25 feet high, died. *E. Molyneux, South Hants.*

SOLANUM JASMINOIDES.—This plant is hardier than is generally supposed. A specimen has done well against the south wall of the gardener's house here for some five or six years, and the growth reaches the roof in a luxurious riot of blossom and foliage every season. *Basil Levett, Wychnor, Staffordshire.*

Trees for Fuel.—The coal strike brings us to a very clear appreciation of the enormous value coal is to us Englishmen. In one respect it may be a blessing in disguise if it teaches us to economise it more and to prepare ourselves for the time, not so far distant, when our supplies of coal and oil are either exhausted or so dear that ordinary men cannot use them. Unless we can bottle up heat from the sun or obtain power from the winds and the tides, both for heat and power, we shall be dependent on such natural substances as wood and peat. It is well known that certain trees are good timber trees for firewood, and fast growers, but both timber and growth can be much improved by careful plant-breeding and cultivation. One of our finest gifts to posterity would be a really good fast-growing timber tree, which would grow almost everywhere, and that it would be making some sort of amend, even if it be a scanty one, for the atrocious and wasteful way the present generation has depleted the world's supply of fuel? Cannot such a tree be produced in a century or so of experimental cultivation? *R. Ramsden, Siddinghurst, Chiddingfold, Surrey.*

Plants for a Dry Border.—The following plants, in their order of flowering, seem to withstand practically every extreme of heat and cold. Many of them will reproduce themselves naturally from seed. (January). Various early-flowering forms of Galanthus according to soil; Crocus vitellinus and C. chrysanthus. (February). Galanthus; Crocus species, such as C. Imperati, C. Sieberi, &c.; Cyclamen Coum, and C. ibericum. (March.) Crocus species, such variety; Muscari; Narcissus Triandrus albus; azureum; and Iris reticulata. (April.) Cyclamen repandum, C. libanoticum; Anemones in variety; Muscari; Narcissus Triandrus albus; Scillas; and Iris Juno. (May.) Cyclamen and Iris pumila. (June.) Lilium umbellatum; Iris ensata. I. graminea, Spanish Irises, and hybrid Irises. (July and August.) Cyclamen europæum; English Irises. (September.) Crocus speciosum and C. sativus. (October.) Cyclamen; Crocus speciosus var. Critchisonii, C. eridiflorus; and Sternbergia lutea. (November.) Crocus medius and Sternbergia lutea. A good carpeting plant is the wild, white Violet, which flowers in great profusion during March and April. The Cyclamen and Narcissus Triandrus albus require a light, sandy soil containing lime rubble; shade, or partial shade from sunshine, as do Anemone pulsatilla, A. ranunculoides, and Iris reticulata. *Basil Levett, Wychnor, Staffordshire.*

Lilies and Sunshine.—In Mr. Grove's article, so full of interest to the lover of this beautiful genus, special praise is given to a Lily of recent introduction, namely, Lilium myriophyllum. I believe there is a great future before this particular plant, for its points of recommendation are hardiness, healthiness, fine habit and exceptional beauty. I well remember unpacking the cases as they arrived, very, very late in spring from China. The bulbs had been packed in the previous autumn, cased in mud, as is the usual method, but so hardly had they fared on the voyage that but very few reached their destination in the mud envelopes. They were terribly dry and had commenced to grow, each bulb having a shoot of sickly white, flabby leaves protruding. They had then a very peculiar appearance, for the leaves are very narrow, and they looked like bulbs with bunches of half-dead grass on the top. Such were the unpromising bulbs when they first arrived. They were planted immediately in a rather heavy, loamy soil, and one or two flowered with a single flower the first year (1909). The bulbs were taken up in the autumn, and they looked in a very poor condition, the young bulb in many cases being small. They were planted again after a brief rest, and in 1910 the flowers made a beautiful sight. Most of the plants were single-flowered, but others had up to as many as six flowers to a stem. The foliage was perfectly healthy, without a trace of the disease that had taken off a whole lot of L. Brownii received from China at the same time. And last year (1911) they were better and stronger than ever. Mr. E. H. Wilson, who collected them, said that they were found in a very hot valley, in a heavy soil containing lime, and that the Chinese natives of that particular locality grew them over the porches of their houses, planted thickly together in about 6 inches of clay, the only water they got being from the rain; and in this position they flowered abundantly. These remarks, I think, fully justify Mr. Grove's contention that L. myriophyllum is possibly the most satisfactory of all modern Lilies. It seeds freely and germinates readily, is easily propagated from scale offsets, and should before long be plentiful enough to be in every garden where plants of beauty and interest are treasured. In planting it is well to avoid peat, giving the bulbs rather clay. Plant in full sunshine. *Thos. H. Chandler, Wittington Hall, Marlow, Bucks.*

SOCIETIES.

ROYAL HORTICULTURAL.

March 5.—The spring exhibitions include the most successful of the Royal Horticultural Society's fortnightly shows, and the meeting on Tuesday last emphasised the popularity of these shows. Every space, even in the two annexes, was occupied with exhibits, although those not of a purely horticultural nature had been excluded. The success was partly due to a special bulb show, whilst the Narcissus Committee met for the first time this season. The show attracted a large number of visitors, and during part of the time the avenues were packed as on Temple Show days. The exhibits of Orchids were remarkable, both for numbers and quality; but the Orchid Committee granted only two Awards of Merit.

The exhibits in the floral section included large groups of Indian Rhododendrons and other flowering shrubs, Carnations, Primulas, Ferns, bulbous plants, and rock-gardens. The Floral Committee recommended four Awards of Merit. The Fruit and Vegetable Committee made no award to a novelty.

At the 3 o'clock meeting of the Fellows, a lecture on "The Stimulation of Plant Growth" was given by Professor H. E. Armstrong, F.R.S.

Floral Committee.

Present: Henry B. May, Esq. (in the Chair); and Messrs. Chas. T. Druery, John Green, T. W. Turner, G. Reuthe, R. C. Notcutt, W. J. Bean, F. Herbert Chapman, Charles Blick, W. Howe, J. F. McLeod, J. Dickson, W. Bain, Chas. Dixon, R. C. Reginald Nevill, Herbert J. Cutbush, Charles E. Shea, J. T. Bennett-Pöe, W. P. Thomson, E. H. Jenkins, W. J. James, F. Page Roberts, Charles E. Pearson, George Paul, W. B. Cranfield, and R. Hooper Pearson.

Messrs. James Carter & Co., Raynes Park, provided, against the side wall of the Hall, a spring garden scene. Tall Cedars, shapely Cryptomerias, and other Conifers hid the wall up to a goodly height, and rockwork was arranged at the foot. Water spouted from the mouths of a couple of stone dragons, and splashed into pools below. These circular pools, enclosed with rugged stones, had a dense band of bright Crocuses. A weather-worn, bronze, Japanese vase was placed on a granite pedestal in the centre of the garden, and contained a number of bright Tulips, whilst many pale-blue Hyacinths encircled its base. Around and on either side of this centrepiece stretched a smooth, green lawn of grass. Circular flower-beds were cut out of this velvety lawn, and in them grew almost perfect Hyacinths. Brightly-hued Tulips displayed their charms. Many of the boulders which were used in the rockwork came from Japan, and amongst them Daffodils in plenty, Pyrus japonica, and other spring flowers lent their aid towards making this spring scene pleasant to the eye. (Silver-gilt Flora Medal.)

Messrs. James Veitch & Sons, Chelsea, showed superb plants of Rhododendron indicum, arranged on a staging, with here and there a standard specimen as a foil. With these were Prunus sinensis, double-flowered variety, Amygdalus persica rosea, Wistaria Viburnum Opulus, and Staphylea colchica. As a table exhibit, this firm showed indoor flowering plants, making a bright group with Primula × kewensis, Boronia megastigma, Lily of the Valley, Tillandsia Zahnii, with yellow flowers; and Cyclamen, with fimbriated petals, of the type known as "Papilio" or Butterfly. The new variety of Rhododendron indicum, Blushing Bride, was shown in a batch of excellent plants. (Silver-gilt Flora Medal.)

Messrs. Sutton & Sons, Reading, exhibited Hyacinths arranged in batches of two sorts, to show effective colour blending. The best effects were pale yellow and light blue, pink and deep blue, yellow and deep blue, blush and light blue, and light blue and dark blue. The plants were excellent specimens, with large inflorescences, and arranged with small Ferns. (Silver-gilt Banksian Medal.)

Messrs. H. B. May & Sons, The Nurseries, Edmonton, staged Clematis in groups of distinct varieties, including Lord Wolseley (blue), Mrs. Quilter (white), Miss Bateman (white), and Lady Londesborough (lavender). Ferns were employed as a groundwork to the flowering plants. (Silver Banksian Medal.)

Messrs. W. Cutbush & Son, Highgate, exhibited, as on the last occasion, a showy group of forced shrubs and vases of Carnations. Magnolias, Azaleas, Lilac, and Prunus triloba were all good. Amongst the Carnations, the choicer varieties were Miss Winnie Hey (yellow ground, with pink markings), White Wonder, Mrs. Lucy Mackinnon (a large, scarlet flower, very fragrant), Lady Meyer (pink), and Countess of Lathom (crimson). (Silver Flora Medal.)

Mr. L. R. Russell, Richmond, showed an exceptionally large exhibit of Indian Azaleas (Rhododendron indicum), with a few forced shrubs. The Azaleas presented a bank of bright flowers, and were greatly admired. Mr. Russell also showed a small rock-garden exhibit. (Silver-gilt Banksian Medal.)

Messrs. R. Gill & Sons, Falmouth, showed trusses of Himalayan Rhododendrons, including R. barbatum (scarlet), R. b. carneum (flesh colour), and Mrs. Henry Shilson (soft blue). Other plants in the exhibit included Andromeda japonica, Erica codonodes, Camellias in variety, and the beautiful Cyclamen Coum.

Messrs. Paul & Son, Old Nurseries, Cheshunt, staged dwarf plants of Lilacs in bloom.

Messrs. Wm. Paul & Son, Waltham Cross, Hertfordshire, put up a very pretty exhibit of flowering Peaches and Almonds, with Magnolias as a background. (Silver Flora Medal.)

Messrs. H. Cannell & Sons, Swanley, Kent, showed Zonal-leaved Pelargoniums in 50 varieties, also winter-blooming Begonias, a dwarf type of Stellate-flowered Cineraria, Isoloma hirsuta, and Amphicome Emodii.

A batch of Primula obconica of an exceptionally fine strain was shown by Adeline Duchess of Bedford, Chenies, Rickmansworth (gr. Mr. J. Dickson). (Silver Banksian Medal.)

A batch of well-flowered Freesias was shown by Mr. H. Brotherston, Knebworth, Hertfordshire.

Mr. H. N. Ellison, West Bromwich, showed hybrid Gerberas and Freesias.

Mr. H. Burnett, St. Margarets, Guernsey, again showed superb blooms of perpetual-blooming Carnations, for which a Silver Flora Medal was awarded.

Messrs. Allwood Bros., Haywards Heath, showed a small but pretty exhibit of Carnations. La Rayonnante (yellow) and Geisha (puce, described by the exhibitors as a shade of heliotrope) are two novelties exhibited well by this firm.

Mr. B. E. Bell, Castel Nursery, Guernsey, showed the cerise-pink Carnation Coronation, also White Wonder, R. F. Felton, Mikado, and others.

Mr. C. Engelmann, Saffron Walden, Essex, received a Bronze Flora Medal for a collection of Carnations of the perpetual-blooming type.

Messrs. Stuart Low & Co., Bush Hill Park, Enfield, were also the exhibitors of Carnations, as well as greenhouse flowering plants in variety. (Bronze Flora Medal.)

Messrs. Young & Co., Cheltenham, and Messrs. W. Wells & Co., Ltd., Merstham, Surrey, also exhibited Carnations of the perpetual-blooming type.

Hardy Plants.

Mr. Clarence Elliott, Stevenage, again put up a rockery similar to the one he displayed at the last meeting, and much the best of its kind in the hall. The plants were arranged so as to present sheets of flowers of such choice subjects as Saxifraga Burseriana speciosa, S. Gloria, S. apiculata (yellow), S. oppositifolia alba, S. splendens, and Primula Allionii. (Silver Banksian Medal.)

Messrs. BARR & SONS, King Street, Covent Garden, showed batches of Crocuses, including King of the Whites, purpurea grandiflora, President Lincoln (purple), and Golden Yellow. Iris reticulata, Muscari azureum, Scillas, Chionodoxa sardensis, and Saxifraga Burseriana magnifica were all shown well. (Silver Banksian Medal.)

Mr. GEO. REUTHE, Keston, Kent, showed many uncommon hardy plants, backed with shrubs of choice sorts. A truss of Rhododendron argenteum attracted attention, also a fine specimen of Berberis Bealii. Amongst the Alpines we noticed Saxifraga lilacina, Iris persica, Saxifraga Boydii, Androsace pyrenaica, Ranunculus Kernerianus, Anemone blanda Cynthinica (white and blue, very pretty), and Tecophilæa cyanocrocus.

Messrs. R. WALLACE & Co., Colchester, had a squat rockery which presented a more natural appearance than the usual ridge arrangement. The more interesting plants were Anchusa myosotidiflora, Iris bucharica, I. persind, I. sindjarensis, Primula Palinuri (like a richly-coloured yellow Cowslip), Fritillaria chitralensis, Tulipa Clusiana, and T. Kaufmanniana.

Messrs. G. & A. CLARK, LTD., Dover, showed coloured Primroses, and other early hardy flowers, with shrubs as a background.

Mr. MAURICE PRICHARD, Christchurch, Hampshire, exhibited forms of Primula cashmeriana, those labelled grandiflora, Riverslea, and pallida oculata being the choicer. A box filled with Saxifragas in small pots was interesting. A hybrid named L. G. Godseff has bright-yellow flowers. Other plants of interest were Primula viscosa, Gentiana acaulis, Anemone fulgens, Megasea Stracheyi (very fine), and Daphne Genkwa.

A rock-garden planted with Alpines was arranged by the BURTON HARDY PLANT NURSERIES, Christchurch, Hampshire. Daphne Blagayana, Polygala Chamæbuxus lutea and Hepatica angulosa alba are three good Alpines.

Messrs. WHITELEGG & PAGE, Chislehurst, Kent, put up a rock-garden exhibit planted with Aubrietia Violet Queen, Primula malacoides, Viola gracilis, Draba azoides, and other suitable plants.

Messrs. THOMPSON & CHARMAN, Bushey, Hertfordshire, exhibited a small rockery, having weather-beaten stones well arranged and planted with Ranunculus creticus, Lithospermum rosmarinifolium, Iberis saxatile, and other early-flowering hardy plants.

Messrs. BAKERS, Wolverhampton, showed boxes of Alpines. We noticed Shortia galacifolia, Ranunculus amplexicaule, Anemone Ingramii, Primula megaseæfolia, and P. frondosa in flower.

The GUILDFORD HARDY PLANT NURSERY exhibited hardy plants, including Alpines. Polygala Chamæbuxus and its purple-flowered variety were flowering well in pots.

Mr. H. G. PULHAM, Elsenham, Stansted, Essex, showed a small but neat rockery planted with seasonable flowers.

Messrs. JOHN PEED & SON, West Norwood, showed Lachenalias and a great assortment of Alpines in small pots.

Messrs. WARE, LTD., Feltham, exhibited Alpines and dwarf shrubs in considerable numbers.

Other exhibitors of hardy plants were the Misses HOPKINS, Mere Gardens, Shepperton, and Mr. JAMES BOX, Lindfield, Sussex.

AWARDS OF MERIT.

Rhododendron indicum "Blushing Bride."—This plant is an acquisition to the Indian "Azaleas" that will be prized for its semi-double flowers 3½ inches in diameter of a beautiful, clear shade of flesh-pink. (Shown by Messrs. JAMES VEITCH & SONS.)

Corylopsis multiflora.—This new species from China has bright-yellow inflorescences of great attraction. It was shown as a small pot plant in full flower by Miss WILLMOTT, V.M.H.

Pteris "Parkeri."—A seedling variety of Pteris with broad fronds and erect habit of growth, this plant will be valuable for market culture and decorative purposes generally. Shown by Mr. J. J. PARKER, Rose Nursery, Whetstone.

Rhododendron "Cornubia."—This reddish-crimson flowered Rhododendron is described as a hybrid from R. Shilsonii and R. arboreum. The colour is very effective at this early season. Shown by Messrs. R. GILL & SONS, Falmouth.

Narcissus Committee.

Present: E. A. Bowles, Esq. (in the Chair); Miss Willmott, and Messrs. A. R. Goodwin, E. H. Chapman, Herbert Smith, W. T. Ware, G. W. Leak, J. Jacobs, Alex. Wilson, J. T. Bennett-Pöe, H. A. Denison, G. H. Engleheart, P. Rudolph Barr, W. A. Watts, C. Digby, and C. H. Curtis (secretary).

Messrs. R. & G. CUTHBERT, Southgate Nurseries, staged a comprehensive collection of Tulips in bloom. There were 40 varieties shown in small sets, and the colours were admirably blended. The rich yellows contained Golden Queen and de Wet. The best pinks were Pink Beauty and Alice Roosevelt. Reds included Sir Thomas Lipton, Couleur de Cardinal and La Grandeux, whilst Pottebakker and Princess Helene were the best of the whites shown. (Silver-gilt Banksian Medal.)

Mr. CHRISTOPHER BOURNE, Simpson, Bletchley, staged a comprehensive collection of Narcissi. Laura (an improved Pheasant-eye Narcissus), Viscount Falmouth (very pale-primrose colour), Red Eve (with a very bright-orange eye), Lady de Bathe (yellow trumpet), Golden King (a rich yellow), St. David (with widely-reflexed trumpet of rich yellow colour), and Helios (an exceptionally fine flower with large orange-coloured trumpet) were especially good. (Silver Flora Medal.)

Messrs. CARTWRIGHT & GOODWIN, Kidderminster, staged a selection of the best Narcissi. Where all were so good it was difficult to select any for especial mention, but perhaps the hybrids from N. poeticus were the most noteworthy. The sweetly-scented, deep-yellow odorous rugulosus claimed many admirers. Several vases contained a good selection of the pale Triandrus hybrids, and near to these was Red and Gold, which may be described as being a greatly-improved "Butter and Eggs" Daffodil. Aspasia is a fine cluster Narcissus, which was shown in splendid condition. (Silver Flora Medal.)

Messrs. BARR & SONS, Covent Garden, London, included a fine batch of the rich-yellow Daffodil "King Alfred" in their interesting collection of Narcissi. There were several seedlings of the same type of great promise. The smaller-flowered varieties, such as the pretty White Hoop Petticoat, N. cyclamineus, N. c. minor, and N. Triandrus alba attracted a deal of admiration.

Messrs. CARTER, PAGE & Co., 52 and 53, London Wall, E.C., exhibited an attractive collection arranged on one of the tables in the annexe. The many Hyacinths, Tulips, and Narcissi were shown growing in ornamental pans of fibre, and amply set forth the value of this rooting medium. The Tulips included Silver Standard (with variegated foliage) and Yellow Prince (with pale-yellow stripes on its leaves).

Messrs. R. H. BATH, Ltd., Wisbech, staged Tulips, Narcissi, Hyacinths, Crocuses, and Chionodoxa Luciliæ, all grown in pans of moss-fibre. Crocus Kathlenn Parlow, a large flower with pure-white petals, in which the orange-coloured filaments were startlingly conspicuous, attracted the notice of visitors.

Messrs. WM. CUTBUSH & SON, Highgate, exhibited Hyacinths of many colours with large, compact trusses. The blooms of the pure-white La Grandesse were very fine.

Messrs. YOUNG & Co., Hatherley, Cheltenham, showed Narcissi, Freesia refracta, and Lachenalia Nelsonii in good form.

ROBERT SYDENHAM LIMITED, Birmingham, arranged Liliums, Spiræas, Narcissi, and Lily of the Valley in an attractive manner in bowls containing moss-fibre as the rooting medium.

Mr. HERBERT CHAPMAN, Rye, staged a selection of Daffodils in glass vases, prettily edged with Chionodoxa Luciliæ, rising from a groundwork of moss.

COMPETITIVE BULB CLASSES.

The prizes were presented by the Haarlem Bulb Society and Robert Sydenham Limited, who gave five prizes each in three classes, open to amateurs, for bulbs grown in moss fibre. The Dutch Society's classes numbered six—four for amateurs and two for traders.

AMATEURS.

The largest class was for 18 Hyacinths, distinct. There were five exhibitors, and each competitor deservedly received an award. All the blooms were fresh and clean-looking, and those in the premier collection, shown by the Duke of PORTLAND, Welbeck Abbey, Worksop (gr. Mr. Jas. Gibson), were splendid. Lady Derby (flesh pink), Correggio (white), King of the Blues, and Queen of the Pinks were the best varieties. 2nd, F. R. DIXON NUTTALL, Esq., Ingleholme, Prescot (gr. Mr. J. Barker), who showed Gounod (pale blue), Lady Derby, Menelek (deep blue), and Jacques in good form. 3rd, Lord HOWARD DE WALDEN, Audley End, Saffron Walden (gr. Mr. J. Vert).

In the class for 12 Hyacinths, distinct, the 1st prize was won by A. HANSON, Esq., Ivanhoe, Wavertree, who staged a dozen excellent plants. 2nd, The Marquis of SALISBURY, Hatfield House, Herts. (gr. Mr. H. Prime), whose fine exhibit was only a shade inferior to the 1st prize collection; the pale-pink Jacques was exceptionally fine. 3rd, Lord HILLINGDON, Wildernesse, Sevenoaks (gr. Mr. J. Shelton). There were eight competitors in this class, and they staged such unusually fine collections that the judges awarded no fewer than six prizes.

For six Hyacinths, distinct, the 1st prize was awarded to R. MORRISON, Esq., Wavertree, Liverpool. This was a fine exhibit of brightly-coloured blooms. 2nd, C. E. J. BISHOP, Esq., Norton Priory, Chichester, Sussex (gr. Mr. Edwards). 3rd, The Earl of LYTTON, Knebworth, Hertfordshire (gr. Mr. H. Brotherston).

There were only three competitors in the class for four pans containing Hyacinths, 10 bulbs of one variety in each pan. The 1st prize was awarded to the Duke of PORTLAND, for an almost perfect exhibit. The yellow-flowered City of Haarlem variety was exceptionally fine. 2nd, the Marquis of SALISBURY, Hatfield House, Hatfield (gr. Mr. H. Prime), whose premier variety was the pale-blue Electra; the pink-flowered La Victorie was also very fine. 3rd, His Excellency the AMERICAN AMBASSADOR, Wrest Park, Ampthill (gr. Mr. G. Mackinlay).

TRADE CLASSES.

The only competitors in the class for a collections of 100 Hyacinths in 20 named varieties were Messrs. R. & G. CUTHBERT, Southgate Nurseries, Middlesex, who set up their monster exhibit amongst a groundwork of Adiantum cuneatum growing in small pots. The finest varieties were Electra (pale blue), Perle Brilliante (a deeper shade of pale blue), King Menelek and Ivanhoe (deep blues), and Jacques (pink).

Messrs. CUTHBERT were also alone in the class for 20 Hyacinths in 12 varieties grown in pans, and were deservedly awarded the Gold Medal for a fine collection.

BULBS GROWN IN MOSS FIBRE.

Lady TATE excelled in the class for six vases of Tulips. This exceedingly bright collection of fine blooms was quite a feature of the show. Such well-known varieties as Keizerskroon, Duchesse de Parma, Prince of Austria, and the white Joost van Vondel were especially fine. 2nd, the Hon. Mrs. GUY BARING.

The best exhibit of six single Hyacinths grown in moss fibre was shown by Miss E. M. RAWLINS, Great Houghton Hall, Northampton. 2nd, Lady TATE, Park Hill, Streatham Common (gr. Mr. Howe). The well-known pale-blue Schotel was exceptionally good. 3rd, Miss C. A. MICHELL.

The 1st prize for six vases of Narcissi was won by Miss C. A. MICHELL, Oakfield, Cricklewood, who showed Victoria and Leonie in good form. 2nd, Lady TATE. The plants of Blood Orange and Mme. de Graaff were profusely flowered.

The judging of the exhibits in the competitive bulb classes was carried out by Messrs. A. Guldemond, P. van der Meer, J. M. van Zanthen (all from Holland), C. R. Fielder, Edwin Beckett, and J. D. Pearson. Among visitors from Holland were Messrs. G. H. van Waveren, Egbert Kersten, and Anthony F. Byvoet.

Orchid Committee.

Present: J. Gurney Fowler, Esq. (in the Chair); and Messrs. Jas. O'Brien (hon. sec.), Harry J. Veitch, Gurney Wilson, Stuart Low, R. A. Rolfe, R. G. Thwaites, T. Armstrong, A. A. McBean, W. Cobb, J. E. Shill, J. Charlesworth, H. G. Alexander, J. Cypher, W. H. Hatcher, W. P. Bound, A. Dye, Clive Cookson, W. H. White, C. J. Lucas, J. S. Moss, Lt.-Col. Sir George L. Holford, de B. Crawshay, and Sir Jeremiah Colman, Bart.

Sir George L. Holford, K.C.V.O., Westonbirt, again staged one of those splendidly-arranged groups of superbly-grown Orchids for which his collection, since it has been in the charge of Mr. H. G. Alexander, has been noted. The Society's Gold Medal was awarded. Fine forms of Cattleya Trianæ were a feature in the group, and they comprised the handsome C. T. Hydra, illustrated in the *Gardeners' Chronicle*, February 18, 1911, p. 108, with 60 flowers; C. T. Imperator, a noble variety, of fine shape; C. T. Mooreana, still one of the best; C. T. Mrs. Ed. Sondheim, a good white; C. T. Colossal, of great size and of uniform soft-rose colour; C. T. "Westonbirt variety," very distinct; C. T. Prince Rupert, of rich colour; C. T. Perfecta; C. T. Clinkaberryana; C. T. Ralph Sander; C. T. Madame de Hemptinne, all of great merit, and others. Other Cattleyas noted were the white C. Dusseldorfei Undine, and its hybrid, the still more beautiful C. Brenda (Dusseldorfei Undine × Gaskelliana alba), which received an Award of Merit, February 20; C. Maggie Raphael var. Flambeau, of rich, bright, rosy-crimson colour; forms of C. Percivaliana, including alba, the best white, and "Westonbirt variety," one of the best and largest coloured forms; and other showy Cattleyas. Brasso-Cattleya Thorntonii striata and B.-C. T. Colossal were grand forms of an old hybrid; B.-C. Madame Hye, B.-C. Euterpe and its larger "Westonbirt variety," B.-C. Digbyano-Trianæ, B.-C. Digbyano-Warscewiczii, and other Brasso-Cattleyas were also shown. Lælio-Cattleyas comprised fine varieties of about a dozen forms, the best being L.-C. Cranstouniæ "Holford's variety," a canary-yellow flower, with white lip; L.-C. Arbaces, a new form; and L.-C. Elva "Westonbirt variety." White forms of Lælia anceps were well displayed; showy Odontoglossums, including some charming forms of O. crispum, O. c. Brutus being the best, O. Canary Bird (a clear yellow), and O. ardentissimum Norman Cookson (a fine colour). Various Sophro-Cattleyas and good Phalænopsis Schilleriana, the best spike having 84 flowers, were also noted.

Messrs. Armstrong & Brown, Tunbridge Wells, came next in order of merit, their grand group, with a frontage of 38 feet, securing a Silver-gilt Flora Medal. The middle of their group was composed of showy Dendrobiums, with a number of the pure-white form of D. nobile, and a new and better variety, named D. n. virginale magnificum, which appears to be the largest pure white. D. nobile Armstrongiæ, one of the most beautiful, its large flowers being pure white, with a violet blotch on the lip, and other forms were also shown, and a good selection of yellow Dendrobiums, including forms of D. Melpomene and D. chessingtonense. A good show of Odontoglossums, both species and hybrids, a grand form of Miltonia Bleuana, hybrid Cypripediums, Brasso-Cattleyas, including a very charming new hybrid between C. Schröderæ and B. glauca, were also shown, together with some species of Masdevallias and a specimen of the fine white Cymbidium Bellianum "Armstrong's variety."

Messrs. Jas. Veitch & Sons, Royal Exotic Nursery, King's Road, Chelsea, were awarded a Silver Flora Medal for a good group, principally Cattleyas, Odontoglossums, and Cypripediums. Among the forms of Cattleya Trianæ, an interesting exhibit was the true C. T. Courtauldiana, which, with its thin, richly-spotted sepals and petals, caused a sensation at the Ghent Quinquennial Show, but which never after came in the same form, so far as colour goes. A good white Brasso-Cattleya Digbyano-Mendelii, a clear-rose B.-C. Digbyano-Warscewiczii, several of the richly-coloured Lælio-Cattleya Violetta, the new, dark-coloured L.-C. Orama (Dominiana × bletchleyensis), and some other Lælio-Cattleyas; a batch of hybrid Odontoglossums, Cypripedium macrochilum, some good forms of the showy C. Countess of Carnarvon, C. Æson giganteum, good Lycastes, the scarlet Odontioda Diana, and other plants, including a specimen of Disa sagittalis, with eight spikes of pretty white flowers, were also shown.

Messrs. J. Cypher & Sons, Cheltenham, were awarded a Silver Banksian Medal for an effective group, in which good forms of Dendrobium nobile and hybrids, Cymbidium eburneum, hybrid Cypripediums, including a very fine form of C. Miss Louisa Fowler; Odontioda Cooksoniæ, and other Odontiodas and Odontoglossums, the large, fleshy-flowered yellow and purple Masdevallia gargantua, and other Masdevallias; Angræcum citratum, Dendrobium aggregatum, Zygopetalum crinitum and some Lycastes were well shown.

Messrs. Sander & Sons, St. Albans, were awarded a Silver Banksian Medal for a good group of Phalænopsis, Odontoglossums, Cattleyas, Cypripediums, &c. The forms of Cattleya Trianæ were good, and specially interesting species noted were the white Houlletia Sanderi, Megaclinium maximum, Eulophia lurida, Dendrobium velutinum, Trichopilia suavis, Renanthera Imschootiana, the old Cœlogyne flaccida (very well flowered), Maxillaria porphyrostele, and other Maxillarias.

Messrs. Stuart Low & Co., Bush Hill Park, secured a Silver Banksian Medal for an effective group, in which were six distinct forms of Cattleya Schröderæ, one fine plant being of the white variety. A good specimen of Cœlogyne pandurata (with seven flowers), the rare Polystachya Laurentii, and the pretty orange-red P. paniculata from Uganda, good Phalænopsis Schilleriana, Cattleya Trianæ, Dendrobiums, Renanthera Imschootiana and Cymbidium insigne with two spikes.

Messrs. Hassall & Co., Southgate, were awarded a Silver Banksian Medal for a very interesting group, the centre of which was of several splendidly-grown Angræcum sesquipedale, bearing between them 25 fine, wax-like white flowers. Arranged with them were good forms of Cattleya Empress Frederick and other Cattleyas, a selection of very fine hybrid Odontoglossums, including O. Ianthe, O. Cooksoniæ, O. eximium, and O. ardentissimum, of the best dark type. Several good Miltonia Warscewiczii and Cattleya Mendelii Diana, a good white with slight pink tint on the lip, were also included.

Sir Jeremiah Colman, Bart., V.M.H., Gatton Park, Reigate (gr. Mr. Collier), was awarded a Silver Banksian Medal for a pretty group of hybrid Dendrobiums, including three forms of his handsome D. Golden Ray, for one of which see Awards. D. Lady Colman appeared as one of the handsomest of hybrid Dendrobiums. D. Margery Tyrrel Giles (a large white flower with violet eye), D. Cybele "Gatton Park variety," D. rubens, D. delicatulum, and others were also shown.

Messrs. W. Baylor Hartland & Sons, Cork, staged a small group of Cymbidiums, Cattleyas, Cypripediums, and Odontoglossums, the most interesting of which was Odontoglossum Brayanum (Groganiæ × Harryanum), a pretty, reddish-purple flower, with white tips and margins to the segments. The cross showed little of the O. Uro-Skinneri and O. Edwardii, the parents of O. Groganiæ.

Mons. C. Comte Joseph de Hemptinne, St. Denis-Westrem, Belgium, showed Cattleya Trianæ alba "Edelweiss," a very large, pure white flowers of fine form.

Sir Trevor Lawrence, Bart., Burford (gr. Mr. W. H. White), sent a grand specimen of Cymbidium Colmaniæ "Edenside variety," with several spikes.

The Duke of Marlborough, Blenheim (gr. Mr. Hunter), sent a pretty hybrid between Cattleya Miss Harris and Lælia purpurata.

Mr. E. V. Low, Haywards Heath, showed Odontoglossum The Premier, of unrecorded parentage, a large, finely-blotched flower.

Messrs. J. and A. A. McBean, Cooksbridge, showed a selection of Odontoglossums and the pretty Dendrobium amethystoglossum.

H. S. Goodson, Esq., Putney (gr. Mr. G. E. Day), sent Odontioda Diana "Goodson's variety," and other brightly-coloured Odontiodas; Odontoglossum ardentissimum Dayanum, of claret colour all but the margins and tips of the segments; and other rare Orchids.

F. Menteith Ogilvie, Esq., The Shrubbery, Oxford (gr. Mr. Balmforth), showed Cypripedium Euryades rubrum, of dark colour, and a bright hybrid Odontoglossum between O. cirrhosum and O. ardentissimum.

The Hon. Lady Neeld, Grittleton, sent Odontoglossum percultum "Carmania," a large white flower with purple spotting.

Messrs. Charlesworth & Co., Haywards Heath, staged a small group of exceptionally good things, including the white Brasso-Cattleya Queen Alexandra, Miltonia Bleuana nobilior, Cattleya Trianæ alba floribunda, C. Octave Doin, and Lælio-Cattleya Ixion (C. Octave Doin × L.-C. Myra), of a clear yellow colour; and a good selection of Odontoglossums.

J. Gurney Fowler, Esq., Glebelands, S. Woodford (gr. Mr. J. Davis), sent Cattleya Schröderæ Louisa, a pretty pink form, with crimson blotch on the lip, and very distinct from the ordinary type.

AWARDS.

Awards of Merit.

Odontoglossum Jasper (crispum, spotted variety × amabile), from J. S. Moss, Esq., Wintershill, Bishop's Waltham (gr. Mr. Kench). A very attractive flower, of good shape, the ground colour being pale pink, the surface uniformly spotted with reddish-brown. The cross is very variable, but always pretty.

Dendrobium Golden King superbum (Othello Colmanæ × signatum aureum), from Sir Jeremiah Colman, Bart. (gr. Mr. Collier). An abnormally fine form of the handsome yellow hybrid raised at Gatton Park. In this variety the buttercup-yellow flowers are tipped with rose, and the base of the lip is deep claret.

Cultural Commendation

To Mr. J. Carpenter (gr. to Fred. C. Stoop, Esq., West Hall, Byfleet) for a grand specimen of Angræcum sesquipedale, with 12 flowers expanded, and five buds.

To Mr. Collier (gr. to Sir Jeremiah Colman, Bart., V.M.H.) for a well-flowered specimen of Cymbidium grandiflorum.

Fruit and Vegetable Committee.

Present: J. Cheal, Esq. (in the Chair); and Messrs. W. Bates, A. Dean, J. Gibson, W. Pope, W. Fyfe, J. Willard, W. E. Humphreys, A. R. Allan, A. Bullock, Fred. J. Treseder, G. Reynolds, J. Davis, W. H. Divers, W. Crump, G. Wythes, J. Harrison, O. Thomas, A. Grubb, A. W. Metcalfe, F. Perkins, and G. Kelf.

The Duke of Rutland, Belvoir Castle, Grantham (gr. Mr. W. H. Divers), exhibited 40 dishes of Apples. All the fruits were remarkably good, especially considering that the Grantham district is not regarded as a good fruit locality. The varieties included King of Tompkins County, Belle de Boskoop, Sandringham, Belle Pontoise, Lincoln Holland Pippin, Castle Major, Belle Dubois, Hormead Pearmain, Russian Transparent, Bedfordshire Foundling, Winter Quarrenden, Newton Wonder, Barnack Beauty, Hoary Morning, Ribston Pippin, Cox's Orange Pippin, American Mother, and Allington Pippin. (Silver-gilt Knightian Medal.)

Messrs. Sutton & Sons, Reading, again presented one of their excellent collections of vegetables and salads. In the centre of the group were numerous heads of variegated Kales, which showed not merely beautiful colours, but also finely-cut leafage. Charming as these Kales are for garden decoration, they are quite tender and delicious when cooked. There were also baskets of Early Paris Cabbage Lettuce (well hearted), large-leaved Dandelion, and fine Chicory, the Dandelion and Chicory being well blanched. Mushrooms, French Breakfast Radishes, Mustard and Cress, Seakale, The Sutton Rhubarb, and several mounds of the Superb Early White Broccoli were also presented. Remarkably firm, white hearts of Harbinger Cabbage showed the value of this variety for an early supply. (Silver Knightian Medal.)

Mr. H. Becker, Five Oaks, Jersey, exhibited a somewhat elaborate machine which, in working, was rather noisy, for the cleaning of fruit, Tomatos, Potatos, and similar produce. The machine was inspected by the Committee, and the exhibitors were asked to send one to the Holland Park summer show, where it could be seen in operation, and, if there considered satisfactory, it would be sent to Wisley Gardens for further trial.

LINNEAN SOCIETY.

February 15.—At a meeting of the Linnean Society held on this date, Mr. Robert Harold Compton, M.A., read a paper, communicated by Prof. A. C. Seward, F.R.S., entitled "An Investigation of the Seedling Structure in the Leguminosæ," in the course of which he suggested that the tree habit is primitive in the Leguminosæ, and the herbaceous habit is derived from the tree type.

The reading of the paper was followed by a discussion, in which the following members took

part:—Miss E. N. Thomas, Mr. T. G. Hill, Dr. Ethel de Fraine, Mr. A. G. Tansley, the President, Dr. Otto Stapf, Sec.L.S., and Mr. Ernest Lee, the author replying.

Mr. C. E. Salmon exhibited an abnormal Orchis with enlarged drawings of the flowers, with the following note:

On April 23, 1911, Mr. P. H. Mitchiner gathered this remarkable specimen on the chalk downs above Reigate, and brought it to me for determination. At a first glance, Habenaria viridis or Herminium Monorchis might be suggested as a name, for the stem was about 4 in. high, with a spike of small, greenish-yellow flowers.

A close examination soon dispelled such an idea, and I saw at once that the specimen was unlike any British wild Orchid. Knowing that Mr. W. B. Hemsley had studied various species of this order very closely, I at once packed up the specimen and despatched it to him. I cannot do better than read the careful report he made upon it, only regretting that he is unable to be present to-night to explain personally the various points. He writes:—

"The suggestion of Dr. Focke (whose letter lay upon the table) is not very helpful, as the plant to which he refers proved to be a three-lipped and three-spurred Orchis Morio.

"The plants associated with this abnormal Orchis on the Reigate Downs include Orchis mascula, O. Morio (sparingly), O. ustulata (sparingly), Aceras, and, not far away, Habenaria bifolia; but of all these, O. mascula would be the only species in flower on such an early date as April 23.

"I should be very glad to hear any suggestions as to the origin of the plant."

I may mention that Mr. Hemsley showed the drawing at a meeting of the Scientific Committee of the Royal Horticultural Society on August 29, 1911, but no conclusion was arrived at.

DURHAM, NORTHUMBERLAND, AND NEWCASTLE INCORPORATED BOTANICAL AND HORTICULTURAL.

February 29.—The report of the council of this society for 1911, presented at the annual meeting held on this date, reveals an unfortunate financial state of affairs. Owing to a continuous rainfall on the second day of the summer show, which was held in Newcastle last July, a loss of £238 6s. 11d. had to be recorded, and this in spite of the fact that a saving of £100 was effected in the expenses of the show.

The society is faced with a cash deficit of £314 11s. 4d., after crediting the sum of £90 5s. received by donations to the deficiency fund, as a result of the appeal recently issued. With the hopes of raising funds to enable the society to again hold the usual summer show, it had been arranged to hold a café chantant on April 13, when several well-known local amateurs had promised to give an entertainment.

The principal creditors were allowing the society to defer part payment of their accounts until sufficient funds were raised. With the expected proceeds of the café chantant and the promised co-operation of the principal creditors, the record of the society, it was hoped, would be maintained and the usual summer show held.

The council suggested that the next summer show should be held on July 3, 4, and 5.

MANCHESTER BOTANICAL.

February 21.—A general meeting of the members of the Royal Botanical and Horticultural Society of Manchester and the Northern Counties was held on this date in the Lord Mayor's Parlour. The Lord Mayor (Mr. Councillor Royse) presided, and moved the adoption of the report of the Council and the financial statement. He said it was satisfactory to find the society had £840 more in hand than it had twelve months ago. It was also satisfactory to find that the net liability had been reduced to £4,737. Against that liability the society had the value of the land at Old Trafford. The society was getting into smooth waters, and was quite justified in again considering the question of holding of shows. It was, however, a matter that must be carefully considered. Mr. J. B. M'Kerrow seconded the motion. He said that the idea had been propounded in the last few weeks that the society's financial position was so safe and strong that it was time to make some little movement for the encouragement of horticulture in the way of exhibitions. Their liabilities in the gross were only £4,737, and competent valuers had said that the land at Old Trafford was worth £50,000. If that sum were realised and invested in a fund for the encouragement of horticulture a very important movement might be started in Manchester. Allusion was made in the report to the fact that some scheme had been suggested and would be put before that meeting, but the scheme had not been approved or adopted by the council. It was a scheme suggested by their secretary, Mr. P. Weathers. Mr. William Stones said the scheme referred to was not a subject for discussion at the annual meeting. It must be dealt with at a special meeting convened for the purpose. He suggested, therefore, that the paragraph referring to putting forward the scheme at that meeting should be deleted. Mr. C. E. Estcourt supported the suggestion, which was accepted by the meeting. The report was then adopted. The officers for the year were elected.

Obituary.

Herbert J. Adams.—We regret to announce the death of Mr. Herbert J. Adams, of Roseneath, Enfield. Mr. Adams was a vice-president of the Gardeners' Royal Benevolent Institution for very many years, a life Fellow of the Royal Horticultural Society, a prominent entomologist, and a well-known amateur cultivator of Orchids and other plants.

DEBATING SOCIETIES.

CHELMSFORD & DISTRICT GARDENERS'.—A meeting of this association was held on the 16th ult., when about 100 members were present; Mr. W. Seabrook presided. Mr. F. J. Chittenden, director of the Royal Horticultural Society's laboratories at Wisley, gave a lecture on "The Pollination of Orchards." Mr. Chittenden referred to experiments he carried out at the Essex County Council gardens at Chelmsford in 1902; the results were; that 18 out of 20 varieties of Apples did not set their fruits when the blossoms were protected from insects: there was also a similar percentage in the case of Pears. These experiments showed that an isolated fruit tree may not be productive, and that in orchards where large areas are planted with one variety, trees in the centre of the orchard were liable to be non-fertile.

READING GARDENERS'.—The fortnightly meeting of this society was held in the Abbey Hall, on the 19th ult.; Mr. F. G. Drew presided. The lecturer for the evening was Mr. F. Barnes, of the University College Gardens, Reading, his subject being "The Production of Early Vegetables and Salads." Mr. Barnes described the cultural details necessary to secure early and continuous crops of vegetables amenable to forcing, such as Potatos, Carrots, Turnips, Beetroot, Radishes, Cauliflowers, Rhubarb, Asparagus, Sea Kale, Peas and Beans. In dealing with early "Saladings," lucid instructions were given as to the best methods of producing a supply of Cucumbers, Tomatos, Radishes, Lettuces, Dandelion and Chicory.

BATH GARDENERS'.—The fortnightly meeting of this society was held on the 26th ult.; the President, Mr. C. T. Foxcroft, occupied the chair. A paper was read by Mr. Hillier on "Thoughts on Cottage Gardening."

KILMARNOCK HORTICULTURAL.—The third annual social gathering of the members of the above association was held on Friday, the 23rd ult.; over 160 persons sat down to supper. Following the supper, a short address on the work of the association was given by the president, Mr. R. K. Sillars.

CLEVEDON & DISTRICT HORTICULTURAL.—A meeting of this newly-formed debating society was held on Monday the 4th inst., the Rev. Sandford presiding. A paper was read by the Hon. Secretary, Mr. W. G. Edwards, on "The Cultivation of Onions for Exhibition." The lecturer gave details of the preparation of the soil for Onions by digging, trenching, and manuring. He also described the best way of raising Onions under glass, and of hardening the plants previous to planting them out-of-doors. At the next meeting Mr. H. Beazes will give a paper on "Liliums."

ANSWERS TO CORRESPONDENTS.

Acacia dealbata: *Botanist.* If you can place your Acacia in a warm greenhouse you may safely prune the plant as you suggest; otherwise it would not be wise to prune below the lateral shoots. After the plant has been pruned it is essential to guard against excess of moisture at the root. Spraying the stem several times a day on dry days will help it to break into growth. Should your plant require re-potting the best time to do this is when it has made half-an-inch or so of new growth.

Apple Lane's Prince Albert: *J. R. M.* This variety is regarded as a culinary Apple, and you may expect to be disqualified if you exhibit it in classes for dessert fruits.

Book: *F. B., South Norwood.* The editor of the *British Fern Gazette* is Mr. C. T. Druery, 11, Shaa Road, Acton.

Correction.—Owing to a printer's error, Cydonia was printed "Cyclonia" in our last issue, p. 138, column two.

Gardening Employment in America: *J. D. M.* The opportunities for English gardeners in America are greater in nurseries and trade concerns than in private establishments. A list of addresses of the principal nurserymen and seedsmen in New York will be found in the horticultural directories. But it is contrary to the law of that country to obtain an appointment before arriving in the United States, therefore it would be useless for you to advertise in the American horticultural journals.

Grubs: *Ireland.* The grubs are those of the common cockshafer, Melolontha vulgaris.—*J. E.* The millepedes contained in the glass tube are: (1) The small, pale species is Polydesmus complanatus; (2) the large, dark species is Julus terrestris, and the long, thin, pink-spotted species is Julus pulchellus.

Lobelia cardinalis: *Fergus.* Your plants are affected with a disease caused by Phoma devastatrix. Clear away all the diseased plants as they will never bloom, and spray the remainder with a fungicide two or three times at intervals of a week.

Names of Fruits: *E. Beck.* Annie Elizabeth.—*B. G. A.* Cullen.—*S. P. A.* Catillac.—*F. Z.* 1, Belle Dubois; 2, Greenup's Pippin; 3, Scarlet Pearmain.

Names of Plants: *A. S. & Co.* 1, Cornus Mas; 2, Populus sp., probably P. canescens; 3, Ligustrum lucidum; 4, Helleborus foetidus.—*G. H. B.* 1, Symphoricarpus orbiculatus; 2, Hippophæ rhamnoides (male form); 3, Veronica Traversii; 4, Pteris floribunda; 5, Osmanthus ilicifolius; 6, Prunus Davidiana.—*J. C. B., Queenstown.* 1, Cypripedium Boxallii; 2, Forsythia viridissima; 3, Pelargonium fragrans; 4, Eupatorium Weinmannianum.—*Lich.* 1, Begonia sub-peltata argentea; 2, Chlorophytum elatum variegatum.—*F. H.* 1, Xylobium squalens; 2, Coelogyne flaccida; 3, Stelis ophioglossoides; 4, Pteris geraniifolia.—*J. C.* Genista hispanica.—*H. H. A.* 1, Chionodoxa Luciliæ; 2, C.-L. var. sardensis; 3, Scilla sibirica.

Peach Trees Diseased: *E. A. C.* The injury is caused by the fungus Eutypella prunastri. Remove the badly diseased branches, and paint the remainder with a mixture of lime and soft soap.

Primula obconica Causing Skin Poisoning: *A. J. K.* The articles on Primula obconica to which you refer appeared in vol. xxv. of the *Gardeners' Chronicle* (see especially April 22, 1899, p. 253, where a remedy is given). A general article on Skin Poisoning by Plants was published in the issue for August 8, 1908, p. 110. Carbolic ointment was recommended as a cure for this complaint in *Gardeners' Chronicle*, September 14, 1907, p. 205.

Spiræa japonica Diseased: *Polegate.* The disease is caused by Botrytis cinerea. The plants should be sprayed at intervals of four days with a solution of liver of sulphur and afforded abundant ventilation.

Vine Leaves Withering: *H. C.* There is no disease present on the leaves. The symptoms suggest eelworm at the root. If knots are detected on the rootlets eelworm is almost certainly present, in which case quick-lime should be worked into the soil.

Wire Netting as a Support for Culinary Peas: *Enquirer.* Though ordinary wire netting is sometimes used for supporting Peas it is not to be recommended. If a substitute for sticks has to be used, employ supports of galvanised iron specially made for the purpose, procurable in lengths, 6 feet run and 5 feet in height, at about 5s. each.

Communications Received.—W. J. T.—T. E. B.—K. C.—Lich.—W. H. A.—J. E. B.—A. S. A.—J. T. R.—J. E. C.—H. F. M., Ceylon—E. J. P.—J. S.—Tomato Grower—J. J.—A. M. S.—H. B.—C. A. B., Coimbatore—H. H. S.—F. C. E., Leeds—J. S.—A. T.—W. E. T.—A. J. C.—J. H.—W. O. T.—W. K.—Dr. K. S. Vienna—F. J.—W. H. A.—W. E.—F. W. C.—N. P. P.—H. R.—G. M. T.—S. A.—G. W. Schroeder (Thanks for 2s. 2½d. for R. G. O. F. box).

THE GARDENERS' CHRONICLE

ESTABLISHED 1841

No. 3716

No. 1,316.—Vol. LI. {THIRD SERIES.} SATURDAY, MARCH 16, 1912. {Registered as a Newspaper.} {PRICE 3d. POST-FREE, 3½d.

SUBSCRIPTION—Inland, 15/-; Foreign, 17/6 [22fr. 10c.] [$4 26c.] per annum. Entered at the New York Post Office as second-class matter.

Postal Address—41, Wellington Street, Covent Garden, W.C. Telegraphic Address—"Gardchron, London." Telephone—Gerrard, 1543.

☞ For CONTENTS see page 163.

For Advertisement Charges see page iv.

NOTICE.

In consequence of the decreased Railway facilities caused by the Coal Strike, the distribution of the "Gardeners' Chronicle" may be delayed, although every effort will be made to prevent inconvenience.

Perfect Lawns.

WEBBS' PRIZE LAWN GRASS SEEDS
Mixtures for Tennis, Croquet, and Garden Lawns, Bowling Greens, etc., 1s. 9d. per lb.; 5s. per gallon; 35s. per bushel. No. 2 Mixture, 1s. 6d. per lb.; 4s. 6d. per gallon; 30s. per bushel. Carriage paid. Pamphlet on "Making and Renovating Lawns," post free.

WEBBS' LAWN GRASS MANURE.
Specially prepared, 28 lbs., 6s.; 56 lbs., 10s. 6d.; 112 lbs., 20s. Carriage paid. Lawn Sand (for eradicating weeds), 14 lbs., 4s. 6d.; 28 lbs., 8s. Carriage paid.—WEBB & SONS, The King's Seedsmen, Wordsley, Stourbridge.

FIDLER'S GIANT-FLOWERED SWEET PEAS. Send at once for our collection (C) of 14 named varieties, all separate, containing in all 1,000 good plump new seeds. Post free with catalogue for 1s. FIDLER & SONS, Royal Berkshire Seed Stores, Reading.

OSMUNDA for Orchids.—Consignments arrive fortnightly. 2s. 6d. per bushel; per bag, 8s. 6d. SANDER & SONS, St. Albans.

IRON & WIRE FENCING for GARDENS, Tree Guards, Gates, Arches, Espaliers, Rose Stakes, and Ornamental Garden Iron and Wire Work of every description. Send for Illustrated Catalogue, free. BOULTON & PAUL, Ltd., Manufacturers, Norwich.

DICKSONS Horticultural Manure & other high-class Fertilizers; also Dicksons Improved Mushroom Spawn. Priced Circulars free on application to DICKSONS, Royal Seed Warehouses & Nurseries, Chester

THE Popularity of "XL ALL" Specialities increases every year. All gardeners proclaim that nothing equals these celebrated preparations. "XL ALL" NICOTINE VAPORISING COMPOUND, the gardeners' favourite Fumigant, both Liquid and Cake. "XL ALL" NICOTINE INSECTICIDE WASH for Syringing, Dipping and Dressing Fruit Trees and Plants; Mealy Bug, Scale, etc., cannot exist where this is used. "XL ALL" INSECTICIDE WASH B (*sine* Nicotine), best non-poisonous Wash on the Market. No licence required to sell this. Other preparations of great renown, both poisonous and non-poisonous, are:—"XL ALL" WEED KILLER, "XL ALL" FERTILISER, "XL ALL" ROSE MANURE, "XL ALL" WINTER WASH for Fruit Trees, etc. Don't forget to ask your Nurseryman, Seedsman or Florist for Richards' small pink list.—G. H. RICHARDS, Manufacturer, 234, Borough High Street, London, S.E.

WALTERS & CO., Morland Rd., Croydon, Makers of Lath Roller Greenhouse Blinds; Trellis Screens and Fences, Arches, Arbours, Rose Pillars. Established over 20 years. Write for new 1912 Catalogue.

BARR'S VEGETABLE AND FLOWER SEEDS of finest selected strains and tested growth. Descriptive Catalogue, with Cultural Notes, free.

BARR'S BEAUTIFUL LILIES, GLADIOLI, MONTBRETIAS, CANNAS, TIGRIDIAS, etc. for Spring planting. Special Catalogue free. BARR & SONS, 11, 12 & 13, King St., Covent Garden, London.

BARR'S REMOVAL SALE OF HARDY PLANTS.—Clearance List of surplus plants at greatly reduced prices (prior to removal of nurseries from Surbiton to Taplow), post free. BARR & SONS, 11, 12 & 13, King St., Covent Garden, London.

SUTTON'S NEW RED INTERMEDIATE CARROT. Per packet, 1s., post free.
Mr. R. Scott, Gardener to J. Y. Trotter-Cranstoun, Esq., J.P., writes:—"I won First Prize with your New Red Intermediate at the Edinburgh Show held in September with the best Carrots I ever saw. I also gained First Prize at Dalkeith with the same variety."

SUTTON & SONS, The King's Seedsmen, READING.

DOUGLAS'S CARNATIONS & PINKS, border and perpetual, are noted all over the world. 5 Gold Medals, R.H.S., 450 Medals and Cups. Newest and best varieties at most reasonable prices, all ready for planting or potting on. Finest hand fertilized seed only sold. Carnation and Picotee seed, all types, 1s. 6d. to 2s. 6d. packet. Auricula, Pink, Polyanthus, finest strain in existence, all 1911 fine crop, now ready for sowing. Send for catalogue, Edenside, Gt. Bookham.

GISHURST COMPOUND is harmless in use; its soluble Sulphur, &c., has for 40 years cured Blights and Fungus on Plants, and is good for washing unhealthy dogs. Gishurstine keeps boots dry in all weathers; they will polish. Good for Harness.
Wholesale from—
PRICE'S PATENT CANDLE CO. Ltd., London.

ALPINES & HERBACEOUS PLANTS, —Himalayan and other rare Rhododendrons, rare Shrubs, Construction of Rockeries. Catalogues ready. G. REUTHE, Keston, Kent.

New Phloxes.
GUNN & SONS were Awarded a Silver Cup at the Great Show at Olympia. New Lists now ready. Address: Olton, Warwickshire.

AUTO SHREDS FUMIGANT kills Leaf-mining maggot, insects in greenhouses, frames. For 1,000 cubic feet, 6d.; 10,000, 3s. 6d. No apparatus. WM. DARLINGTON & SONS, Patentees, Hackney, N.E.

LANDSCAPE GARDENING.—W. INNES STUCKEY, Landscape Gardener, Piccadilly Mansions, Piccadilly Circus, W. (With the late Mr. H. E. Milner).

BATH'S SELECT SEEDS.—New Illustrated Catalogue of Choice Vegetable and Flower Seeds, with full cultural notes, is now ready, and will be sent post free on application. (Dept. A), R. H. BATH, Ltd., The Floral Farms, Wisbech.

FRUITING VINES IN POTS.—Muscat of Alexandria, and leading Market varieties. We make Vines a speciality. G. COLEMAN, The Vineries, Burgess Hill, Sussex.

LAVENDER.—Common, Giant and Dutch, 3s. per dozen, 21s. per 100; also the dwarf Compact variety, 5s. per dozen, 35s. per 100, and the White-flowered, very sweet-scented, 7s. 6d. per doz., 55s. per 100.—THE GUILDFORD HARDY PLANT NURSERY, Guildford.

WM. DUNCAN TUCKER & SONS, Ltd., 27, Cannon Street, London, E.C.; Works, Tottenham. Conservatories, Winter Gardens, Vineries, Peach-houses, Portable Buildings, etc. Catalogue gratis.

LISSADELL ALPINE & HERBACEOUS PLANTS.—Write for our new illustrated and enlarged List, containing many beautiful novelties at moderate prices. Also List of Seeds collected from above in 1911. J. A. COOPER, Lissadell (No. 2), Sligo, Ireland.

GREENHOUSE PAINTING & GLAZING "Vitrolite" superior to White Lead Paint, 9/- per gall. "Plastine" supersedes Putty, 16/- per cwt. Full particulars from W. CARSON & SONS, Grove Works, Battersea. Agents throughout the country.

KELWAY'S "Manual of Horticulture" is the best of all Garden Books, 2s., post free. From ——, Esq., Northwood, Middlesex, September 28th, 1911: "I find that I have never forwarded 2s. for your lovely Catalogue you sent me some weeks since. It would be cheap at five times the price, and I sincerely regret the oversight."—KELWAY & SON, Langport, Somerset.

THE MODERN HERBACEOUS BORDER.—Full particulars and prices of Kelway Borders packed, arranged for planting, to flower in tasteful schemes of colour, from—KELWAY & SON, The Royal Horticulturists, Langport, Somerset. From ——, Esq., ——, Derby. "The plants, etc., duly to hand, and I wish to thank you for the generous way in which you have treated me. I am more than pleased with the plants, as I fully expected to wait at least a year before I had any show. The plants you sent me are all well-grown, and large roots, and I am looking forward to next summer with every confidence for a fine show of flowers."

NOW is the time to plant Kelway's Delphiniums—fine, bold upstanding plants with a wealth of bloom in all shades of blue and purple. They are from strong country-grown stocks, and flourish under almost all conditions. From——, Esq., Driffield. "My employer had one dozen Delphiniums from you last week, which arrived in splendid condition, and have been duly planted, and I hope they will do as well as the other ones he had from you some time ago. They have been a perfect picture of beauty here. I should esteem it a great favour if you would spare me one of your Manuals of Horticulture, as it is always a real treat to read one of so great and unequalled interest. I consider it the most magnificent of all Horticultural Annuals." Choice named collections 15s., 24s., 34s., 56s. a dozen.—KELWAY & SON, The Royal Horticulturists, Langport, Somerset.

BUNYARD'S CATALOGUES, free on application.

FRUIT TREES AND VINES.

SHRUBS AND CONIFERS.

ROSES AND OTHER CLIMBERS, in Pots.

HERBACEOUS & AQUATIC PLANTS for present planting.

GEORGE BUNYARD & CO., Ltd., Royal Nurseries, Maidstone. Established 1796.

RITCHIE'S SWEET PEAS.—Universally acknowledged to be the best procurable; Exhibition collection, containing the best 12 Spencers, viz., Asta Ohn, Clara Curtis, Edna Unwin, Elsie Herbert, Gladys Burt, Jno. Ingman, Marj. Linzee, Maud Holmes, Mrs. Sykes, Mrs. Breadmore, Prince Asturias, Tennant Spencer, 30 seeds each, 2s. 6d., post free; Sweet Pea list free on request.—A. S. RITCHIE & CO., Seedsmen, Belfast.

GARDEN PESTS.—Cross's "Clubicide" is the Gardeners' Insurance against damage by Eelworm, Wireworm, Slugs, Maggot, and all Disease Germs and Insect Pests. Kills all harmful Bacteria, reinvigorates the soil, stimulates plant life. In 1s. flasks and ½-gall. and 1 gall. drums. From all Seedsmen. Sole Manufrs.: A. CROSS & SONS, Ltd., Glasgow.

COOPS, COOPS, for the season. The Keeper's Coop. Best on the market, 5s. 6d. each; 60s. per dozen, carriage paid. Send for list, showing numerous other designs. BOULTON & PAUL, Ltd., Rose Lane Works, Norwich.

Roses and Herbaceous Plants.
GUNN & SONS were awarded the 25 Guinea Challenge Cup in each collection at the Leamington Show. Up-to-date List for each now ready. Address: Olton, Warwickshire.

SALES BY AUCTION.

Monday, Wednesday and Friday next.

MONDAY and FRIDAY NEXT, MARCH 18th and 22nd, at 12 o'Clock.—Japanese Liliums, Gladiolus, Montbretias, Begonias, Gloxinias, Lily of Valley, &c., Herbaceous Plants, Flowering and Decorative Shrubs, Spiræas, Iris, Pæonies, &c.

At 1.30 o'Clock.—1,500 ROSES, Standard, Dwarf, Climbing, &c., also Fruit Trees in variety.

WEDNESDAY NEXT, MARCH 20th, at 12 o'Clock.—Choice Herbaceous Plants, Perennials, and Rock Plants, Lily of Valley, Gladiolus, Begonias, Japanese Lilies and Iris, Carnations, Pinks, Pæonies, &c.

At 1.30 o'Clock.—4,000 ROSES, English and Continental, Standards, Dwarfs and Climbers, together with Standard, Pyramidal, and Dwarf-trained Fruit Trees.

At 5 o'Clock.—Azalea indica, Rhododendrons, Camellias, Aspidistras, Standard Bay, Ornamental, and Decorative Palms and Plants from Belgium, also Stove and Greenhouse Plants in variety.

MESSRS. PROTHEROE & MORRIS will SELL the above by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, E.C. On view mornings of Sale and Catalogues had.

Wednesday next, March 20th, at 12 o'Clock.

Trade Sale in suitable lots of many thousands of Gladiolus in variety, Begonias, Gloxinias, Tuberoses, Hyacinthus Candicans, Spiræas, Pæonies, Cannas, Lily of Valley Berlin Crowns, &c., 1,500 choice young Fruit Trees, Phœnix rupicola Palm Seeds, and Latania borbonica Palm Seeds.

At 2.30 o'Clock.

A consignment of

456 CASES JAPANESE LILIUMS,

comprising

4,240 LILIUM LONGIFLORUM.
7,686 „ AURATUM.
1,190 „ „ PLATYPHYLLUM.
5,660 „ TIGRINUM FORTUNEI.
1,380 „ SPECIOSUM ALBUM.
260 „ „ RUBRUM
„ MAGNIFICUM and BROWNII.
2,900 LYCORIS AUREA and SQUAMIGERA.
2,400 JAPANESE IRIS, also PÆONIES, DAVALLIA BULLATA DESIGNS, and a quantity of JAPANESE SEEDS in variety.

MESSRS. PROTHEROE & MORRIS will SELL the above by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C. On view morning of Sale and Catalogues had.

Bromley Common, Kent.

Unreserved Clearance Sale of 4,800 Geraniums in pots, 800 Carnations in 32s, 1,450 Callas in 30s and 24s, 825 pots (24s) Sweet Peas, 350 White Azaleas in large pots, 3,000 Asparagus Sprengeri and plumosa, 2,300 Adiantums, 2,400 Strawberries in 32 pots, 300 boxes of Chrysanthemum cuttings, and other stock, pots, and sundries.

MESSRS. PROTHEROE & MORRIS will SELL the above by AUCTION at the Nurseries, Lower Gravel Road, on WEDNESDAY NEXT, MARCH 20th, at 12 o'Clock. On view. Catalogues had on premises, and of the Auctioneers, 67 and 68, Cheapside, E.C.

Friday next, March 22nd, at 12.45 o'Clock.

Choice cool, intermediate and hothouse Orchids in large variety from various sources. A consignment of about 1,000 Cattleya Mossiæ received direct. An importation just to hand of 1,200 Dendrobium Phalænopsis Schröderiana, 900 Cypripedium niveum, 260 Saccolabium Harrisonianum, 600 Phalænopsis Esmeralda and Antenifera, and a quantity of Calanthe rubens bulbs, Orchids in flower and bud.

MESSRS. PROTHEROE & MORRIS will SELL the above by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, E.C. On view morning of Sale and Catalogues had.

The "Oakdene" Collection of Orchids.

Important Sale of the valuable collection formed by the late Mr. E. Rogerson, comprising a great many very rare and valuable plants, by order of the executors.

MESSRS. PROTHEROE & MORRIS will SELL the above by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on THURSDAY and FRIDAY, MARCH 28th and 29th, at 1 o'Clock. On view mornings of Sale and Catalogues had.

ROSE TREES, FRUIT TREES, PERENNIALS, LILIUMS, etc.

Mr. J. C. STEVENS begs to announce that his

SALES by AUCTION

are held every **MONDAY** and **WEDNESDAY** at 12.30.

Catalogues post free.

Lots purchased, packed, and forwarded to all parts.

STEVENS' AUCTION ROOMS

(ESTABLISHED 150 YEARS),

38, King St., Covent Garden, London, W.C.

ROSE TREES.—Sales every Tuesday, Wednesday, and Friday of Roses, Shrubs, Lilies, Gladioli, &c., at Moorgate Auction Rooms, 23, and 25, Moorfields, E.C. (near Moorgate Street Station). Catalogues post free.

BUSINESSES FOR SALE, &c.

re WILLIAM KERR. In Bankruptcy.

To Florists, Market Gardeners and Nurserymen.

THE Official Receiver in Bankruptcy for Cumberland is prepared to receive Offers for the sale by PRIVATE TREATY of a valuable Market Gardener's and Florist's business established 60 years. The Gardens are situate close to the good Market Town of Penrith, which is a splendid residential centre with a good train service. The grounds are over 7 acres in extent and there are 5 very large well-constructed Glass-houses with modern boilers. The stock is up-to-date and in first-class condition. There is also a good dwelling-house and all necessary offices. The business includes a well-paying retail shop in the town, and an energetic man with a small capital might do well. The Gardens and Books can be seen at any time, and all information obtained from Messrs. R. Dalton and Son, Auctioneers, Carlisle; OFFERS to be made in writing to Kighley J. Hough, Esq., Official Receiver, 34, Fisher Street, Carlisle.

WORTHING.—FOR SALE with possession, by order of Executors. Maybush Nurseries, about 3½ acres; Freehold land: 12 glass-houses, 2,000 feet; large packing shed; artesian well; Vines, Cucumbers, Tomatos, 573 good Appie trees, Flowers, &c.—POLLARD & POLLARD, Solicitors, Brighton.

SPLENDID little NURSERY BUSINESS for sale, as going concern; near one of the best residential river-side towns; good connection; 420 feet run of glass-house; good pit and cold frames, potting and packing sheds; good water supply; stock of Chrysanthemums, Geraniums and Bulbs, &c; good seven-roomed house and two-roomed cottage, let off; everything in excellent order; net rent £10; 19 years unexpired lease.—C. N., Box 13, 41, Wellington Street, Covent Garden, W.C.

FOR SALE, in leading suburb of Newcastle-upon-Tyne, Leasehold NURSERY, of about five acres, and 1,000 feet run of newly-erected Glass-houses, heated by overhead system; also cold frames; stocked with plants, trees, shrubs, &c.; good water supply; excellent local market and good retail connection.—Apply to T. WALLACE, Chartered Accountant, 42, Mosley Street, Newcastle-upon-Tyne.

FREEHOLD NURSERY and FLORIST BUSINESS for Sale; chiefly glass-houses; well built and heated; town water supply; good opening for active man; immediate possession.—T., Avenue House, Crediton, Devon.

FRUITERER'S and SEEDSMAN'S; in busy country town; good living trade; rent £36; price £160 or offer; can be thoroughly investigated.—W. S., Box 1, 41, Wellington Street, Covent Garden, W.C.

BUSINESS CARDS.

PROTHEROE AND MORRIS, HORTICULTURAL, MARKET GARDEN, and ESTATE AUCTIONEERS and VALUERS, 67 and 68, Cheapside, London, E.C., and at Leytonstone, E. Monthly Horticultural Register had on application.

PARTNERSHIPS.

WANTED, GARDENER, single, as PARTNER, £15 required, in Garden Contracting Business; well established; good profits.—TERRY, 121, Taunton Road, Lee, S.E.

EXHIBITIONS.

The Perpetual Flowering Carnation Society.

GREAT SPRING EXHIBITION,

THURSDAY and FRIDAY, MARCH 21st and 22nd, 1912, Horticultural Hall, Vincent Square, Westminster,

9 Silver-Gilt and Silver Challenge Cups offered for competition. Special Classes for Amateurs. Also Conference on Carnations (First day of Show), March 21st, at 3.30 p.m. Admission 1/- For Schedules, etc., apply—E. F. HAWES, "Ulysses," Fortune Green, London, N.W.

WOLVERHAMPTON,

Great Floral Fete,

July 9th, 10th and 11th, 1912

£900 in Prizes.

Schedules, post free, on application to R. F. AMPHLETT, Secretary, 80, Darlington Street, Wolverhampton.

BOROUGH OF REIGATE HORTICULTURAL SHOW.—To be held (by kind permission of Mrs. Campion) at The Frenches, Redhill, Wednesday, July 10th, 1912. Open classes: Fruit, Flowers, and Vegetables.—Hon. Sec., F. PHILLIP, Craigendowie Gardens, Reigate.

PUBLISHERS' NOTICES

ALPINE FLOWERS AND ROCK GARDENS. By Walter P. Wright. A practical book containing magnificent colour and half-tone plates of the flowers as they grow. The most beautiful book on the subject yet produced. 12s. 6d. net.
HEADLEY BROTHERS, Bishopsgate, London.

ROSES AND ROSE GARDENS. By Walter P. Wright. A companion volume to above. *The Sphere* says: "Buy the book this winter and you will have a fine rose garden next June and July." 12s. 6d. net. Write for illustrated booklet post free.
HEADLEY BROTHERS, Bishopsgate, London.

AMONG THE HILLS. By Reginald Farrer, being an account of the Author's wanderings in search of Alpine Flowers. Profusely illustrated in colour. "Mr. Farrer has won for himself a unique place among writers on Alpine Plants."—*The Gardeners' Chronicle*. 10s. 6d. net. Prospectus post free.
HEADLEY BROTHERS, Bishopsgate, London.

Present-Day Gardening.

Edited by R. HOOPER PEARSON, Managing Editor of the GARDENERS' CHRONICLE. Now Ready. Post free, **1/9** each.

Numerous Beautifully Coloured Plates are contained in Each Volume.

1—**Sweet Peas.** By HORACE J. WRIGHT, late Secretary and Chairman of the National Sweet Pea Society. With Chapter on "Sweet Peas for Exhibition," by THOS. STEVENSON.

2.—**Pansies, Violas, and Violets.** By WILLIAM CUTHBERTSON, J.P., and R. HOOPER PEARSON.

3.—**Daffodils.** By the Rev. J. JACOB.

4.—**Orchids.** By JAMES O'BRIEN, V.M.H., Secretary of the Orchid Committee of the Royal Horticultural Society.

5.—**Root and Stem Vegetables.** By ALEXANDER DEAN, V.M.H., Chairman of the National Vegetable Society.

6.—**Carnations and Pinks.** By T. H. COOK, Head Gardener at Sandringham; JAMES DOUGLAS, V.M.H., and J. F. MCLEOD, Head Gardener to Mr. Pierpont Morgan. Contains 8 full-page coloured plates.

7.—**Rhododendrons and Azaleas.** By W. WATSON, with preface by Sir F. W. MOORE, M.A. (the first popular volume published on this subject). Contains 8 full page coloured plates.

8.—**Lilies.** By A. GROVE, F.L.S., with preface by H. J. ELWES, F.R.S. Contains 8 coloured plates.

9.—**Apples and Pears.** By GEORGE BUNYARD, V.M.H. Contains 8 coloured plates.

10.—**Roses.** By H. R. DARLINGTON, with 8 full-page coloured plates. A double volume, price **2/10**, post free. Special presentation edition, with beautiful cover design, in cloth gilt, gilt top, price **3/10**, post free

THE PUBLISHER,

"Gardeners' Chronicle" Offices, 41, Wellington St., Covent Garden, London, W.C.

PLANTS, &c., WANTED.

WANTED, large KENTIA PALMS, from 5 feet to 25 feet in height; large, well-coloured Dracænas and Crotons, also Aspidistras; for cash or exchange.—ROBERT GREEN (1911), LTD., 28, Crawford Street, London, W.

WANTED, CALANTHE VEITCHII for Exchange with a good basket or two of Vanda Teres (flower-spikes just showing).—Full particulars, apply, W. LOVETT, Lilburn Tower Gardens, Alnwick, Northumberland.

WANTED, good second-hand LAWN MOWER, 30 inches.—State price to G. H., Stallington Hall Gardens, Blyth Bridge, Stoke-on-Trent.

PLANTS, &c., FOR SALE.

PERPETUAL CARNATIONS.—Our 1912 Illustrated Catalogue free. Read our "Cultural Treatise," 1s.—YOUNG & CO., Carnation Specialists, Hatherley, Cheltenham.

CUTHBERT'S SPECIALITE MUSHROOM SPAWN.—NEW SPAWN NOW READY. We continue to receive the most gratifying testimonials as to the productiveness and good quality of our Spawn. Per bushel, 5s.—R. AND G. CUTHBERT, Seed and Bulb Merchants, Southgate, Middlesex.

FERNS! FERNS!!—Tree, Climbing, Basket, Stove, Greenhouse, and Garden Ferns; catalogues free.—SMITH, London Fern Nurseries, Loughboro' Junction, London, S.W.

THE
Gardeners' Chronicle

No. 1,316.—SATURDAY, March 16, 1912.

CONTENTS.

American notes—
Retirement of Dr. Trelease 165
Anthemis Cupaniana ... 174
Aphyllanthes monspeliensis 173
Batsford 163
Books, notices of—
British Fern Gazette 171
British Violets ... 170
The Everyday Uses of Portland Cement ... 172
The Plums of New York 167
Brambles, Chinese ... 165
Bulb garden, the—
Lilies 164
Calder, Mr. C. C., appointment of 171
Carnation conference ... 171
Celery, "leaf-spot" of 172
Crocuses at Hampton Court gardens... ... 173
Currant bud-mite, the ... 173
Flowers in season ... 171
Fodder plant, a new ... 172
Foreign correspondence—
Habenaria conopsea alba 167
Yucca Whipplei ... 167
Genetics, Balfour Professorship of 171
International Horticultural Exhibition ... 172
Ireland, notes from ... 173
L.C.C. Parks Committee, the 172
Manchester, horticulture in 170
Obituary—
Hampton, George ... 178
Orange, a hardy... ... 170
Orchid notes and gleanings—
Cattleya Gudrun ... 164
Dendrobium Golden Ray superbum ... 164
Lælio-Cattleya norma 164
Odontoglossum Vulcan Crawshayanum 164
Plant and animal pigments 172
Saxifraga lantoscana ... 174
Scotland, notes from ... 173
Smith, Mr. W. W., appointment of 171
Societies—
Horticultural Club ... 170
Manchester & North of England Orchid 175
National Dahlia ... 176
Royal Horticultural... 170
(Scientific Committee) 174
Scottish Horticultural 175
United Horticultural Benefit and Provident 175
Soil, sewage sickness in 170
Solanum jasminoides ... 173
Tomatos, glasshouses for 178
Trees and shrubs—
Berberis Bealei ... 164
Vienna Horticultural Society 171
Week's work, the—
Flower garden, the... 168
Fruits under glass ... 168
Hardy fruit garden ... 168
Kitchen garden, the... 169
Orchid houses, the ... 168
Plants under glass ... 169

ILLUSTRATIONS.

Brambles, some Chinese 166
Hampton, George, portrait of the late 178
Orange, Japanese 171
Rose bowl presented by Rutland and Leicestershire at the International Horticultural Exhibition ... 172
Rubus lasiostylus, 167; R. Playfairii 165
Saxifraga cochlearis growing on rocks near Tenda ... 174

BATSFORD.

WHEN Lord Redesdale inherited the fair possession of Batsford he found little in the shape of gardens, but ample scope for his great talents as a landscape gardener. Lord Redesdale is known to the world in general as having been the British Ambassador in Japan and at St. Petersburg, and to gardeners in particular as an enthusiastic horticulturist, and an authority on the Japanese Bamboos. When the history of gardening in the Victorian era comes to be written, it will be seen how much our gardens have gained from the introduction of the Japanese Bamboos, and the names of three distinguished amateurs, or patrons of gardening, as the early Victorian writer would have more euphoniously styled them, will be prominent in connection with the extended culture of these graceful hardy plants. These are, the gentleman mentioned, who, before his elevation to the peerage by the late King Edward, was known to horticulturists as Mr. Freeman-Mitford, the late Mr. Jonathan Rashleigh, of Menabilly, and Lord Barrymore, of Fota Island.

When one sees Batsford now, it is difficult to picture the gardens as they were when first taken in hand by Lord Redesdale and his clever gardener, the late Mr. John Garrett (who died at a comparatively early age in September of last year, after having left Batsford only a few months previously). The greater portion of the very extensive pleasure grounds must then have been pasture land, rising up 200 feet above the high-lying mansion, which is 700 feet above sea level, and commands a wide view of the Warwickshire hills, ten miles away, across the roofs of the Moreton-in-Marsh houses. The mansion, which was built by the present owner, in 1889, of local stone, in the Tudor style of architecture, is a spacious and comfortable residence. The interior contains many curios from China and Japan, but with these and the beautiful old oak panelling we have no present concern. The outer walls have their lower portions covered with Cratægus Pyracantha, Magnolia grandiflora, Clematis and Roses, and the south front has a narrow border, which in season is filled with the pleasantly-scented Heliotrope. Flower gardening plays a small part in the scheme of gardening at Batsford; the terrace in front of the house is of mown grass, with a row of fine Juniperus communis var. fastigiata bordering the broad gravel walk. At the west end there are a few flower beds, and some standard Roses, but Batsford relies on a broader and less formal style of gardening. The great charm of Batsford lies in its surprises. Without being of that tiresome "serpentine" nature, so beloved of a certain school of landscape gardeners, the walks are pleasantly winding, seemingly direct withal, and each length presents a complete picture. No two portions are alike, and yet the whole is harmonious. The few trees—Oaks and Beeches principally—which were already of good size, were retained, hence the pleasure grounds appear older than they really are. On the left of the upward walk there is a tumbling hill-side stream which, although it almost dried up during the exceptional summer of last year, is a very valuable asset. To enhance the quasi-mountainous appearance of the slope, Lord Redesdale caused enormous numbers of boulders to be embedded in its sides, and he planted it with suitable species of plants and shrubs. Here we find, besides varieties of Iris, Rodgersias, with foliage suggestive of enormous Horse-Chestnut leaves; Saxifraga peltata, with stout, creeping root-stocks; many kinds of Spiræa (including Astilbe), both herbaceous and shrubby; Osmunda regalis, with the gigantic fronds which ripen into a telling brownness; and in the recesses beyond the far bank of the stream are groups of such Conifers as Juniperus Sabina, a flat-topped Tsuga canadensis var. pendula, and the erect-growing Cupressus Lawsoniana var. Allumii, which gives a fine impression of distance when, as is here the case, it is well placed.

Access to the "Sisters' Pool" is guarded by a sacred Chinese dog of ferocious appearance. The fore-paws of this weird example of eastern art rest on an inlaid porcelain globe, which is said to have stood out-of-doors for 1,200 years, yet the rich colours, especially the blues and vermilion, are as bright as though the work was finished yesterday. On the other side of the walk which rises before us, clearances were made, and large semi-wild beds planted with such subjects as the German Iris, Kniphofia (Tritoma) caulescens, a breadth of Erica carnea, two acres in extent, amongst which countless numbers of Daffodils and Anemone appenina herald the spring. Another huge bed contains Magnolia conspicua and M. parviflora, with the dwarfer M. stellata in the foreground. As might well be expected, the Japanese Maples are favourite shrubs; in this rich soil they have grown to be of good size, and yield a wealth of warm colouring when seen in the near distance through the trunks of the taller trees.

THE BAMBOO GARDEN.

The situation of this famous collection of Bamboos illustrates the fact that the planter thoroughly understood the conditions which lead to success in the cultivation of these graceful plants. Here may be seen a great variety of hardy Bamboos luxuriating in the rich heavy loam of a plateau some 800 feet above sea level, and securely screened by tall trees from the cutting winds which are apt to spoil their foliage. A huge clump of the giant Phyllostachys fastuosa, growing on the edge of the stream, has pushed up its tall, strong culms to an unusual height. Close by is a dense group of the graceful Arundinaria nitida; its slender, arched plumes give it an appearance of delicacy which its vigour instantly belies. So huge is this clump that at first sight the length of the stems is not apparent, whilst on the other hand the tall, slim culms of Phyllostachys viridi-glaucescens, which are more thinly disposed, appear to be even taller than they really are. Phyllostachys flexuosa, with its small leaves and arched growths, contrasts finely with the tall, golden canes of P. nigra var. Castillonis, Arundinaria spathiflora so much like A. nitida, but differing in that the canes are more pendulous, and of a pinkish colour, is here a beautiful specimen. The fine clump of A. auricoma compels attention; this dwarf gem is in sharp contrast with the tall Phyllostachys aurea. The tall, golden-caned P. sulphurea, with stripes of green running down the canes, is another interesting species; whilst a little further on the enthusiastic young head gardener, Mr. Gardiner, whom the present occupier of Batsford—Granville Farquahar, Esq.—brought with him, pointed out three seedling plants of Phyllostachys nigra var. punctata growing freely on the site of a large plant which flowered and died a few years ago. But to note each of the Bamboos which grow well would be to make a list of nearly all the species which can be grown out-of-doors. So we pass on upwards, noting as we go the many interesting trees and shrubs which border the way; the young vigorous Abies lasiocarpa, a Cedrus deodara, with pendulous branchlets and a multitude of short, erect flower-buds on the previous year's growths, and a huge bush of Daphniphyllum glaucescens, with broad, shining, Laurel-like leaves and red mid-ribs. A Maidenhair tree (Ginkgo biloba), which is growing away straight and strong, arrested our attention, for this interesting conifer does not always behave so kindly. Then there is a promising example of Juglans regia laciniata, with its pretty foliage, near a large clump of Rosa rubrifolia, which is so much at home that seedlings are springing up around the parent tree. Another large bed contains Rosa lucida. Soon we reach the further limit of these 40 acres of pleasure grounds, where we find a cave of huge, flat stones—an ugly thing, on which I gladly turn my back to seek the more interesting Japanese garden, its small stone bridge nearly hidden by Wistaria multijuga and fine strong clumps of Funkia japonica. In the background is a tall Holly, covered with Clematis vitalba. Our now downwards way leads through a curved pergola, 80 yards long, well furnished with Roses, Vitis Henryana, Aristolochia Sipho and Clematis montana rubens.

JAPANESE REST-HOUSE.

High up on the hill-side Lord Redesdale placed a rest-house in the style of the buildings which the Japanese erect on mountain sides. From the porch there is a magnificent and vast view of the neighbouring country. As nothing Japanese seems to be complete without an inscription, so over the entrance to the rest-house is inscribed a proverb, which may be translated "Man can live without bread, but he cannot

live without Bamboo," a proverb which plainly illustrates the truth of the more familiar adage that "East is East, and West is West."

A carved granite elephant stands docilely at either side of the door, and at either end of the verandah there is a beautiful bronze lantern, 7 feet high, with mellow-toned bells hanging around the upper portion, whilst just outside is perched a peregrine falcon, bright and keen of eye, poised ready for flight. Away to the right a monster bronze Buddha, 2,000 years old, squats benign beneath the shade of, not a "Bo-tree," but an old Oak. The pair of deer, which tradition says were always in attendance when the Buddha preached, are standing close at hand on the greensward. The buck scents danger from afar, whilst the hind, secure in his presence, placidly browses behind a small thicket of Berberis Aquifolium. Fine examples of Trachycarpus excelsus (the Chusan Palm) and the typical Japanese Métaké (Arundinaria japonica) are in keeping with the scene. A large group of Ægle sepiaria, better known as Citrus trifolia, has delicately-beautiful autumn colouring, which rivals that of the young leaves of many a tropical tree. A long-leaved Pinus attracts attention, and a closer scrutiny proves it to be a promising example of the Mexican P. Montezumæ, fully 28 feet high, and growing vigorously. On lower ground the rare and interesting Christ Thorn (Paliurus australis) (see p. 376) was bearing numbers of its curious salver-like fruits and inconspicuous yellowish flowers, and in "Her Ladyship's Walk" there were the finest Aralia chinensis (Dimorphanthus mandschuricus) I have seen. These enormous-leaved trees were well set off by huge, rounded bushes of Berberis stenophylla. The many other interesting hardy shrubs include immense clumps of Hippophæ rhamnoides, bearing dense clusters of bright fruits, tall examples of Genista æthnensis, and several pendulous Cherries, which have all the appearance of miniature stag-leaved Beeches. Some of the commoner shrubs have been used as supports for climbing species, and the effect of such combinations as a purple Clematis rambling over a Liquidambar, Vitis Coignetiæ covering a large Berberis or an old scarlet-fruited Thorn, must be seen to be realised. The silver-foliaged conifers thrive, too, in the pure air and good soil; the tall, spreading Cedrus atlantica glauca, and a fine Picea pungens argentea, planted to celebrate the silver wedding of Lord and Lady Redesdale, are almost too dazzling in their effects. Such trees must have perfectly-appropriate neighbours or the contrast is too great to be pleasing.

(To be continued.)

ORCHID NOTES AND GLEANINGS.

ODONTOGLOSSUM VULCAN CRAWSHAYANUM.

This handsome Odontoglossum (O. crispum × O. Vuylekei, raised and shown by de Barri Crawshay, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), at the Royal Horticultural Society, February 20 last, obtained an Award of Merit, and brought up an interesting question. The course which the Orchid Committee has generally adopted is to consider the first form of any hybrid which secures an Award from the Committee to be the type, and if shown with a varietal name the latter is, as a rule, not recorded. That course was adopted with Odontoglossum Vulcan Crawshayanum, and it was reported as O. Vulcan (*Gardeners' Chronicle*, February 24, 1912). At the meeting of the Orchid Committee, March 5, Mr. Crawshay brought up the question, stating the case as it applied to these variable hybrids generally, and pointing out the desirability of preserving the individuality of certificated varieties as distinct from the many inferior forms which may have been raised from the same parentage. The Committee decided to admit the varietal names in future when deemed necessary, and hence the necessity of recording this showy hybrid under its full title. The flowers are 4 inches across, the fringed petals being 1½ inch wide, and the sepals proportionately broad. The ground colour is primrose-yellow, but that colour is chiefly confined to the margins and tips of the sepals and petals, the inner two-thirds being heavily blotched with red-brown. The lip is white with a bright yellow crest, in front of which are some reddish blotches.

DENDROBIUM GOLDEN RAY SUPERBUM.

This pretty Dendrobium, for which Sir Jeremiah Colman, Bart. (gr. Mr. Collier) received an Award of Merit on March 5, was reported as Golden King superbum in the list of Awards (March 9, p. 161), although it was correctly named in the column enumerating the plants shown. *J. O. B.*

LÆLIO-CATTLEYA NORMA AND CATTLEYA GUDRUN.

Lælio-Cattleya Norma (L.-C. armainvilliersensis × C. Mossiæ) is somewhat in the way of L.-C. Pallas Veitch (Lælia crispa ♀ × Cattleya Dowiana ♂), the flowers being of the same size, 15 inches across, and nearly of the same pale-purplish colour, the lip only showing some difference. The great mauve-purple blotch of L.-C. Pallas is a little paler and dissolved into an elegant network of darker, radiating lines on a pale background. Cattleya Gudrun is derived from C. labiata alba × C. Mendelii. In size it resembles its first-named parent, but the petals are much larger. The segments are nearly white (especially when seen by artificial light), with a very faint rosy hue. The lip has a golden throat lined with purplish stripes, an area of deeper mauve-purple with still darker reticulated veins, and a rather broad, elegantly-fringed border. Both hybrids were raised in the nursery of Mr. C. F. Karthaus, Potsdam. The young plants produced spikes having only two flowers, but when they are established they will, no doubt, develop much finer inflorescences. *F. Kränzlin, Berlin.*

TREES AND SHRUBS.

BERBERIS BEALEI.

Botanists are no doubt correct in describing this beautiful Barberry as a form of Berberis japonica; but, from the cultivator's point of view, B. Bealei and B. japonica are distinct plants. Thus the habits of the two bushes are so dissimilar that, when of any size, they may be distinguished at a glance. B. japonica has a stiff, erect habit, whilst the disposition of the branches of B. Bealei is that of a spreading, rounded bush. Both plants have long, handsome leaves, but there are considerable differences in the texture and arrangement of the foliage, the leaves of B. Bealei being longer and more graceful. The leaflets of B. japonica are stouter, set much closer together (they frequently overlap), more coarsely-toothed, and occupy the whole length of the leaf-stalk; whilst in the case of B. Bealei the pairs of leaflets are set well apart, and, except for a small pair of stipule-like leaves close to the shoot, the base of the leaf-stalk is free from leaflets for a space of about 3 inches. The individual leaflets of B. japonica are so stout and curled that they might well be mistaken for the leaves of a robust, common Holly; those of B. Bealei are very like the larger-foliaged forms of the Mahonia (B. aquifolium macrophylla) in texture, as well as in size. Not only are the leaves of B. Bealei longer than those of B. japonica, but the flower-spikes also are decidedly longer, and the flowers are much more fragrant. B. Bealei, as I recently saw it in Messrs. Charles Smith and Son's Guernsey nursery, is a most desirable, early-flowering shrub. The large, spreading bush, 8 feet high and almost 12 feet across, had every branch terminated with long spikes of rich-yellow flowers, which scented the air pleasantly with their characteristic perfume, so strongly suggestive of the Lily of the Valley. Already (the beginning of February) the earliest flowers had given place to quantities of purple-tinted, drupe-shaped fruits. The leaves were fully 18 inches long, and many of the flower-heads were 30 inches across. Unfortunately, there are not many gardens with the climate of the Channel Islands; but in the southern counties of England there must be many warm, gently-sloping, sheltered banks where this delightful, early-flowering Berberis might be grown. Even though the flowers were occasionally cut by frosts, the handsome foliage would alone be sufficient compensation for any care lavished upon the plant. B. Bealei is said to have originated in the nursery of the late Mr. Anthony Waterer as a seedling of B. japonica. It is not a true species, for only a small proportion of seedlings possess the merits of the parent, although they mostly hover around it, with a few showing decided leanings towards B. japonica. Both the parent and the improved variety are admirable shrubs for the early spring decoration of cool conservatories. Even the hardier of the two kinds cannot be recommended as an out-door flowering shrub for cold situations, though, as already suggested, it has great value as an ornamental-foliaged species. *A. C. Bartlett.*

THE BULB GARDEN.

ORIENTAL AND CALIFORNIAN LILIES.

The description of Lilium sulphureum (also called L. Wallichianum superbum) by Mr. Norman in the "Home Correspondence," on p. 77, reminds me that this exquisitely beautiful native of Upper Burmah is one of the latest additions to my now somewhat extensive collection of Oriental and American Lilies. I am much gratified to find that my treatment of this Indian Lily harmonises with that stated by Mr. Norman in his extremely interesting communication. Some years since Lilium sulphureum was planted in Logan Gardens in this parish, in a comparatively warm and sheltered situation, but it did not succeed. I should imagine, however, that since that period it has been rendered much hardier and easier of successful culture by English cultivation. I sometimes wonder if Sir Herbert Maxwell has ever had L. sulphureum in flower at Monreith, that horticultural paradise, whose environing woods I can discern from this manse, across the luminous waters of the spacious Bay of Luce. Other rare Lilies which I have recently acquired are L. longiflorum Wilsonii, L. Washingtonianum rubescens, and L. Humboldtii magnificum; of which the two last-mentioned are entirely new to my garden. I understand that the Lily of Humboldt, which is splendidly distinctive, takes, like its Californian rival, L. pardalinum, a considerable period for its adequate establishment. Most of the American Lilies succeed well in garden loam, enriched with leaf-mould. L. monadelphum var. Szovitzianum (from the Caucasian regions and Northern Persia), which occasionally reaches here a height of nearly 8 feet, succeeds admirably in clay, and has flowered in the same position for at least 12 years. Among the most fascinating of the other Lilies in my collection are L. giganteum, L. auratum platyphyllum, L. Hansonii, a lovely, golden-coloured Martagon; L. speciosum rubrum, L. roseum, L. Krætzeri excelsum, an exquisite hybrid between the Madonna Lily and the Scarlet Martagon; L. pardalinum, whose most prolific derivative is Burbankii; L. Henryi, a vigorous native of Western China, of distinctive aspect and pendulous tendency; L. Krameri, a pale-pink Japanese species, with slender stems; L. davuricum, L. longiflorum Harrisii, and the radiant L. chalcedonicum. *David R. Williamson, Manse of Kirkmaiden, Wigtownshire.*

AMERICAN NOTES.

RETIREMENT OF DR. TRELEASE.

Dr. William Trelease has resigned the directorship of the Botanical Gardens at St. Louis, Missouri, formerly known as Shaw's Garden, to which he was appointed in 1889, as he desires to devote more time to scientific research. Dr. Trelease was a pupil of America's greatest botanist, Dr. Asa Gray, who recommended him to Mr. Shaw in 1885 to be professor at the School of Botany connected with the Botanical Garden. On the death of Mr. Shaw, in 1889, Dr. Trelease was appointed director of the whole establishment under the trustees, and he has succeeded not only in the fulfilment of the purposes of the trust, but also in the development of the establishment into one of the most important in the United States. The gardens, which are 65 acres in extent and have 30,000 square feet of glass, contain about 20,000 distinct plants, the collections of succulents, Palms, Cycads and Orchids being exceptionally rich. Cacti, which have always been in favour there, are represented by a large number of species. Bromeliads also are numerous and well grown. The gardens are open to the public free of charge on every day in the year except Sundays and holidays, something like 100,000 persons visiting them annually. There is also a library of botanical and horticultural works, numbering some 50,000 volumes, and a herbarium of about half a million specimens, which includes the Engelmann collection. These are all devoted to scientific research and horticultural and botanical instruction, the cost and maintenance of which, some £8,000 per year, were provided by the founder, Mr. Henry Shaw. The history of this public benefactor is interesting. He was born in Sheffield in 1800, and at the age of 18 went to St. Louis, where he started a small shop for the sale of Sheffield ware, the shop, a single room, being also his living quarters. Shaw prospered, and at the age of 40 he gave up business and travelled in Europe. On seeing Chatsworth he was fired with the desire to have a large garden of his own. Returning to St. Louis, he set to work, and with the assistance and advice of Dr. Engelmann, Asa Gray, Sir William J. Hooker and others, he proceeded to construct a park and garden on approved botanical horticultural lines. He engaged a gardener, Mr. James Gurney, from the Botanical Gardens, Regent's Park, with whom he was always on the most friendly terms. His garden was both wife and child to him, for he never married. He died in 1889, one of the most honoured of American citizens, and was buried in the garden which he had made. His will contains the following characteristic passage:—"Whereas I have for many years been engaged in laying out and establishing a botanical garden with a museum and library connected therewith, which is now known as the Missouri Botanical Garden, with the design at the time of my death to convey the same with other property to be for ever kept up and maintained for the cultivation and propagation of plants, flowers, fruits and forest trees and other products of the vegetable kingdom. . . . and devoted to the science of botany and horticulture and allied objects." Accordingly, he left an immensely rich estate to be managed by trustees so as to provide ample means for the fulfilment of his wishes. In addition to the large out-put of botanical work from the Missouri Gardens, much of it by Dr. Trelease, there is also a school for botanical students and a school of horticulture, funds for which were provided in the will. The selection of boys for horticultural scholarships is left to the director. They can enter at the age of 14, and are lodged, paid wages, and trained for six years. Such an institution would be of immense service to horticulture in this country, but men of the qualities of Henry Shaw are scarce. The nearest approach to him was the late John Innes, who left his estate at Wimbledon, together with a large sum of money, to be devoted to the promotion of horticulture and to the training of gardeners. Among Shaw's bequests were £200 annually for a banquet to the trustees and their guests; £80 annually for a dinner to the gardeners and their friends; £100 annually for a flower show in St. Louis; and £40 annually for a sermon in the cathedral on "The wisdom and goodness of God as shown in the growth of flowers, fruit and other products of the vegetable kingdom."

CHINESE BRAMBLES.

FOR SHRUBBERIES, PERGOLAS, AND PLEASURE GROUND.

(Concluded from p. 148.)

Rubus chroösepalus, Focke (see fig. 69).—The chief value of this Rubus lies in the foliage, which is evergreen, very ornamental, and may be compared with that of a Lime tree. Plants at Kew last year made growths 6 feet to 7 feet in length. The stems are slender, and furnished with a few spines. The leaves are simple, cordate, measure 4 inches by 3½ inches, are glabrous above, and white beneath. The flowers are borne in large panicles, and have no decorative value; the fruits are small and black. Mr. A. Henry found this species in the province of Hupeh, and Mr. Wilson collected seeds in the neighbourhood of Ichang at an elevation of 4,000 feet. The best use for the plant is to cover a pillar, pergola or fence.

[*Photograph by C. P. Raffill.*

Fig. 68.—Rubus playfairii: an evergreen species.

(See p. 166.)

R. flagelliflorus, Focke.—The valuable features of this Bramble are the elegant habit, evergreen leaves, and ornamental fruits. The plant grows to a height of 8 feet or more. The stems are brown in colour, slender, and furnished with a few spines. The leaves are cordate-acuminate, with an irregular serrated margin; they are 4 inches to 5 inches long and 3 inches to 4 inches wide, rich deep-green on the upper surface, the under surface clothed with a thick, dull-coloured felt. The flowers are white; the fruits are of a medium size and glossy black. The species is a native of Central

and Western China, where it grows at an elevation of from 4,000 feet to 6,000 feet. The habit of this species and the ornamental evergreen leaves make it of considerable value for training up pillars, arches and pergolas. This species has also been distributed as R. flagelliflorus.

R. FLOSCULOSUS, Focke.—This is one of the Chinese Raspberries, and forms an erect bush some 7 feet in height. The stems are dark-brown, and armed with stiff prickles ¼ inch in length. The leaves are pinnate, silvery-white beneath, composed of five leaflets, the terminal one being the largest. The panicles of about a dozen small flowers appear in September, and are followed by small, dark-red fruits. Seeds of this species were collected by Mr. Wilson in Central and Western China at 4,000 feet to 6,000 feet elevation.

R. ICHANGENSIS, Hemsl. and Kuntze.—This Bramble has long, slender shoots, 4 feet to 5 feet in length, and furnished with a few small prickles. The leaves are evergreen, simple, broadly-lanceolate, cordate at the base, the older leaves being inclined to be three-lobed, 3 inches to 4 inches long, 2 inches to 3 inches wide, light green both above and below. The tiny flowers appear in small panicles, and they are succeeded by small, red fruits, which Mr. Wilson describes as of good flavour. The species grows up to 7,000 feet elevation in Central and Western China.

R. INNOMINATUS, S. Moore.—In appearance this species resembles a Raspberry, having strong upright stems 6 feet to 8 feet in height. These are clothed with a velvety pubescence, and a few scattered spines. The pinnate leaves are composed of three or five ovate leaflets, the terminal leaflet being occasionally tri-lobate, and more than double the size of the lateral ones. The leaves are rich green above, clothed beneath with a greyish-white velvety pubescence, and thickly covered with glands. Several leaves measured at Kew were 9 inches in length. The numerous small pink blossoms are borne in large panicles during September. The fruits are orange-red and agreeable in flavour. R. innominatus is a native of Central and Western China, and is figured in the *Gardeners' Chronicle*, for October 21, 1905, R. Kuntzeanus, Hemsl., has been considered synonymous with R. innominatus, but the latter is readily distinguished by the glands, R. Kuntzeanus being glandless.

R. IRENÆUS, Focke.—This is a very distinct and attractive species, with slender, creeping stems, 6 feet or more in length, and thickly clothed with very small spines, each about 1-20th inch in length. The leaves are evergreen, roundish in shape, 5 inches to 6 inches in length, and the same in width. Their upper surfaces are shining, metallic green, the lower surfaces are covered with a silvery-white tomentum, interspersed with prominent yellow veins. The habit and free growth of this species in half-shady positions suggests that it will prove a valuable subject to use for covering sloping banks and similar damp positions, for which the Ivy is now largely grown. Mr. A. Henry and Mr. Wilson both record finding this species in Central and Western China at 4,000 feet to 8,000 feet elevation.

R. LAMBERTIANUS, Ser. (see fig. 69).—There are two forms of this Rubus growing in China, one having red the other yellow fruits. Mr. Wilson describes it as a common plant, growing up to 3,000 feet elevation. The shoots are long and slender, reaching a height of 10 feet to 12 feet. The square stems are furnished with a few hooked spines. The leaves are evergreen, simple, five-lobed, vivid green, glabrous above, light-green and slightly hairy beneath, 3 inches to 4 inches in length, and the same in width.

R. LASIOSTYLUS, Focke.—If all the plants growing under this name are correct this is a particularly variable species. One form (No. 188) has particularly stout, vigorous growths and very spiny stems, which are 12 feet in height and 4½ inches in circumference at the base. The leaves are pinnate, usually consisting of three large leaflets. The plant numbered 279 is quite distinct from the foregoing, which, according to *Plantæ Wilsonianæ*, is R. lasiostylus var. dizygos, Focke. The stems (see fig. 70) are blue-white, freely clothed with prickles, and the plants at Kew are not so vigorous in growth as in the other form. The smaller leaflets, which are usually in fives, and the white stems give the plant a more elegant appearance than the type, though the thick prickly stems of No. 188 give it a particularly striking appearance. A conspicuous character is the silvery-white colour of the under-surface of the leaflets. The flowers are magenta-red, followed by curious white, woolly fruits, which are useless for eating, though sweet to the palate. R. lasiostylus is an old species, being described in the *Journal of Botany* for 1875.

FIG. 69.—CHINESE BRAMBLES. [*Photograph by C. P Raffill.*

LEFT TO RIGHT: RUBUS LAMBERTIANUS, R. SWINHOII, R. CHROÖSEPALUS, R. PLAYFAIRII, R. PARKERI.

R. NIVEUS, Thunb.—This is one of the strongest-growing Brambles received at Kew from China. The stout stems are 3 inches in circumference at the base, and reach a height of 12 feet, arching gracefully at the ends. They are thickly clothed with numerous small spines, and covered with stiff, brown hairs. The pinnate leaves consist of three large leaflets. The small, white flowers are terminal and axillary, often as many as 30 being developed in a single panicle. The dull, black fruits are of medium size. R. niveus is abundant in Central and Western China at 3,000 feet to 8,000 feet elevation.

R. PARKERI, Hance (see fig. 69).—A slender-growing and very distinct Rubus, having long, scandent stems, 5, 6 or even more feet in length. The bark is clothed with a dense pubescence, and freely armed with short, curved spines. The leaves are evergreen, short-stalked, simple, broadly-lanceolate, inclined to be lobed, 4-5 inches long and 2-2½ inches wide. The upper surface is dark-green, the under side lighter, and clothed with a velvety pubescence. The fruits are black. This Rubus is named in complement to Mr. E. H. Parker, who first discovered it in 1881. Mr. Wilson collected seeds in the neighbourhood of Ichang.

R. PLAYFAIRII, Hemsley (see figs. 68 and 69).—A slender-growing evergreen Bramble, the foliage of this species is very distinct. The thin, wire-like stems and petioles in a young state are clothed with a felt-like down. In one season the young growths attain a length of 7-8 feet. The leaves usually consist of three leaflets, occasionally five. The two lateral leaflets are deeply lobed, and at first sight suggest another pair of leaflets. Leaflets lanceolate, terminal one larger than laterals, 6-7 inches in length, 1¾ inch broad. The panicles of flowers are followed by

black fruits of moderate flavour. Mr. Wilson describes this as a rambling plant, growing in thickets in Central and Western China. The best plants with us are trained up stakes, fixed tripod-fashion, 8 feet in height.

R. Swinhoii, Hance (see fig. 69).—This evergreen Rubus is slender in growth; plants at Kew last season, supported by rough stakes, reached a height of 8 feet. The stems are dark-green, with a reddish tinge on the exposed side, and armed with a comparatively few short spines. The dark-green leaves average 3 inches in length by 1½ inch in width, are ovate and serrate, being lighter in colour beneath. The inflorescence consists of five-seven flowers, borne in terminal panicles; the fruits when ripe are black, and rather bitter to the taste. Mr. Wilson collected this species during 1908 in Western Szech'uan.

R. tricolor, Focke.—This is a very distinct species with prostrate stems, spineless, but thickly clothed with light brown hairs, which give the plants a striking appearance. The longest of the past season's growths at Kew are 4 feet. Mr. Wilson described it as a moisture and shade-loving plant. We have not had long to wait for evidence of this, as during the showery summer of 1910 the shoots averaged 7-8 feet in length, about double the length of those developed during 1911. The leaves are evergreen, simple, cordate, 3-3½ inches in length. the petioles being about 1 inch in length and densely clothed with hairs. The leaf is dark-green above, the under-surface being covered with a silvery-white tomentum between the brown hairs on the veins. Mr. Wilson collected this species at a considerable elevation in Western China up to 10,000 feet. R. polytrichus, Franchet, is synonymous.

In addition to the foregoing species the following, all described by Focke, are also in cultivation at Kew, but another season of growth is necessary before any reliable information can be given of their respective merits:—R. amabilis (No. 830), R. Giraldianus (No. 815), R. inopertus (No. 97), R. mesogoeus (No. 52), R. pileatus (No. 858), R. simplex (No. 282), R. Thunbergii var. glabellus (No. 2), R. trullisatus (No. 57), R. vicarius (No. 948).

The numbers in brackets refer to the specimens and seeds collected by Mr. Wilson during what is generally referred to as the Wilson-Sargeant expedition of 1907-08.

It is to be noted that Mr. George Forrest has also collected seeds of several species of Rubus in China, and the development of his plants will be watched with great interest. *A. O.*

NOTICES OF BOOKS.

A Great Work on Plums.*

Eighteen hundred years is a long period to wait for a book, and yet since the treatise of Athenaeus about 220 A.D., the world has waited with exemplary patience for another treatise dedicated solely to the Plum. The task of supplying a second work has been left to the generosity of the American Government and the skill of Professor Hedrick. These authorities have issued a great work on the subject, which will be received with delight the world over. It is a stout octavo volume of 600 pages, and contains over 100 most excellent coloured plates of the principal varieties of American Plums, and such European Plums as are of value in that country or of special interest from the point of view of history. Hence it is a work of reference which every pomologist will be anxious to include in his library.

Those who know the careful work which Professor Hedrick put into his companion volume *The Grapes of New York*, published in 1908, will require no further testimony, but for the benefit of others we must say that his work, for completeness, accuracy of description, and lucidity, is worthy to stand by the side of that of the greatest pomologists of any country, and in some respects is better than any yet published.

The points to which we allude are the careful descriptions of the tree in all its parts, as well as the fruit. The French writer Mas in his *Le Verger* and *Pomologie Gènerale* took a step forward in this direction, and Professor Hedrick has improved upon him in many ways.

There is further a singular interest attaching to this book from the fact that the evolution of so many varieties has taken place in comparatively recent years, and records have been in many cases carefully kept, so that the genesis of hundreds of new varieties has been studied with an exactness not possible with other fruits. There is therefore valuable material for the biological student as well as the horticulturist. The crossing of the American species

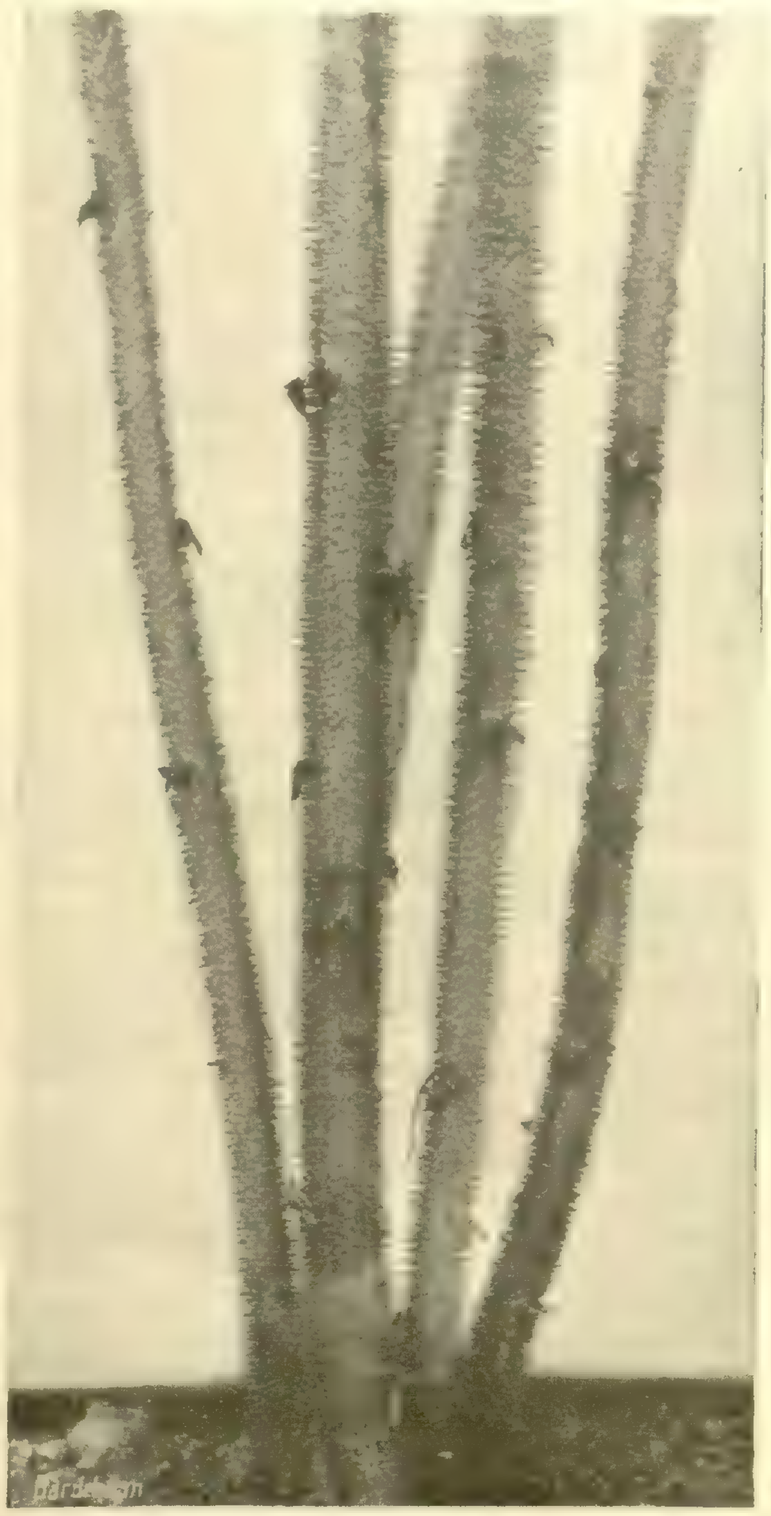


Fig. 70.—Rubus lasiostylus: a species having bluish-white stems.

with European varieties, and also among themselves, have provided many new Plums of great interest, but perhaps the greatest revolution was caused by the recent introduction of the Japanese varieties. Prunus triflora, which is almost certainly of Chinese origin, has introduced new "blood" of very distinct character, and these varieties, known in England generally as Cape Plums on account of their export from South Africa, offer an opportunity of which hybridisers have not been slow to avail themselves. It seems, however, that at present these varieties, and also the descendants of American species, are not generally equal in quality to those of European origin derived from Prunus domestica, and it is, of course, to the latter species that attention will be mostly directed by readers in this country.

The description of the varieties is, as has been stated above, the fullest yet available, and we have noted but very few mistakes in the historical details. In two cases errors are reproduced from Dr. Hogg's *Fruit Manual*. The Bush Plum of Kent was found in a hedge at Borden, near Sittingbourne, and not as stated "Boben." The Diamond, or Black Diamond, was found also in a hedge by a labourer named Diamond near Paddock Wood, and not raised in Hooker's Nursery as stated by Hogg. A further case is that of the St. Catherine Plum, which the author says was "first mentioned by Quintinye." It was, however, known and written upon before this, as we find it in Bonnefond's *Jardinier Francois* in 1651, mentioned by Claude Mollet in 1652, and it had reached England certainly by 1675, all dates considerably in advance of the publication of Quintinye's great work in 1699.

The proof reading has been done with remarkable care, and it is difficult to discover printers' errors. We note, however, on p. 151 Esperin for Esperen, and on p. 271 Prince for Pince, the well-known nurseryman of Exeter. Names are shortened according to the rules of the American Pomological Society, but we wonder why Altham is adopted for the Reine Claude d'Althann?

We dwell on these few details in no captious spirit, but it is of the first importance that such errors should be noted and their perpetuation prevented.

Professor Hedrick's book stands as a monument to the splendid help which the Government is ready to give to its subjects in America. The production of such a work as a "commercial proposition" would be an impossibility, and pomologists of all countries have reason to be grateful for this splendid monograph, and for the generosity which is shown in its distribution. *B.*

* *The Plums of New York*, by U. P. Hedrick. (New York State Agricultural Department).

FOREIGN CORRESPONDENCE.

PURPLE FLOWERS WITH WHITE VARIETIES.

Referring to Habenaria conopsea alba (see pp. 68, 90, and 107), and specially to Mr. W. H. Cox's letter (p. 107), I may say that most Orchids with purple flowers have also white varieties. In recent years I have found here Anacampseros pyramidalis alba, a very splendid plant, with pure-white flowers, Orchis undulatifolia alba, O. papilionacea alba, O. maculata alba, and Ophrys aranifera alba.

Of Crocus imperati I have found two white varieties, one already offered as C. imperati albus, has very large pure-white flowers, though in its early stage the outside petals are pink. The other plant which I would name C. imperati unceresis, is white except for the yellow centre, I have found this beautiful variety here in one place in a Chestnut forest, about five to six large bulbs, one clump, but I hope that next year I may find others in the same place.

Of Viola pseudogracilis, I have only the typical purple species; the white variety I have not yet found, yet I am sure that it exists. Viola splendida from the Monte Virgine is near to pseudogracilis. For two years I have found a fine white variety, which I have named V. splendida eburnea. These two varieties were offered last year for the first time. *Willy Müller.*

YUCCA WHIPPLEI.

Yucca Whipplei (see p. 106) does not make suckers. Three years ago one plant flowered splendidly in the garden of Mr. Casertam, San Georgio, Cremano, and I have collected ripe seeds, not hybridised artificially. Two years ago I crossed Y. constricta with the pollen of Y. aloefolia, and have now many young plants, which already show the hybrid character. My young plants have not a trace of filaments, like aloefolia, whereas in Y. constricta the filaments are well marked. The leaves are not so drooping as the female plant, but stiffer, and like those of the pollen parent. *Willy Müller, Naples.*

The Week's Work.

THE ORCHID HOUSES.

By J. COLLIER, Gardener to Sir JEREMIAH COLMAN, Bart., Gatton Park, Surrey.

LÆLIA AND LÆLIO-CATTLEYA. — Lælia pumila, L. præstans, L. Dayana, L. amœna, and L. Gravesiæ, also such Lælio-Cattleyas as Rubens, Clive, hybrida, Cornelia, and epicaste are pushing forth new roots, therefore specimens that require new rooting materials should receive attention. The smaller-growing kinds should be accommodated in well-drained, shallow pans, and suspended from the roof-rafters in the coolest end of the intermediate house. The strong-growing varieties, such as L.-C. epicaste, should be grown in pots and placed on the stage. A mixture of equal parts Osmunda fibre, A1 fibre and Sphagnum-moss, chopped rather small, is a suitable compost for potting. After having been potted, and until they are well rooted in the new materials, the plants should be given only sufficient water to prevent the pseudo-bulbs from shrivelling; subsequently they may receive copious supplies of moisture at the roots until their growth is finished.

BRASSIA.—Many of the species of Brassia, such as B. brachiata, B. Lawrenceana longissimâ, and B. maculata, are sending up new growths from the base of the last-formed pseudo-bulbs, and as they commence to emit new roots the plants should, if they require it, be repotted. A compost similar to that recommended for Lælias is suitable. The plants may be grown either in pots, and placed on the stage, or in pans and suspended from the roof in a house having an intermediate temperature.

ANGULOA. — Anguloas, such as A. uniflora, A. Ruckeri, A. eburnea, and A. Cliftonii, are becoming active after their season of rest, and, if requiring new compost, should be attended to in this respect. They are strong-rooting plants, and require a compost composed of equal parts good, fibrous loam, broken up and rubbed through a ½-inch sieve to remove the small particles; and A1 fibre, cut up rather roughly, adding a little Sphagnum-moss and some crushed crocks. Place some crocks in the bottom of the pot to insure efficient drainage. Anguloas should be grown in a light position in the intermediate house.

CŒLOGYNE. — Cœlogyne Massangeana, C. Dayana, C. Lowii, C. tomentosa, C. Mooreana, C. Cumingii, C. barbata, and others of their class are making new growth, and the plants may be potted if this operation is necessary. A suitable compost is formed of equal parts A1 fibre and Osmunda fibre, with a small quantity of Sphagnum-moss. The plants are best grown in pans, and suspended from the roof in the warmest end of the Cattleya house. C. pandurata also is making new growth, and plants that have overgrown their receptacles may be potted also if the old compost is sour. A suitable compost in which to pot this species is a mixture of Osmunda fibre, good fibrous loam, from which all the small particles have been removed, and Sphagnum-moss, the whole chopped up rather small, and well mixed with crushed brick. The plants should be grown in pans suspended from the roof-rafters in the warmest house. In the process of repotting remove the old pseudo bulbs, leaving only two pseudo-bulbs behind the leading growth. Plenty of room is necessary in the pans, as the rhizomes will extend some inches each year after being potted. The plants should be watered sparingly, until they have rooted freely in the new compost, after which they should receive liberal supplies of moisture until the new pseudo-bulbs are completed.

CHYSIS.—Chysis Limminghii, C. bractescens, C. Chelsonii, C. aurea, and C. lævis are developing young growths, and should produce flower-spikes in conjunction with them. The plants will require more moisture at the roots, but water should not be applied too freely, or they may fail to produce their flower-spikes. These plants should be suspended near to the roof-glass in the warmest end of the intermediate house. They should not be potted until after they have passed out of flower.

FRUITS UNDER GLASS.

By E. HARRISS, Fruit Foreman, The Royal Gardens, Windsor.

PINEAPPLES. — Fruits of Pineapples which are ripening must not be syringed, and the atmosphere of the pit must be kept dry. If the plants are cultivated in pots those which are ripening their fruits may be taken to a warm, dry house, and placed in a position near to the roof-glass. The roots will not need much moisture, and stimulants must be withheld entirely at that stage. Plants of the Queen variety which are throwing up their fruits must be afforded plenty of heat and moisture. The night temperature should not fall below 70°. During the day it may rise to 85° or 90°, at which point a little fresh air may be admitted by the top ventilators. The atmosphere should be kept moist by frequently damping the walls and other bare surfaces in the house. Close the house early in the afternoon, after syringing the plants with tepid rain water. Stimulants may be afforded two or three times weekly, diluted farm-yard drainings and weak guano water being suitable. Weak guano or soot-water syringed about the bases of the plants at closing time will also be beneficial. When the plants are flowering the "fruits" must not be wetted, neither should the atmosphere be kept so moist as usual. Young plants which were potted last month will now be rooting freely. It will be safe to afford them a thorough watering with clear, tepid water: they will need careful treatment in the matter of watering for some time to come. The growth of the plants should be hastened as much as possible, treating them the same as advised above for Queen variety. They will not require stimulants till the pots are filled with roots. The house should be ventilated carefully during the forenoon, closing the ventilators quite early in the afternoon, after syringing the plants and charging the atmosphere of the house with moisture. Any suckers that are large enough on plants which have fruited may be potted and placed in a warm, moist house. Shade them from bright sunshine till they are rooted.

MID-SEASON VINES. — The disbudding of mid-season vines will demand early attention, removing first all weak, useless shoots. Later, when it can be seen which shoots are carrying the best bunches, the final thinning of the growths may be done. Considerable care is necessary in this operation for, although it is bad practice to have the trellis too sparsely covered with foliage, it is equally injurious to overcrowd the shoots. Every lateral should have ample room to develop without encroaching on its neighbour, so that the foliage may become large and firm in texture, and thus better able to resist attacks of red spider. In addition, the fruit and wood will be more likely to finish perfectly. If the roots are in need of moisture, the border should be watered before the vines commence to flower. Old-established vines, having plenty of roots, will require plenty of stimulating manures. Pinch the shoots at the second leaf beyond the bunch. Rub out the laterals below the bunches, and keep all subsequent lateral growth pinched at the first leaf.

THE HARDY FRUIT GARDEN.

By F. JORDAN, Gardener to Lady NUNBURNHOLME, Warter Priory, Yorkshire.

NEWLY-PLANTED WALL TREES.—Wall trees that were planted last autumn may be pruned and trained, the soil having settled about their roots. Tie in the main branches, but not too tightly, or they may be injured. There is a great difference of opinion as to the way in which the pruning should be carried out. If the planting has been done carefully, and the trees are good specimens, the object of the pruning should be the balancing of the loss of roots by a corresponding amount of top growth. Also to continue the training of the trees, cutting back the leading branches to one-third or one-half their lengths according to circumstances.

APRICOTS. — The mild weather has caused buds on fruit trees to swell rapidly, and, if cold wind or severe frosts prevail, there will be a danger of Apricot blossoms receiving considerable damage. On this account it will not be advisable to leave the trees fully exposed after this date in mild districts. In colder parts where the buds are not so forward, the trees need not be protected for the present unless severe frosts threaten. There may be a danger in covering the trees when it is unnecessary, as it might make the blossoms more tender as well as exclude the light and air. The protective materials should always be removed during the daytime. If netting is employed, two or three thicknesses will generally suffice, and this material permits the light and air to pass through freely, besides being convenient to loop up during the daytime. But whatever protective material is employed it should hang well away from the face of the wall, and not nearer than 1 foot from the trees. Branches of Spruce Fir if fixed lightly on the wall form a very useful method of protecting fruit blossom.

AUTUMN-FRUITING STRAWBERRIES.—Like the ordinary Strawberry, the autumn fruiting kind gives the best result when planted in a deep, rich soil. Ordinary soils may be made suitable by a liberal addition of manure. It is best to plant the runners on a border, so that the plants may be protected by lights when the fruits are ripe in September and October from rains, as many of the finest berries are often spoiled by damp. The present is a suitable time to make new beds. The young plants must not be allowed to flower during the summer, and it is best to remove the runners; if desired a few of the latter may be selected and pegged into the soil. These will produce plenty of fruit, but the berries will not be of such good quality as those from the parent plants, which have had early flowers and all runners removed.

ALPINE STRAWBERRIES.—The best plants of Alpine Strawberries are obtained from seeds sown this month. Germinate the seeds in a moderate temperature, and prick off the seedlings as soon as they are large enough to be transplanted, gradually hardening them so that they may be planted out-of-doors in May.

APHIDES.—Stone fruits, including Peaches, Apricots, Cherries, and Plums should be syringed with a suitable insecticide just before the flowers open to destroy any aphides that may be present. In many cases, especially during cold weather and when drying winds prevail, this pest gains a complete mastery over the trees causing the leaves to curl, and it is then a difficult matter to eradicate the creatures by spraying.

THE FLOWER GARDEN.

By J. G. WESTON, Gardener to Lady NORTHCOTE, Eastwell Park, Kent.

SWEET PEAS.—In warm districts and in suitable soils, Sweet Peas may be sown in the autumn, with a fair prospect of success. But, generally, it is better to have autumn-sown plants in pots for the production of early blooms, growing the seedlings under cool conditions, and planting them out-of-doors early in April in a warm, sheltered position. Such plants in cold frames should be afforded all the ventilation possible, removing the lights altogether whenever the weather is favourable. By growing them hardily, the plants will receive only a slight check when they are planted next month. A few twigs should be placed around the pots, to support the shoots. This will suffice till the plants are put in their permanent positions, when twiggy sticks some 2 or 3 feet long should be placed in position at once; the sticks will give some measure of protection from cold winds, and will afford ample support for some time to come. A sowing should be made now to provide plants for successional blooming. The newer varieties should be sown in pots, and afforded special attention. Many growers raise all their plants of Sweet Peas in pots, as by this system they may be easily protected from birds, slugs and pests. Some sow the seeds singly in small pots, but here we place about five seeds in each 5-inch pot. Ordinary potting soil is suitable as a compost. The seeds may be germinated in a cold frame, but care must be taken to protect them from mice, which may destroy many of them in a single night. The present is a suitable time to sow Sweet Peas out-of-doors for the main crop of bloom. The ground having been previously deeply trenched and well manured, should be forked over and afterwards made fine. Choose a drying day for sowing the seeds. Forking the ground lightly early in the day, and raking the surface several times, will get the seed-bed into a good condition by the afternoon. Roll the seeds in a little red lead, moistened with paraffin, to make them distasteful to birds. Sow very thinly, covering the seeds lightly with fine soil, and when the work is

finished, dust the rows over with soot, repeating the dusting at intervals, soot being a capital manure and a deterrent of slugs.

The Rock-garden.—Spring is the most important season in the rock and Alpine garden, and every effort should be made to have everything tidy, and as attractive as possible. Accumulations of dead leaves, sticks, and other rubbish should be cleared away, giving the rockery a general overhauling. See that the stronger-growing plants do not encroach on other weaker-growing subjects, as choice plants may be lost if this is permitted. Where the roots have become exposed by continual rains, a top-dressing of soil should be applied over them. Study the requirements of the individual plants by giving peat, rubble, or loam, as is necessary.

Perennial Phloxes.—These showy summer and autumn-flowering plants are worthy of extended cultivation, but only the choicer varieties should be included. Clumps of perennial Phloxes in striking colours are almost essential in the herbaceous border, whilst a large bed or border devoted entirely to a collection is most interesting and showy during a considerable part of the summer. They are strong-rooting plants, requiring plenty of nourishment, and the ground should be well trenched and manured before they are planted. Plants that were propagated last autumn, and new varieties obtained from the nurseries should be planted now. Allow plenty of room; a distance of 3 or 4 feet apart is not too much space for the stronger-growing varieties. The spaces between may be planted with Violas or other low-growing plants. The following varieties were especially good at exhibitions last season:—Elizabeth Campbell, Eminence, Lady de Bathe, Baron Van Dedem, G. A. Strohlein, Dr. Konigshofer, Duchess of Roxburgh, Lady Tweeddale, D. M. McKinnon, Frau Ant. Buchner, and Goliath.

PLANTS UNDER GLASS.

By Thomas Stevenson, Gardener to E. Mocatta, Esq., Woburn Place, Addlestone, Surrey.

Fuchsias.—The Fuchsia is a valuable greenhouse plant, as its season of flowering is a prolonged one. It is best to grow young plants, notwithstanding that they may not produce such an abundance of bloom at the same time as older specimens. Cuttings rooted in September, and potted in "60" pots in November or early this year, are growing freely, and will be benefited by being placed in larger pots. To obtain pyramid plants the side growths should be pinched at the second pair of leaves, allowing the leading shoot to grow unchecked until it shows signs of blooming, when it should be stopped also, allowing another shoot to take its place. The reason for this is that when blooms develop from the axils of the leaves the latter rarely have leaf buds as well, whereas, to obtain evenly-balanced specimens, shoots are required from every joint. If my advice is followed in respect to pinching, and the plants grown in a warm, moist atmosphere, good specimens may be had by July or August. Old plants of Fuchsia may be overhauled and pruned, placing them afterwards in a warm, moist house. If room is limited in the other plant-houses, they may be accommodated in Peach-houses or vineries that have just been started. They may be allowed to remain in these till such times as the legitimate houses are available. The plants will need only a small amount of water at the roots until they have grown somewhat, but the shoots should be sprayed lightly two or three times daily. The repotting of the plants should be deferred until the young shoots are about an inch long, when most of the old soil may be shaken from the roots, and the plants potted afresh in receptacles of the same size as before, or a trifle larger. The potting compost should be of a moderately light texture, and rich in quality. In the case of large specimen Fuchsias, I prefer to place the plants direct in their flowering pot, allowing plenty of room in the pots for top dressings later; this is the best method of getting Fuchsias to bloom over a considerable period.

Hanging Baskets.—The present is a suitable time to arrange hanging baskets, which may be employed either for the decoration of the conservatory, the large greenhouse, and the stove. I have also found them useful when furnished with the stove plants for standing in jardinières, the shoots depending in a most natural and graceful manner. Plants suitable for the purpose include many kinds of Ferns, Ivy-leaved Pelargoniums, Fuchsias, Begonias, and Campanulas, whilst among stove plants it would be difficult to find a subject that would not do even better in baskets than in pots. Codiæums (Crotons), Eulalias, Dracæna Godseffiana, D. Sanderi, Caladiums, Acalypha musaica, A. marginata, and A. hispida, which grows better in baskets, and probably shows itself off to better advantage than in any other way. In arranging the subjects in the baskets the centre plants may not furnish the sides, and other small-growing subjects, such as varieties of Selaginella, Panicum, and Tradescantia, should be worked in.

Bulbs.—The spring-flowering bulbs are developing very fast this season, and it might be an advantage to place some of the later batches of Tulips and Narcissi in a frame under a north wall to retard them, and thus prolong the season by a week or two.

Clivia (Imantophyllum).—The Clivia is one of the hardiest and most easily grown greenhouse plants. Specimens in bloom are very showy, their flowers lasting for a long time. Well-established plants may be had in flower, by slight forcing, from Christmas onwards, the usual time of blooming being March and April. The plants should be liberally supplied with liquid manure from the time they commence throwing up their flower spikes until they have completed their season of growth. The old varieties of C. miniata, including cyrtanthiflora, have been superseded by others, having both larger and brighter flowers. Clivias may be propagated by division as soon as they have done flowering, potting single shoots, with roots attached, in 4½-inch or 6-inch pots—according to their size—in a fairly rich compost, consisting of loam, well-decayed manure, and sand. After potting, the plants should be placed in a warm, moist house to encourage fresh root action, and enable them to recover from the check caused by cutting through the large, fleshy roots. When they have grown well in the new soil they may be removed to a cool green-house for the remainder of the season; if fairly strong, they should flower well in the following spring. Older plants may be afforded larger pots as they become necessary, although young specimens, in pots ranging from 5 inches to 8 inches in diameter, are the most useful for decoration purposes.

Canna.—Few plants make a better floral show in their season than the Canna, and, where good batches of plants are required, the present is a suitable time for splitting up the old stools and repotting them. Large plants employed for conservatory decoration last season and grown in 6-inch pots may be placed in 9-inch pots. The most useful system of growing them is to put each young shoot separately in a "54"-size pot, placing it in a "32" pot as soon as it is well rooted. The young rhizomes should be severed from the old stool by means of a sharp knife, and with, if possible, a few roots attached. Use a light compost for potting, and place the plants in a warm frame or intermediate house, where they will soon make new roots and grow freely. At the start water sparingly and with great care, but later in the season water may be applied copiously. The repotting of the plants must be done before the roots become pot-bound, and at that stage they should be afforded fresh air to keep them stocky. The foliage should be syringed frequently during hot weather to keep it free from red-spider. When the plants are well rooted, liquid manure may be given freely, also a dressing weekly of artificial manure, stimulants being necessary to obtain good spikes of bloom in these comparatively small pots. In many gardens old varieties are grown year after year, notwithstanding that many greatly improved sorts are obtainable, and would well repay the extra cost even in their first season.

Ixora.—Ixoras may with advantage be potted now. Employ as a rooting medium peat, leaf-mould, and silver-sand: a little good loam mixed with these materials suits some of the stronger-growing varieties, but it should be of a fairly light texture and fibrous. Straggly plants should be pruned into shape a little, deferring their potting until they have grown into good form. Cuttings of Ixoras root freely all through the summer months. Young shoots having a little hard wood or "heel" attached make the best cuttings, and should be rooted in a moderate amount of bottom heat.

THE KITCHEN GARDEN.

By Edwin Beckett, Gardener to the Hon. Vicary Gibbs, Aldenham House, Hertfordshire.

Asparagus.—This vegetable is difficult to grow in many localities because the soil is not suitable; but by careful preparation of the ground much of the difficulty may be overcome. Asparagus requires an open situation and a well-drained, deeply-worked soil that has been heavily enriched with manure. On heavy land, suitable ingredients must be incorporated with the soil to lighten it, and if the staple is of a very crude nature, it is advisable to wheel some of it away altogether. On light soils, the beds may be made on the flat: on heavier lands they are best raised slightly. Assuming that the ground the beds are intended to occupy has been well trenched and freely manured some time previously, it may be forked over, and the position of the beds marked out. The beds should be 4 feet in width, with an alley 2 feet in width between each, throwing the soil from the alleys on to the beds, which may then be left until next month before planting. Mark the position of each bed by means of a neat but stout Oak post.

Horseradish.—The planting of Horseradish should be done without delay. This vegetable is frequently grown on the same site for many years in succession in a secluded part of the garden. It is, however, advisable to lift the roots annually and store them in ashes or under a north wall, to allow of the ground being dug or trenched and manured, allowing it to remain in a rough condition until the weather is suitable for replanting. Select straight roots with their crowns undamaged, and plant with a dibber in rows made 1 foot apart, allowing the same distance between the roots in the rows. Bury the crowns about 6 inches below the surface. After planting, little other attention will be needed beyond keeping the crop free from weeds. Where the bed is of fairly large dimensions, one-half may be treated as advised in alternate years.

Tomatos.—A sowing of Tomatos may be made of varieties suitable for furnishing the main crop under glass and for fruiting out-of-doors. Sow the seeds thinly, as advised in the case of earlier sowings, selecting varieties that set their fruits freely and crop abundantly. For outside culture, Sunrise and Lye's Early Gem may be recommended. Plants in fruit will be benefited by slight top-dressings composed of equal parts fine, loamy soil and patent manures. Avoid over-watering, or the fruits may split. Pot on, as necessary, plants intended for successional fruiting. Others in pots in which they will fruit will need attention in training occasionally: keep the leading growth straight, and remove all side growths. Afford ventilation on all favourable occasions, and maintain a warm, fairly dry atmosphere.

Cucumbers.—Make another sowing of Cucumbers and raise the plants in a brisk heat. Remove the fruits from the earliest plants as soon as they are large enough for consumption, so that the energies of the plant are not overtaxed. Syringe the foliage with warm water frequently, and damp the paths and bare spaces of the house late in the evening. Place thin layers of fresh soil as top-dressings to encourage root action, and see that the roots do not suffer for want of water. Plants in pots that are growing freely must be watered carefully, and, when rooting freely, afforded occasional supplies of diluted liquid manure made from farmyard dung.

French Beans.—Plants of French Beans in bearing should be examined twice weekly, with a view to removing any pods that are large enough for use. If the beans are not required for immediate consumption they may be tied in small bunches, and the stalks immersed for a little way in water or wet silver-sand. By this means they may be kept fresh for a number of days. Give the plants an abundance of water when they are fruiting freely, and liquid manure at frequent intervals. Beans when being forced need a light position and an intermediate temperature with plenty of moisture, including frequent syringings to keep the foliage free from red spider. Later batches of plants should be top-dressed as necessary, and the shoots afforded supports.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, *as well as specimens of plants for naming, should be addressed to the* **EDITORS, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Local News.—*Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Illustrations.—*The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c., but they cannot be responsible for loss or injury.*

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, MARCH 19—
Roy. Hort. Soc. Coms. meet. (Lecture at 3 p.m. by Mr. H. B. May on "Ferns.") Horticultural Club, house dinner and meet. 6 p.m.

WEDNESDAY, MARCH 20—
Roy. Meteorological Soc. meet. (Lecture by Dr. Pettersson.)

THURSDAY, MARCH 21—
Perpetual-flowering Carnation Soc. Sh. at R.H.S. Hall, Westminster (2 days). Linnean Soc. meet. Manchester Orchid Soc. meet.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—41·9°.

ACTUAL TEMPERATURES:—
LONDON.—*Wednesday, March 13* (6 P.M.): Max. 52°; Min. 44°.
Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—*Thursday, March 14* (10 A.M.): Bar. 29·8°; Temp. 53°; *Weather*—Dull.
PROVINCES.—*Wednesday, March 13:* Max 51° Cambridge; Min. 48° Scotland, N.

SALES FOR THE ENSUING WEEK.

MONDAY AND WEDNESDAY—
Rose Trees, Fruit Trees, Perennials, Liliums, Trained Bay Trees, Palms, &c., at 12.30, at Stevens's Auction Rooms, 38, King Street, Covent Garden, London.

MONDAY AND FRIDAY—
Herbaceous Plants and Perennials, Lilies and other Hardy Bulbs, at 12; Roses and Fruit Trees, at 1.30; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

WEDNESDAY—
Perennials and Border Plants, Hardy Bulbs, &c., at 12; Roses and Fruit Trees, at 1.30; Palms and Plants, at 5; Trade Sale of Miscellaneous Bulbs, at 12; 456 cases Japanese Liliums, at 2.30; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.
Clearance Sale of Pot Plants, &c., at The Nurseries, Lower Gravel Road, Bromley Common, by Protheroe & Morris, at 12.

FRIDAY—
Orchids, at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

"Wake Up" Manchester.

It is to be regretted that, in the city and neighbourhood of Manchester, horticulture does not occupy so large a place in the affections of the people as it did 30 years ago. At that time, the collections of plants in the gardens within easy reach of the town were among the best to be found anywhere, and the flower shows held there were important horticultural events. We have seen exhibitions in the Botanical Gardens at Old Trafford which, for extent, interest, and cultural excellence, were at least the equals of [illegible] held in the metropolis. The Manches[illegible]nical and Horticultural Society, [illegible] in 1828, did much to stimula[illegible]ral art among its own people [illegible]apse of about 30 years, the s[illegible] came to grief through lack [illegible] but it recovered, and was [illegible] a career of prosperity an[illegible] This was achieved by the ad[illegible]older policy, which included t[illegible] exhibitions that were at-[illegible].e people. The society built [illegible]arden and a rich collection of [illegible].d Trafford, where, for about a [illegible] a century, it continued to do splendid work. All this was done when the conditions of the town with respect to smoke and other disadvantages were, at the least, as unfavourable to horticulture as they are at the present time. Yet, whilst Manchester has grown and prospered enormously in recent years, horticulture has steadily lost ground there, so that to-day, if we except the Orchid enthusiasts, there is probably less interest in the products of horticultural art than may be found in some of our comparatively small towns. If any people might be expected to find pleasure and relaxation in the culture of plants and flowers, surely they are the Manchester people. It is difficult to believe that a preference for sport and the coarser kinds of enjoyment has drawn them from horticulture, although the fact that the once beautiful and interesting gardens at Old Trafford are now occupied by water shutes and similar means of diversion, might be taken as a proof that this is really the case.

It may be assumed that the love of plants is still alive in Manchester, and only requires a little stimulating to burst into its former ardour. The Orchid Society manages to keep up a flicker by holding fortnightly meetings in a badly-lighted and poorly-situated building, but the members, some hundred or so, are the only people that take an interest in the proceedings. Compare all this with what we have in London. A society 12,000 strong, wealthy, with a fine exhibition hall and an experimental garden; the result in a large measure providing a spacious hall in an accessible part of London. What this hall has proved to be for the Royal Horticultural Society a similar venture would almost certainly turn out to be for the horticulturists of Manchester. Societies can only prosper when they labour to promote that which is appreciated by the people. The report of the general meeting of the Manchester Botanical and Horticultural Society, published in our last issue, stated that the land at Old Trafford belonging to the society was valued at £50,000. If this valuation is only approximately correct, it ought to be easily possible to provide the city with the horticultural attractions is so obviously lacks at the present time. We should like to see the Manchester Orchid Society and the Manchester Botanical and Horticultural Society co-operate so that periodical shows and lectures might be provided where the people could profit by and enjoy them. Surely such an effort is not too much to expect from those who, less than half a century ago, claimed to be amongst the leaders of British horticulture.

Sewage Sickness in Soil.

The method of getting rid of sewage by distributing it over land from which crops are taken is admirable in theory, and should be so in practice. Unfortunately, it often happens that land so treated becomes sewage-sick and loses its value as a bacterial filter, so that the effluent becomes impure. Dr. Russell and Mr. J. Golding have investigated the origin of this sewage sickness (*Journal* Soc. Chem. Industry), and have reached the conclusion that the causes are two-fold. In the first place, sewage sickness is attributable to a change in the physical properties of the soil. In the second place, it is due to a change in the micro flora and farina of the soil. This change takes the form of an increase in those soil organisms, probably protozoa, which prey upon the useful decomposition bacteria. The latter are therefore unable to do their beneficial work.

The authors find that if sewage-sick soil is heated to a temperature sufficient to destroy these injurious organisms, it regains its properties, and, when put back on the sewage farm, renders the effluent clearer than before. Large scale partial sterilisation is, however, not cheap, though it would probably prove cheaper than the current method of resting the sewage farm till the soil has recovered from its sickness. For such soils, however, it is possible that treatment with antiseptics may be found more practicable. Toluol or carbon disulphide may be used instead of heat to regenerate the sick soil, but they are too expensive for use on a large scale. The problem then is to discover a cheap antiseptic which has the like properties. The importance of such a discovery is very evident.

A HARDY ORANGE.—Messrs. T. RIVERS & SON, Sawbridgeworth, have forwarded us a seedless Orange, which is said to be hardy, and a sketch of the fruit and leaves by Mr. WORTHINGTON SMITH is reproduced in fig. 71. The variety is of Japanese origin, and is known as "Satsuma," "Oonshin," and "Kü Seedless." The fruit is flattish, and resembles a large Mandarin Orange, the skin being of a deep yellow colour. The tree is said to be of dwarf habit, quite thornless, and to fruit when very young. In California it is the first Orange to ripen its fruit. The following description is from *Citrus Fruits*, by R. M. TEAGUE, California, where this Orange is best known to cultivators:—The fruit is of medium size, "flattened; the colour is not red, like the King and Tangerine, but a deeper yellow than the Mandarin; rind and segments part freely; flesh fine-grained, tender, juicy, sweet and delicious; entirely seedless; one of the earliest sorts known; fruit ripens as early as November; tree thornless; bears when young." The variety has fruited in Australia, where it is described as a heavy cropper, and is the best sort for planting in cool districts. One of the calyx lobes in the fruit sent us was somewhat foliose (see fig. 71), an unusual character in the Orange.

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the Royal Horticultural Society's Committees will take place on Tuesday, the 19th inst. In the afternoon a lecture on Ferns will be delivered by Mr. H. B. MAY, V.M.H.

HORTICULTURAL CLUB.—A house dinner and meeting of the Horticultural Club will take place on Tuesday, the 19th inst., at the Hotel Windsor, Victoria Street. Mr. HAROLD C. LONG, B.Sc., of the Board of Agriculture, will deliver a lecture on "Weeds"; the lecture will be illustrated by lantern slides.

BRITISH VIOLETS.—Messrs. W. HEFFER & SONS, Cambridge, have in the press, and will publish shortly, a monograph on the *British Violets*, by Mrs. E. S. GREGORY. The volume will be illustrated with both line and half-tone blocks.

Carnation Conference.—A conference on Carnations will be held by the Perpetual-flowering Carnation Society in the Royal Horticultural Hall, Vincent Square, Westminster, on Thursday, March 21, the first day of the Society's Spring Exhibition. Mr. J. S. Brunton will occupy the chair. The subjects for discussion include "Cultivation of Perpetual-flowering Carnations for Amateurs," by Mr. F. Fitch, Balls Park Gardens, Hertford; and "Carnations as Bedding Plants," by Mr. E. F. Hawes, Imperial School of British Horticulture, Hampstead.

Devon Daffodil and Spring Flower Show.—We are informed by the secretary that the dates of this exhibition have been altered to Thursday and Friday, April 18 and 19, owing to the Royal Horticultural Society's Daffodil Show being arranged to take place on April 16 and 17, the dates originally fixed for the holding of the Devon Daffodil show.

Flowers in Season.—We have received some flowers of selected varieties of Primula sinensis from Messrs. Ed. Webb & Sons, Wordsley. Rose Queen is a large, smooth flower of a pretty shade of rose; Eclipse is purplish-crimson, rich, but not dull; Ruby Queen is a peculiar shade indicated by the name. The others are Avalanche, a good white variety; Meteor, a salmon-rose flower; and Blue Bell.

Balfour Professorship of Genetics.—Thanks to the munificence of an anonymous benefactor, the University of Cambridge has received the sum of £20,000 for the endowment of a Professorship of Genetics. It will be remembered that some five years ago a Professorship of Biology was established for the purpose of encouraging research in genetics. No permanent endowment was, however, provided for the maintenance of the professorship, beyond a certain term of years; nor was adequate provision made for the establishment of an experiment station, which is an indispensable adjunct to a professorship in genetics. Now that it is in receipt of adequate funds, the University will be able to take officially a proper part in the encouragement of this important branch of biology. The Vice-Chancellor of Cambridge University has received the following letter from Lord Esher:—"2, Tilney Street, Mayfair, W., March 7.—Dear Vice-Chancellor,—Towards the end of last year there was a meeting held at Mr. Balfour's house in Carlton Gardens of a few representative members of the University of Cambridge interested in the subject of genetics. The meeting had under consideration a short paper written by Mr. Balfour in July, 1910, which dealt with the endowment of the study of genetics in the University of Cambridge. As a result of that meeting, I am glad to be able to inform you that a generous benefactor, who stipulates that his name shall not be mentioned, has placed in my hands a sum of twenty thousand pounds (£20,000) for the purpose of endowing a Professorship at Cambridge in connection with the experimental study of heredity and of development by descent. It is stipulated also that the new Chair shall be called the Balfour Professorship of Genetics. There are two more subsidiary conditions which I am to place before you for your consideration: (1) That the first appointment should be made jointly by the Prime Minister and Mr. Balfour. (2) That the regulations governing future appointments to and functions of the Chair shall be submitted through me to the anonymous benefactor before the endowment fund is placed in your hands. I am able further to state that our generous benefactor is willing to furnish such funds as may be necessary to provide and equip a small station at Cambridge for the use of the professor, should such a course be considered desirable after careful examination of the methods likely to be most satisfactory for the purposes of research in the domain of genetics.—I remain, yours sincerely, Esher."

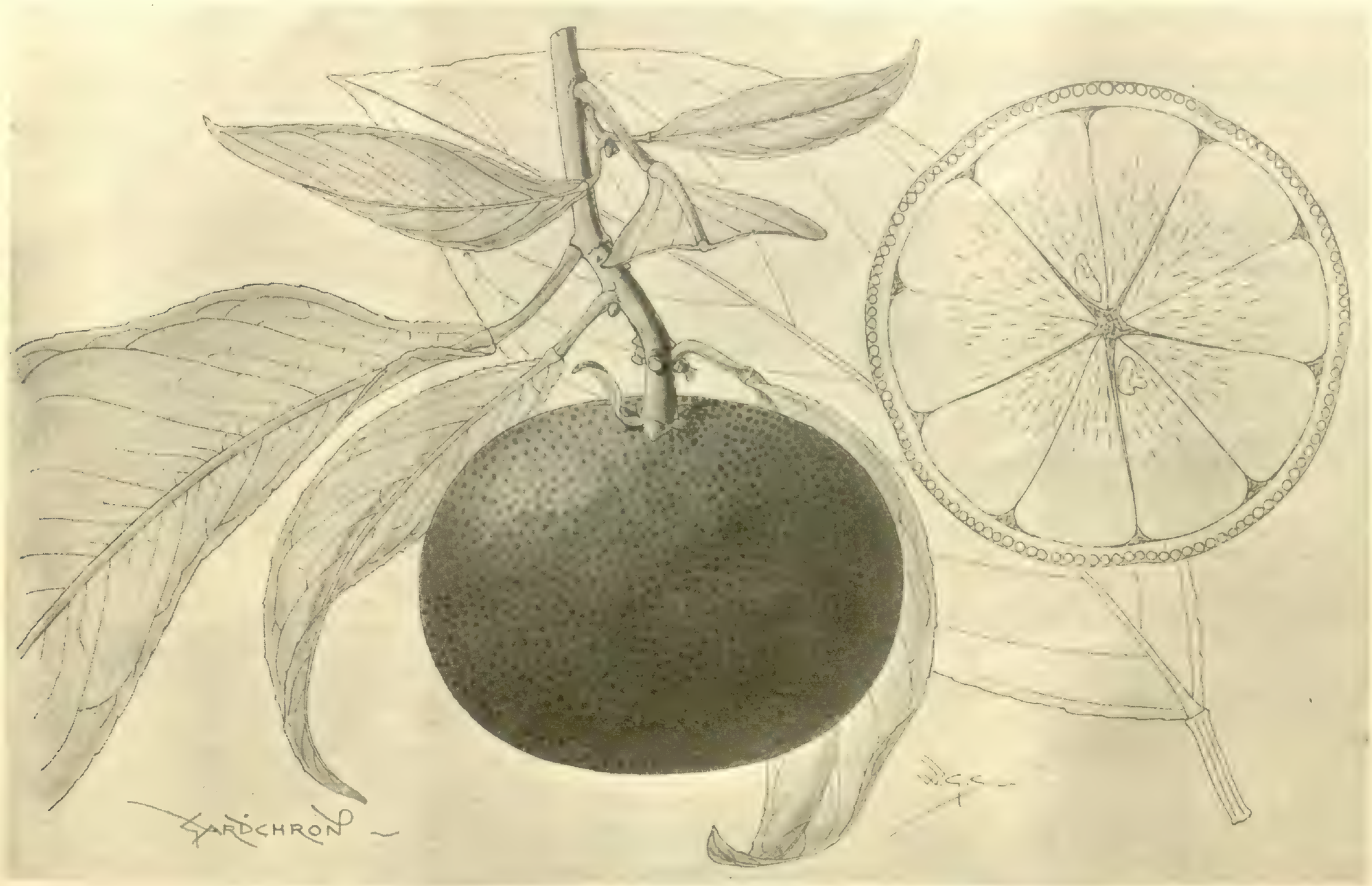


Fig. 71.—A Japanese variety of orange, said to be comparatively hardy.
(The section shows the presence of two abortive seeds. See p. 170.)

"The British Fern Gazette."—We have received No. 11 of this *Gazette*, the organ of the British Pteridological Society, edited by Mr. Chas. T. Druery, V.M.H., who is also the hon. secretary, 11, Shaa Road, Acton, London, W. The subscription to the society is 5s. per year, and this sum entitles to membership and four issues of the *Gazette*.

Appointments at Calcutta and Edinburgh.—Mr. Charles Cumming Calder, B.Sc., of the University of Aberdeen, has been appointed by the Secretary of State for India in Council, on the recommendation of Kew, Curator of the Herbarium of the Royal Botanic Gardens, Calcutta. Mr. W. W. Smith, Curator of the Herbarium of the Royal Botanic Gardens, Calcutta, has been transferred to the post of Assistant to the Regius Keeper of the Royal Botanic Garden, Edinburgh.

Presidency of the Royal Horticultural Society, Vienna.—On February 18, immediately following on the extraordinary general meeting of the newly-elected committee of the above-named society, the following appointments were made:—President, His Excellency the Count Silva Tarouca, Privy Councillor; First Vice-President, Dr. Richard Wettstein, of Westersheim, Counsellor and University Professor; Second Vice-President, Mr. Anton Umlauf, H.-Director of the Hofgärten. Dr. Kurt Schitt[illegible]ner was appointed general secretary of the society, and Dr. Joseph Ullmann treasu[illegible]r,

ROYAL INTERNATIONAL HORTICULTURAL EXHIBITION.—Many of the Home Counties are providing special "County" Cups or pieces of plate for competition at the Royal International Horticultural Exhibition next May. The piece of plate illustrated in fig. 72 has been presented by Leicestershire and Rutland. The local hon. secretary is Mr. W. H. DIVERS, Belvoir Castle Gardens, Grantham.

———The proprietors of the *Daily Mail* newspaper have offered a gold cup, valued at 50 guineas, for the best new Rose shown in the class for single plants of climbing Roses or that for Seedling Rose plants (climbers excluded).

TOBACCO GROWING IN CANADA.—Canada raises a good deal of the Tobacco which is consumed in that country. Tobacco is at present raised almost entirely in Quebec and Ontario. The improvement of the quality in recent years may be imagined when it is stated that some 15 years ago samples of the Tobacco then grown by the Quebec farmer for his own use, upon being submitted to several of the leading Tobacco manufacturers in the United Kingdom, was pronounced to be of a quality quite unfit for their purposes; that, in their opinion, a use for it might be found for fumigation purposes, as an insecticide for greenhouses; and that its commercial value was about 1d. a pound. The total crop last year was 20,000,000 lbs., two-thirds of the whole crop being raised in the latter province. The yield averages 1,500 lbs. per acre in normal years, and if well cured commands from 6d. to 7½d. per lb. for "binders," and from 4d. to 4½d. for pipe Tobacco. Tobacco is generally grown in areas of one to four acres, and it forms a useful adjunct to fruit growing. Recent experiments in Nova Scotia demonstrate that the Annapolis Valley, the pick of Nova Scotia's orchard area, is highly adapted by soil and climatic conditions for the growth of Tobacco.

THE L.C.C. PARKS COMMITTEE.—It is proposed that in the coming year the Parks and Open Spaces Committee of the London County Council shall be composed of the following members:—Sir GEORGE ALEXANDER, Mr. T. CHAPMAN, Lord CHEYLESMORE, Mr. H. E. A. COTTON, Baron DE FOREST, Mr. F. L. DOVE, Mr. C. U. FISHER, Mr. STEPHEN GEE, Mr. A. O. GOODRICH, Mr. H. J. GREENWOOD, Lord HADDO, Mr. T. F. HOBSON, Mr. T. HUNTER, Mr. C. JESSON, Mr. G. W. H. JONES, Mr. R. C. LAMBERT, Mr. G. LANSBURY, Mr. H. C. LEA, Major H. B. LEWIS-BARNED, Mr. J. W. LORDEN, Mr. G. K. NAYLOR, Mr. WALTER REYNOLDS, and Mr. STUART SANKEY. Mr. FISHER was the chairman of the Parks Committee last year, and Sir GEORGE ALEXANDER and Mr. WALTER REYNOLDS have also occupied the position in the past.

PLANT AND ANIMAL PIGMENTS.—The pigments, more particularly the yellow colouring matters of plants and animals, have been frequent subjects of scientific investigation, but until recently progress in determining their chemical composition has not been very definite. WILLSTÄTTER made an important advance in classifying them as either hydrocarbons, of which carrotene, the colouring matter of Carrots, is the best example, or as oxygen compounds, closely related chemically to the hydrocarbons: the latter are known as xanthophyll. WILLSTÄTTER'S subsequent experiments have been devoted to the preparation of such pigments in a crystalline state, and he has obtained, amongst others, lycopene, the pigment of Tomatos, in very beautiful, red crystals. Lycopene is very closely related to carrotene. His latest achievement is a remarkable one, namely, the isolation in a crystalline condition of the yellow pigment of hens' eggs. This is termed luteine, and it is proved to be very nearly identical with the xanthophyll of plants. The yolks of 6,000 eggs were needed for the work, and, finally, only about one-eighth of an ounce of the pigment was obtained. The result serves to emphasise once more the close relationship between the plant and animal worlds.

A NEW FODDER PLANT.—A cultivated form of Helianthus macrophyllus, has been sold during the last three or four years under the name of "Helianthi," "Helianti," or "Salsefis," as a fodder plant. According to the *Journal* of the Board of Agriculture, it is a perennial species of Helianthus, allied to the Sunflower and Jerusalem Artichoke, but produces tubers that differ from those of the Jerusalem Artichokes in being slender and spindle-shaped. The plant is remarkable for its enormous production of tubers and generally luxuriant growth. The stems above ground grow as high as 9 or 10 feet, and may be used as fodder, either green or as hay or silage. If the crop is not cut for fodder the growth matures and then dies back, and

FIG. 72.—ROYAL INTERNATIONAL EXHIBITION.
(Rose bowl presented by Leicestershire and Rutland.)

a heavy crop of tubers is produced which may be fed to horses, cattle, pigs, or sheep. They are also said to be superior to Jerusalem Artichokes for culinary purposes. The plant is propagated by tubers.

LEAF SPOT OF CELERY.—In the *Journal* of the Royal Horticultural Society, vol. xxxvii., p. 115, Mr. F. J. CHITTENDEN describes the destructive parasitic fungus (Septoria petroselini, var. apii B. and C.) which in 1909 and 1910 attacked Celery to a serious extent in many parts of England. Usually the first symptom of the disease is the appearance of small pale spots on the leaves. These are quite unlike the burrows made by the Celery-fly larva, and on examination with a lens, small, black dots may be seen on them. When the attack is severe, the whole leaf becomes almost olive-green, the foliage wilts and the leaf-stalk, which is also attacked, decays. Even when the attack is not sufficiently severe to cause decay, the growth of the plant is interfered with and the crop diminished. The same fungus also attacks Parsley. Investigation showed that a great many samples of Celery seed had the spores of the fungus upon them, and it is suggested that one of the principal ways in which the disease is spread is the use of such seed taken from an affected crop. Where disease makes its appearance, the affected plants should be removed and burned, and the remainder sprayed with either freshly-made Bordeaux mixture or with a mixture of potassium sulphide (1 ounce to 3 gallons of water), repeating the spraying after an interval of about a fortnight or three weeks, and again if necessary. Where disease has existed in a previous year, it would be well to commence spraying early in the season as a safeguard.

THE EVERYDAY USES OF PORTLAND CEMENT.*—Users of cement will find this substantial volume a valuable addition to their reference library. From our point of view the most useful sections of the book are those dealing with the general properties of cements and concrete and with the application of these materials to garden purposes. Among the many garden applications we may mention in particular the use of cement for preserving wounded trees from further injury. Though this use of cement is, of course, well known, the pages devoted thereto contain an excellent account of the methods to be adopted, from which we quote the following:—When trees develop decay there is no reason why they should be felled unless it is quite impossible to remedy them, but in the majority of cases by the application of cement or concrete, they may be preserved. To fill up the cavities in the tree with cement has been practised for a number of years now, but not always with success, because a mistake has been made in leaving the decay in place. The cement was simply filled in the cavity without any regard to draining or the subsequent healing of the wound. As the cement did not stick to the wood and the swaying of the tree by the wind often enlarged the crack between the wood and the filling, water penetrated behind the cement and decay went on even more rapidly than before. In repairing decayed trees, after the mass of the decay has been removed from the interior of the rotting trunk there remains a shell of living sapwood and bark. Into this cavity a steel brace is inserted and bolted in place. This gives to the tree a stability which by the decay of the supporting heartwood it had lost. Now comes an important operation, the cutting of the watersheds, which prevent the entrance of moisture. The watersheds consist of a deep groove cut about 1 inch inside the edge and opening out to the ground below. The cement, being packed tightly into these grooves, forms a channel down which the water flows, to be let out at the base. The cavity is then wired throughout, the wire being stretched from nails driven into the wood, and acting as reinforcing for the cement. This work having been completed, the cement is made as moist as possible, and then built out into the original outline of the tree. The bark which has been cut back for an inch or so in order to prevent bruising while the work is in progress will eventually cover the filled-in wound, the tree thus regaining its normal appearance. In the case of exceptionally large cavities the opening is covered by large strips of zinc. The cement is then forced down into every crevice and allowed to set, after which the zinc is removed and a coat of fine finishing cement put on and painted the colour of the bark. The correction of the forked or defective crotches, which are found to a great extent in soft Maples and Elms, and to a less degree in almost all our landscape trees, forms a large part of the tree surgeon's work. This form of crotch usually has its origin in the destruction of the original head or leader. In a case of this kind a double head is formed by the forcing out of two lateral buds. As these shoot up, forming the new top, the old stump at their

* Published by The Associated Portland Cement Manufacturers, Ltd., London. 1s. 6d. net.

base gradually decays, allowing water to penetrate into the crotch. The imperfect joint is constantly forced open by the wind and prevented from uniting by the old stump, until finally, weakened by decay, the tree splits. Many of the finest trees are ruined every year by the splitting of these defective crotches. These cases are often exceedingly difficult to treat. The decayed matter must first be removed with great care and thoroughness. The opening is then packed tightly with cement. A perfect watershed is required, as the water running down the limbs and trunk would otherwise find lodgment behind the filling. In case of a large tree the additional precaution is taken of putting a bolt directly through the crotch, while a chain is placed some 12 or 15 feet up.

Publications Received.—***Official Guide, Royal Botanic Gardens, Peradeniya,*** by H. F. MacMillan. (Colombo: Plâté & Co.) Price 2s.—***The Study of Timber and Forest Products in America:*** A Report presented to the Forestry Committee of the University of Cambridge, by E. R. Burdon, M.S. (Cambridge: University Press.) Price 6d. net.—***North of England Horticultural Society's Magazine for March.—Profitable Poultry Keeping.*** (London: C. Arthur Pearson, Ltd.) Price 1s. net.—***Bulletin of Miscellaneous Information, Royal Botanic Gardens, Kew.*** No. 2, 1912. (London: Wyman & Sons, Ltd.) Price 3d.—***Proceedings of the Thirteenth Annual Convention of the American Association of Park Superintendents,*** held at Kansas City. Secretary-treasurer, F. L. Mulford, Landscape Gardener, Department of Agriculture, Washington, U.S.A.—***Botanic Gardens and Government Domains, New South Wales.*** Report for the year 1910, by J. H. Maiden, Director. (Sydney: W. A. Gullick, Government Printer.)—***The Gardener and the Cook,*** by Lucy H. Yates. (London: Constable & Co., Ltd.) Price 3s. 6d.—***Meteorological Instruments and Weather Forecasts,*** by H. T. Davidge. (London: Percival Marshall & Co.) Price 6d.

SCOTLAND.

WAGES OF JOBBING GARDENERS IN ABERDEEN.

A meeting of jobbing gardeners in Aberdeen was held a week or so ago, and was largely attended by both employers and employees. Mr. Fraser, who presided, stated that the object of the meeting was to consider what could be done to improve the working conditions of the jobbing gardeners. The discussion was of a sympathetic nature, but several of the employers complained of the competition caused by men who went from door to door and offered to perform gardening work. The employers, however, offered to raise the wages of the men from 4d. to 6d. per hour, and made a suggestion that the men should form a union, agreeing that 4d. an hour was too little. After the employers had retired the men appointed a committee to consider the question, and it was suggested by one of those present that they should endeavour to obtain a 57 hours week at a rate of 6d. per hour.

ABERDEEN FLORISTS' GRIEVANCES.

The florists in Aberdeen are taking exception to the practice of lending free flowers and pot plants from the public parks for private functions and to individuals. The matter came recently before the Links and Parks Committee of the Town Council, and the convener stated that he had refused a great many requests in this connection, but at the same time, in giving out flowers and plants, he had been following the practice carried out by previous conveners.

THE SOYA BEAN IN SCOTLAND.

At Lesmurdie, Elginshire, last summer, Colonel Johnston secured a crop of good, well-matured Soya Beans (Glycine hispida). It is Colonel Johnston's intention this year to sow alongside a plot of imported seed the beans he himself produced, in order to ascertain if any degree of acclimatisation has been acquired by them. Under the auspices of the Aberdeen and North of Scotland Agricultural College, experiments were made with the Soya Bean under field conditions in 1910, the district chosen being Nairnshire. That season was wet, cold, and rather unsettled, still the plants developed plenty of foliage, and attained to the flowering stage, but they failed to produce pods.

ROYAL CALEDONIAN HORTICULTURAL

The schedules for this Society's two exhibitions, on April 10 and 11 and September 11 and 12 respectively, bear evidence of careful revision and adaptation to the changing tastes of the times, and show that reasonable requirements have been met so far as funds allow. The classes are well arranged, and provide for all the most important produce of the respective seasons. Both shows will be held in the Waverley Market, Edinburgh. New and improved arrangements have been made with the railway companies, which are issuing return tickets from all stations in Scotland at single fare and a third for the double journey available to return up to the day after. Special excursion fares will also be issued from the border districts.

EDINBURGH BOTANIC GARDENS AND THE CORPORATION.

In the Outer House of the Court of Session decision was given on March 7 in the action by the Corporation of Edinburgh against the Lord Advocate, as representing the Commissioners of His Majesty's Works and Public Buildings. It will be remembered that the dispute, as was stated in our columns some time ago, arose in connection with the proposed erection of additional buildings at the Royal Botanic Gardens, which would have projected beyond the building line of the street at Inverleith Row. The Corporation applied for declarator that the Commissioners of Works were not entitled to do this, and Lord Ormidale has now decided in favour of the applicants. *Correspondent.*

IRELAND.

IRISH FORESTRY SOCIETY.

The general meeting of this society was held on the 20th ult. It was agreed, on the motion of Mr. R. J. Kelly, that "this society calls on the county councils to exercise their power under the Land Act, 1909, to levy a rate for the purpose of acquiring waste lands and to have such lands planted under the advice and with the financial assistance of the Department of Agriculture." The resolution also expressed the society's appreciation of the work carried out under the various departments of the Irish Forestry Societies. As timber is becoming scarce, it is to be hoped that the Council will use its influence to have waste land in Ireland planted with trees. *W. A. M.*

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

Crocuses at Hampton Court.—The effect produced at Hampton Court by Crocuses planted in grass and beneath lofty, overhanging trees has been delightful during the past few weeks. The area planted with these bulbous plants in these delightful gardens must be several acres, and the Crocuses number hundreds of thousands. As seen on the last days of February the spectacle was charming, the masses of yellow here and there standing out with great effect. Batches of pure white, striped, yellow, purple, mauve and various other hued flowers all combined to make a wondrously beautiful display. It was interesting to note the little harm that had been done to the flowers by birds, and then not to the yellow varieties, which they generally affect, but rather the white sorts. Still, the damage seemed to be infinitesimal. As the grass will not need mowing until late in the spring, there will be ample time for the Crocuses to develop strong leafage and for the corms to mature. *Visitor.*

Solanum jasminoides (see pp. 142, 158).—I have this species planted in a sheltered southern position here for the past 20 years, and it flowers profusely in the summer and autumn months. I may say that the thermometer has recorded 20° of frost repeatedly a few yards away, and only the young growths have been slightly injured. *A. Tomalin, Oakwood Gardens, Kent.*

———I planted two specimens of this species against a wall having a south aspect in May, 1910. The sites were prepared, and good soil composed of top-spit and other materials added. The plants were about 4 feet high, and were nicely rooted in 6-inch pots. They reached the top of the wall—about 20 feet—the first season, and passed through the winter of 1910-11 unprotected and unharmed. They did not flower quite so freely last summer as might have been expected, but they have again come through the winter safely (with the exception of a few injured tips), and withstood 19° of frost registered in Stevenson's screen with a Kew-tested thermometer. I am hoping for better results this summer as regards flowers. Plants in a south-west aspect have not fared so well. These gardens are about 18 miles from the south coast. *W. E., Uckfield, Sussex.*

Currant Bud Mite.—After carefully reading the latter portion of Mr. Pearson's remarks on p. 153, one must infer that he regards but lightly the practice, so widely advised, of picking off the affected buds from the bushes and destroying them. Admittedly the procedure may be comparatively useless when bushes are so badly infested with the mite that the majority of the buds are attacked, but the plants certainly were not in that condition at the outset, and only grave neglect to take ordinary precautions could account for such a state of things. It is in its initial stage of development that "big bud" should be sought for and removed. In such work a person with an active hand and a quick eye could gather many thousands of affected buds during a single day. If such buds be gathered during the winter when the mites in them are dormant—and such gatherings might be made two or three times during the resting season—how many of the insects would thus be destroyed instead of being left alive and active, to be killed, when migrating in the spring, by spraying. It would be interesting to learn from Mr. Pearson whether spraying in one season, though perhaps repeated six times, suffices to exterminate the mite absolutely on a breadth of bushes, or is it needful to repeat the sprayings year after year? If big-bud can thus be eradicated in a single season it is indeed a valuable remedy, but if the spraying is needed year after year, then it is far from being as efficacious as is assumed. *A. D.*

Aphyllanthes monspeliensis L.—Mr. Reginald Farrer's suggestion (*Gard. Chron.*, March 1), that this interesting Mediterranean plant should be more grown in gardens is an excellent one. It was hardly necessary, however, for that gentleman to have imperilled his life in procuring specimens, for the plant is not so limited in distribution as he supposes. He "believes it is peculiar to the Western Riviera and to the most northerly points of Africa." As a matter of fact, it also grows in Spain and Portugal, the Pyrenees, the two French Departments of Gers and Aveyron, considerably north of the Pyrenees, and in northern Italy. Its northern limit seems to be the Department of Ain, which is west of Geneva and Haute Savoie, and there are specimens in the Cambridge University herbarium from near Lyons and Chambery in Savoy. Prof. Penzig sent out specimens from Liguria, where it is a frequent plant in healthy Pine woods of the coast, though absent from the Bordighera and San Remo district, according to Mr. Bicknell. Moggridge said it extended "eastward to near Genoa" (*Flora of Mentone,* 1874). Albert and Jahandiez* say it is common on the littoral of the Department of the Var and it ascends the forest of the Dom. I have always found Aphyllanthes on arid limestone, on banks or woodland ridges, as your correspondent says, but I have seen the plant in only three places, viz., on the outskirts of limestone woods, full of Hepatica, above Toulon; on Mt. Coudon, that great

* *Catalogue* des Plantes Vasc du Dept. du Var. (1908).

limestone hill near Hyères, where in places it is abundant; and in one spot by the roadside at the foot of limestone cliffs in ascending the dusty road towards San Dalmazzo di Tenda from Ventimiglia (the Col de Tenda road). Mt. Coudon is well worth a visit by botanical visitors to Hyères. Many interesting lime-loving plants grow there, some of which are not often found further north; and an Oriental shrub, the beautiful Styrax officinalis, probably reaches its western limit on that mountain, at the foot of which it grows in several glades. Aphyllanthes has only one known species. Intermediate in structure between the Lily and Rush families, it was referred by Parlatore to a separate family (Aphyllanthaceæ), where it was associated with various Australian genera. It is now placed in Liliaceæ. The absence of green leaves, or rather the reduction of them to sheaths at the base of each flowering stem, is the chief characteristic of this pretty plant. Thus the green flower-stalks and the young sheaths are the only organs of assimilation. Illustrations are to be found in the following books:—*Bot. Mag.*, t. 1132 (1808), Moggridge *Fl. Mentone*, t. 89, Reichenbach *Ic. Fl. Germ.*, t. 418, Salisbury *Parad. Lond.*, t. 9 (as A. juncea). The *Botanical Magazine* gives "shores in the vicinity of the Dardanelles" as a station for this plant. *H. Stuart Thompson.*

Anthemis Cupaniana (see p. 117).—It may interest Mr. Farrer to learn that this plant has withstood the rigours of our northern climate in an exposed part of the rockery here this winter, although the thermometer registered 26° upon two occasions. Saxifraga oppositifolia major and S. apiculata are now in full bloom, whilst some of the rarer Primulas are showing signs of starting into growth. *J. Middleton, Callendar Gardens, Falkirk.*

SAXIFRAGA LANTOSCANA AND S. COCHLEARIS.

In July, 1911, I found the true Saxifraga lantoscana, though not of the smallest kind, in the Merim Valley lateral to the Cairos (in northern exposures only), and on the ridge between the Rio Freddo and Levenza (or Briga) Valleys. As I expected, I found it also last June growing in profusion around Castellane, in the Verdon Valley; but here all the specimens, with the exception of a very young and small one, had the stalk more or less covered with glandular hairs, which Burnat states to be exceptional in the case of specimens on the Maritime Alps. I did not find plants with hairs in the Vesubie or Roya basin. On a rock near Castellane, I found a remarkable plant, having poor flowers and the general aspect of an Aizoon, but with larger and white flowers. The stalk was thin, very glandular, upright and over 20 centimetres high, the foliage being arranged in dense rosettes. The leaves measured from 10 to 25 millimetres, and 5 millimetres in breadth towards the apex, which is not obtuse as in S. cochlearis (see fig. 73), but distinctly sulcate; the crustaceous margin is very large. This may prove to be a distinct variety. The colour of the stalks (generally of a pale greyish-green on large fresh stalks) and the characters of the petals are very inconstant in this group of Saxifrages. The leaves of S. lantoscana are often not at all sulcate, or even convex on the upper side, but in S. lingulata they are, when hanging over, convex in the outer halves. The supposed hybrids of Saxifraga cochlearis and lingulata are only large specimens of the former species. I found them growing luxuriantly in the upper gorge of the Cairos Valley, one with an inflorescence measuring 43 centimetres (or 47 centimetres with the rosette). It is true that the locality is near to the upper limit of the habitat of the species, but as the altitude is not a great one (600 to 800 metres), the greater development of the plants in those moist, shady and very sheltered spots is not surprising. In the same regions may be seen also luxuriant plants of Campanula macrorrhiza and Hieracium lanatum. All the specimens of that giant form of Saxifraga cochlearis I could find this year are distinguished by their lax rosettes, greater leaves and somewhat narrow petals with reddish dots, but they have thin and hairy, though hanging stalks. The differences between S. lingulata and S. cochlearis are not great, but they are quite sufficient to distinguish them as two good species. *F. Mader, Tenda, Italy.*

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

March 5.—*Present*: Mr. E. A. Bowles, M.A., F.L.S. (in the Chair); Sir J. T. D. Llewelyn, Dr. A. B. Rendle, Prof. Boulger, Messrs. A. W. Hill, C. E. Shea, J. Fraser, W. Ledger, A. Worsley, J. W. Odell, J. T. Bennett-Poë, S. Pickering, W. Hales, W. Bateson, A. Rolfe, J. T. O'Brien, W. Fawcett, F. J. Chittenden (hon. secretary), and W. Backhouse (visitor).

Diseased Tulips.—Mr. Massee reported that the Tulips referred to him at the last meeting as making poor growth and showing brown spots on the foliage and brown flecks in the tissues of the stem had been attacked by the fungus Botrytis cinerea, which had apparently infected the foliage from the air in the first place, not from sclerotia in the soil, as is frequently the case.

[*Photographed by Dr. F. Mader.*

Fig. 73.—Saxifraga cochlearis growing on rocks near Tenda.

Disa sagittalis.—Messrs. Veitch showed this species from S. Africa under the name D. caulescens, to which it is allied. It received a Botanical Certificate in 1890. Messrs. Veitch also showed a malformed Cypripedium Fairrieanum, in which the scape was almost entirely suppressed.

Galls on Oak.—Mr. Aldersey sent a branch of Oak having roundish swellings of considerable size at intervals along the branches. A fungus, Dichlæna quenina, was probably the cause of these growths, which occur with considerable frequency on young Oaks, but rarely upon old ones.

Grapes killed by fog.—Some small flowering shoots of Grapes were sent to illustrate the damage done by London fogs, which had caused the growths to turn quite brown and shrivel.

Narcissus seedlings, &c.—Mr. Worsley made some remarks upon the growth of Narcissi in gardens. It was the general opinion that Narcissi, when allowed to grow untended, may become smaller, but never, in spite of a somewhat general opinion to the contrary, revert to the specific type, though seedlings may vary from the parent type. Sir John Llewelyn showed flowers of wild plants from S. Wales, including N. obvallaris and a large, deep-coloured form with something of the coloration of N. "Golden Spur." The plants occurring wild in S. Wales showed a good many variations in form and colour of flower, but there were two types of foliage only which never seem to intergrade. Canon Fowler wrote that he sometimes found forms among such varieties as Emperor producing finer flowers than the majority, and he believed these variations to be constant; one plant was found among "Weardale Perfection" last year having two flowers of only a fourth the size of that variety, and something like Johnstonii in form. Mr. Malcolm, of Duns, also alluded to a sport which he had found in his garden. Sporting appears to be rather frequent. Some discussion arose as to varieties that commonly produce seed, and Mr. Williams, of Lanarth, said N. cyclamineus reproduced itself by seed quite freely, but seedlings died out rapidly in the grass; N. Pseudo-Narcissus also reproduced itself freely from seed in the grass and reached flowering size. In Mr. Bowles's garden, N. pallidus præcox is the most abundant seeder, but the seedlings rarely give the pale form, though they retain the early-flowering habit; Pseudo-Narcissus seeds freely, as do Triandrus albus, variiformis, and cyclamineus. Mr. Chittenden said that N. cyclamineus seeded very freely at Wisley, as do N. bulbocodium and N. Triandrus albus; other forms rarely produce more than a stray capsule or so. Mr. Shea had only found Sir Watkin with a seed pod once, and Empress rarely seeded, but White Wings did so frequently with him. Weather conditions appeared to determine to a large extent the amount of seeding that occurred, for in 1910 he found only nine varieties produce seed, but in 1911 21 seeded. Possibly bees were required to effect pollination satisfactorily. Mr. P. R. Barr found that self-fertilised seedlings of garden varieties of Daffodils tend to revert to their

parent types, e.g., Horsfieldii self-fertilised produces numerous poor forms of Pseudo-Narcissus. King Alfred, on the contrary, produces some very pretty yellow trumpet forms, as a rule more or less dwarfer than their parents. Mr. Backhouse remarked in reference to the common belief that single wild Daffodils may sport to double forms, that seedlings resulting from the first cross between the single wild form and the double one would, some of them, be double, and the idea might have arisen in another way as well, viz., by bringing into gardens poor, and practically single because poor, forms of double Daffodils which, under better cultivation, would become typically double. Against this, however, is the fact that the true double form of the wild Daffodil is rare in cultivation, Van Zion being the form commonly grown.

Narcissus Calathinus × *minimus*.—Mr. Chapman showed a hybrid between these two species having the unusual character, which it shares with N. triandrus pulchellus, of a corona paler than the perianth pieces, the difference being quite evident. A Certificate of Appreciation was unanimously voted to Mr. Chapman in recognition of his work in raising this hybrid.

Malformed Narcissus.—Sir F. W. Moore sent a flower of a Narcissus somewhat of the incomparabilis form, though not quite agreeing in some characters, having the perianth tube split halfway down between the segments, and an evident difference in colour between the inner and outer pieces. The outer perianth pieces had no corona, but the inner ones had, so that the flower bore a superficial likeness to an Iris. The stamens were six, three rising from the top, and three from near the base of the tube. The plant produced this type of flower every year. Mr. Bowles remarked that he had seen a similar form in Mr. Polman Mooy's garden, which was also constant. In that case the plant was a bicolor trumpet, and had three pale perianth segments, three strap-shaped strips of corona bent down upon them, three petaloid anthers standing upright. In this case, since the petaloid stamens alternated with the three perianth pieces, the outer perianth pieces were apparently wanting.

Primula Knuthiana.—Messrs. J. Veitch & Sons showed a Primula which had been identified at Kew as P. Knuthiana of Pax,, but which was a much finer flower than that figured by Pax in his monograph under that name. It had been raised from seed sent home by Messrs. Veitch's collector, Mr. Purdom, and was much like the form of P. farinosa grown in gardens under the erroneous name of P. frondosa. It was, however, distinct from that plant. The Committee expressed a wish to see further seedlings of this plant.

Amygdalus × *præcox*.—Messrs. Veitch sent flowering branches of Amygdalus × præcox, raised by crossing Amygdalus persica magnifica with A. Davidiana alba. The hybrid had pink flowers like A. persica, but of about the size of A. Davidiana, and retained the early-flowering habit of Davidiana.

Double Hyacinth.—An uncommon double form of Hyacinth, like the varieties figured in old herbals, was sent by Mrs. Rooper. It had been purchased under the name of Italian Hyacinth.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

February 22.—A joint meeting of this Society and the North of England Horticultural Society was held on this date. *Committee present:* Rev. J. Crombleholme (in the Chair); Messrs. J. Bamber, C. Parker, W. Thompson, A. Warburton, Z. A. Ward, W. Bolton, J. C. Cowan, J. Cypher, J. Evans, W. Hatcher, W. Holmes, A. McBean, A. J. Keeling, D. McLeod, F. K. Sander, W. Stevens, and H. Arthur (secretary), with the Rev. J. Bernard Hall, secretary of the N.E.H.S. Medals, Certificates, and Diplomas were awarded by both Societies.

Gold Medals to Z. A. Ward, Esq., Northenden (gr. Mr. Weatherby), for a mixed group; O. O. Wrigley, Esq., Bury (gr. Mr. Rogers), for a collection of about 50 plants of Lycaste Skinneri.

Silver-gilt Medals to Messrs. Charlesworth & Co., Haywards Heath, and Messrs. J. & A. McBean, both for groups of choice Odontoglossums; and to Mr. W. A. Manda, St. Albans, for Cattleyas.

Silver Medals to W. R. Lee, Esq., Heywood (gr. Mr. Branch), for a group of Odontoglossums; R. Ashworth, Esq., Newchurch (gr. Mr. Gilden), for a group of Odontoglossums; R. Le Doux, Esq., West Derby (gr. Mr. Fletcher), for Odontoglossums in variety; S. Gratrix, Esq., Whalley Range (gr. Mr. Brown), for an exhibit composed of Odontoglossums; A. Warburton, Esq., Haslingden (gr. Mr. Dalgleish); Wm. Thompson, Esq., Walton Grange (gr. Mr. Stevens); M. McCartney, Esq., Bolton (gr. Mr. Holmes), for a miscellaneous collection of Cattleyas; W. J. Hargreaves, Esq., Burnley, and Rev. J. Crombleholme, Clayton-le-Moors (gr. Mr. Marshall), both for groups of Cypripediums; Messrs. J. Cypher & Sons, Cheltenham, for a general collection; Messrs. Stuart Low & Co., Enfield, for a mixed group; Mr. E. V. Low, Haywards Heath; and the Liverpool Orchid Co.

A *Bronze Medal* was awarded to Col. J. Rutherford, M.P., Blackburn (gr. Mr. Lupton), for Odontoglossums.

Amongst other exhibitors were J. J. Holden, Esq., Southport (gr. Mr. Johnson); J. H. Craven, Esq., Keighley (gr. Mr. Corney); Messrs. Sander & Sons, St. Albans; Mr. J. Evans, Congleton; Mr. D. McLeod; Messrs. A. J. Keeling & Sons; and Mr. W. Shackleton, Great Horton.

AWARDS.

First-class Certificates.

Cypripedium (unnamed) (C. Thompsonii × Rupert), from W. Thompson, Esq.

Zygopetalum Mackayi "*Charlesworthii*," and *Odontioda Cooksonii* (C. Noezliana × Odontoglossum ardentissimum), both from Messrs. Charlesworth & Co.

Awards of Merit.

Odontoglossum Zulu, *O. Confidence*, and *Odontioda Keighleyense* "Ward's" variety (cirrhosum × C. Noezliana), all from Z. A. Ward, Esq. *Odontoglossum amabile*, Ashworth's variety "Nubian," and *O. illustrissimum*, both from R. Ashworth, Esq. *Lælio-Cattleya amabilis* (speciosissima Stanleyi × Fascinator), and *Odontoglossum Lambeauianum* "Holden's" variety (augustum × Rolfei), both from J. J. Holden, Esq. *Dendrobium Othello* "West Point" variety, from S. Gratrix, Esq. *Cypripedium Archimedes* "Nigrum," from A. Warburton, Esq. *Brasso-Lælia Leeanum* (L.-C. Hyeana splendens × B.-C. Heatonensis), and *Brasso-Cattleya Pocahontas albens* (C. Eldorado alba × B. Digbyana), both from Messrs. Cypher & Sons. *Sophro-Lælio-Cattleya Marathon*, variety "Salome," from Messrs. J. & A. McBean, and *Cypripedium Simonii*, variety "The Mousmé" (Harefield Hall × Leeanum Clinkaberryanum), from Mr. Ed. V. Low.

SCOTTISH HORTICULTURAL.

March 5.—The monthly meeting of the above Association was held in the Goold Hall, 5, St. Andrew Square, Edinburgh, on this date. Mr. Massie presided, and there was an attendance of 100 members.

Dr. John H. Wilson gave an address on "Fruit Growing in Australia." The lecturer was a member of the Agricultural Commission invited by the Commonwealth Government to report on the rural economy of Australia. By means of lantern slides made from photographs taken during the investigation of the Commission, Dr. Wilson showed that fruit-growing was carried on vigorously in all the States of the Commonwealth. In the higher ground of Southern Queensland the Apple, Peach, and other fruits are grown successfully, while the Banana and Pineapple are cultivated in warmer districts. The Orange succeeds well in all the States with the exception of Tasmania. The Orange is probably the most profitable fruit crop in New South Wales, although Apples, Pears, and stone fruits are also extensively grown. In Victoria the irrigated areas are largely under fruit, but orcharding is likewise a very important industry in regions dependent on surface water collected in dams. Special reference was made to examples of the latter system at Doncaster, near Melbourne, where Lemons, Apples, Pears, Apricots, Plums, and Cherries were grown with marked success. In Tasmania Apples occupied more than two-thirds of the orchard areas. The production of that fruit was being rapidly increased there, more especially on the banks of the Tamar in the northern part of the island. Following the example set by Victoria at Mildura on the Murray, the South Australian Government is reclaiming large portions of land for fruit-growing further down the river, the water being raised by pumps and distributed in concrete channels. In Western Australia, in the elevated country lying between Perth and Albany, Apple-growing was being greatly extended, the soil and climate being very suitable for the industry. The rapid advance of Apple-growing in Tasmania and Western Australia is mainly due to the good prospects which the London market offered for the fresh fruit at a time when such fruits were scarce. Exclusive of vineyards, the area under fruits in the Commonwealth is 185,000 acres. Dr. Wilson pointed out that the growers everywhere received much help from experts employed by the respective States. In this connection he mentioned that recently the Commonwealth Government had instructed Mr. D. McAlpine, pathologist of Victoria, to devote his whole time for four years to the investigation of bitter pit in Apples. The cost of the investigation during that time would not be less than £8,000. Great attention was paid to the testing of suitable varieties in experimental orchards. Those were often connected with the State Farms or the Agricultural Colleges. Systematic instruction in orchard work was given in the colleges and other institutions. In certain States provision for cold storage was made by the Government.

The exhibits at the meeting included Apples Dr. Robertson and Wm. Robertson, each of which received a Certificate of Merit, shown by Mr. Charles Webster, Gordon Castle Gardens, Fochabers; Cyclamens from Mr. John Black, Inverard Gardens, Edinburgh, for which a Cultural Certificate was awarded; collection of Tulips from Mr. James Bruce, Springfield Nursery, Davidson's Mains; varieties of Perpetual-flowering Carnations from Messrs. Todd & Co., Edinburgh; decorative Chrysanthemum, J. G. Day from Mr. Alex. Porter, Davidson's Mains; and Rhubarb Davie's Champion Early from Mr. James Scarlett, Scunthorpe, Musselburgh.

At the meeting fixed for April 2, Mr. Wm. Cuthbertson will deliver a lecture on "Sweet Peas Up-to-date," illustrated by slides in natural colours.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

March 11.—The annual general meeting of this society was held on Monday last, in the Royal Horticultural Hall, Westminster. Mr. Charles H. Curtis presided. He read the annual report and balance sheet for 1911 and moved its adoption. He outlined the work of the committee during the past year, and the position of the society in regard to the National Insurance Bill. The committee was fully alive to the importance of the measure as affecting the society, and would lose no time in placing proposals before the members, directly they could be formulated. A copy of the model rules as suggested by the Commissioners was only obtained on Friday last, and the time had been too short to consider the matter. A sub-committee had been formed to prepare a preliminary set of rules and scales of benefit in accordance with the rules of the society and the conditions required by the State Insurance authorities, and the committee would meet at an early date to consider them. Mr. Burge seconded. Many questions were asked by members, concerning their position and that of the society, under the new Act. The answers given were generally considered as satisfactory.

Three of the retiring members of committee, Messrs. Hill, Winter and Hawes, were re-elected, and Messrs. A. E. Cresswell and D. Campbell elected to fill vacancies caused by the retirement of Messrs. R. J. Frogbrook and Woods. It was stated that the trustees had purchased during the past year £2,700 worth of stock, the greatest sum invested in one year in the history of the society. The officers were re-elected and thanked for their past services. Mr. W. Collins completes his 25th year as secretary of the society, and a special vote of appreciation of his services was passed.

Extracts from the Report.

The net benefit membership is 1,358, fewer by 8 than it was a year ago; and instead of having enrolled 70

new members, as in the year 1910, only 50 have been added. Doubtless the exceptional circumstances in which all Friendly Societies were placed last year, owing to the Government Insurance Bill, account for this. Forty-five members have lapsed, 25 from the higher scale and 20 from the lower; 20 members have gone abroad, 6 have died, and 2 have passed the age of 70 years.

The total amount paid out to the nominees of deceased members was £248 12s. 4d. In regard to the lapsed members, though their numbers are considerable, the percentage is certainly not higher than in any similar society.

The total amount of sick pay to benefit members during the year was £507 12s., being £53 8s. 6d. less than in the previous year, and over £63 less than in 1909.

Seven hundred and eighty-seven members are paying on the higher scale, and 571 on the lower. Three members have transferred from the lower to the higher scale. Twenty-eight members have taken advantage of Rule xviii., par. 3, which enables those who have reached the age of 60 to withdraw "twice the amount credited to their account as interest in the previous year." By such withdrawals they are furnished with a ready means for the payment of their subscriptions.

The repeated suggestions to the effect that members who are recovering from an illness should take advantage of the provisions of the Convalescent Fund have been better acted upon in 1911 than in some previous years. The amount of assistance from this fund was £10, being 18s. more than the subscriptions. N. N. Sherwood, Esq., founder of this fund, contributed 5 guineas as usual.

Subscriptions to the Benevolent Fund amounted to £220 17s., and the payments therefrom to £90 11s. 6d., the latter amount including the sums regularly paid to several members over 70 years of age, as well as a few grants made to members or members' widows in great distress.

The total management charges amounted to £222 7s. 6d., as against £222 9s. 7d. in 1910, and £195 11s. 10d. in 1909. New ledgers and entry books have had to be purchased during the year.

NATIONAL DAHLIA.

CONFERENCE ON DAHLIAS.

March 8.—The third annual conference of the above Society was held at Carr's Restaurant, Strand, on this date. The President, Mr. George Gordon, occupied the chair, and in his opening remarks referred to the work of the Society and the need for encouraging the advancement of all types of the flower for garden decoration. He called on Mr. G. Davidson to read a paper, extracts from which will be found below, on the cultivation of Dahlias in a town garden.

With the possible exception of the Carnation, said Mr. Davidson, there is no flower more suited for growing in the suburbs, either for exhibition purposes or for the decoration of the garden than the Dahlia, which can be grown well on practically any soil, provided it is properly prepared. Aspect cannot be altered, but, unless the garden is entirely shaded, Dahlias of one section or another can be successfully grown. Trees are the greatest drawbacks to their cultivation. On one side of my garden is a row of Willows, which flourish amazingly in the wet soil. I soon decided that the Pompon Dahlia was most likely to succeed; therefore, after cutting away as many of the large, overhanging branches of the Willows as I could, I proceeded to get out as many of the tree roots as possible, the whole piece of ground being thoroughly broken up to a depth of 2 feet or more. The Dahlias grew with partial success only. I managed to get plenty of exhibition blooms from those placed farthest from the trees, but those from plants nearest the trunks came with bad centres or showed open centres, in spite of continual watering and feeding. The trees took practically all the moisture, while under the Dahlias the ground was dry.

The next year I tried a slightly different plan: after digging the ground thoroughly, which in the meantime was quite full of Willow roots, I inserted a 6-inch pot in the soil nearly up to the rim. This was placed close to the stake before planting, so as not to damage the roots, and was filled two or three times in the evening, and about three times a week, with water, in addition to the ordinary waterings. The plan was quite successful.

I placed nearest the trees those Pompons which naturally produce rather large blooms, and, therefore, there is not the same difficulty in getting them small enough for the shows as when grown in good soil.

A number of amateurs experience a difficulty in getting certain varieties sufficiently small for the early exhibitions. This may be obviated by growing from old tubers, which will give an earlier and large display of blooms of the right size.

I can generally depend on the following varieties to give me good exhibition flowers: Adelaide, Phœbe, Cyril, Little Bugler, Nerissa, Queen of Whites, Daisy and Montague Wootton.

Though it is possible to get good blooms of both the Pompon and single Dahlia, when grown under trees, provided the latter are not so large as to exclude too much light and air, I have never succeeded in getting the show and Cactus varieties to do well in this position. The blooms can be got large enough, but they invariably lack substance and depth. It is, therefore, necessary to have a piece of ground as free as possible from tree roots.

The great objection to growing the Cactus Dahlia in small gardens is the large amount of room the plants occupy. Though they require more ground than the other varieties, they can be grown—at any rate for exhibition—in a much smaller space than is generally advocated.

My plot is 12 feet wide from path to fence: this area is divided into 5-feet beds, with 1½ foot between them. Eight plants are put in a bed in two rows.

The greatest trouble is to prevent the blooms getting damaged by the wind through coming in contact with neighbouring plants. This may be prevented by tying the stems of the blooms to Bamboo canes, placed at intervals around each plant. One advantage of close planting is that blooms may be more readily protected from the vagaries of the weather by judicious tying. Thinning out the laterals has to be done severely so as to allow the plants to get all the air possible.

From a decorative point of view, close planting cannot be recommended, as the plants make too much growth. I consider that the gardener with a limited amount of space will find it more satisfactory to grow the singles and Pompons, as they not only require less room, but give a far more plentiful supply of blooms than the majority of Cactus Dahlias.

It will be found that Dahlias, more especially the Cactus varieties, grow taller in the suburban garden than in the country; taller stakes should, therefore, be used, or there will be danger of the plants being broken by autumn gales.

I have also noticed that they are generally later in blooming. If a bud does not appear about the beginning of July, I pinch out the centre of the plant, and, when necessary, apply a few light doses of nitrate of soda, which causes the side shoots to start away vigorously, and plenty of bloom is available by show time.

Insects, including earwigs, slugs and caterpillars, will probably trouble the suburban gardener. Apart from the usual traps, hunting for the pests after dark with the help of a lantern is necessary, otherwise the best blooms are sure to be damaged.

Dust and soot, especially if the garden is near to a railway, will soon ruin the light-coloured blooms if they are not protected by some means. For this purpose I use shades of transparent waterproof paper, fixed on wire frames."

A discussion followed the reading of the paper, and Mr. S. Mortimer said that, wherever possible, the Dahlia should be planted 4 feet apart in each direction.

Decorative, Pæony-flowered and Collarette Dahlias.

Mr. J. B. Riding next read a paper on "Decorative, Pæony-flowered and Collarette Dahlias," from which we extract the following paragraphs:

Until last autumn neither the National Dahlia Society nor the Royal Horticultural Society, said Mr. Riding, had granted an award to the Collarette or giant Decorative varieties, but about three sorts of the Collarette type and one giant Decorative sort received awards. Up to the present neither of these societies has granted an award to a Pæony-flowered variety.

Taking the sections in their order of introduction to this country, we come to that nondescript class known as Decorative Dahlias, a section that cannot be placed in any of our recognised divisions of the flower. So far as I can remember they followed closely on the introduction of D. Juarezii, and were first of all sent out as Cactus varieties. I am alluding to such old varieties as Constance, Henry Patrick, Harry Freeman, Mrs. George Reid, Maid of Kent, and Honoria. As Cactus Dahlias improved in form, these round-petalled sorts were used only for decorative purposes, and, although so old now, they are still grown with the same object in view, but for some years, when flowers of this type appeared in the seed-beds, they were cast on the rubbish heap. It is only within the past ten years that Dahlia growers have given them proper attention. But now there are some really good additions. Some of the most prominent varieties at the present time are Delice (clear pink), Kaiserin Augusta Victoria, Princess Juliana, Attraction, Loveliness, Ch. Ducrot, Gintry, Mme. Keller, Source de Feu, and Mme. A. Lumière.

I now come to another section or sub-section, generally known as giant Decorative varieties. These are of Continental origin. They are valuable for garden decoration, or producing fine colour effects in borders, in front of shrubberies, Rhododendron beds and similar places. But they are not very useful for room decoration as cut flowers, except in certain cases where the space or receptacle is unusually large. They are, in some instances, as large as Sunflowers, and the effect they produce is gorgeous. They are not recognised as exhibition flowers, therefore it is rare that we see them at flower shows. For creating a mass of colour they are unsurpassed. The best selection I can give are Souvenir de G. Douzon, F. Grinstead, Le Grand Maniton, Le Colosse, Yellow Colosse, Ph. Charmet, Glory of Paris, Souvenir de M. Silvent, Tener Alvarez, Le Triomphe, La France, Mons. Gondcheaux, Mme. A. Nonin, Le Fils du Ciel, Jeane Chamet, and Grand Duc Alexis.

Varieties of the Pæony-flowered section came from Holland in the first place as something new, but these or similar kinds were known to our own raisers. In 1904, I believe, a collection came to me privately for trial, and I well remember my judgment on them, which was as follows—very pretty in the garden, but would not find favour, as the blooms were altogether too coarse. But luckily I did not destroy the stock, and subsequent events proved that I had made a mistake, for the Pæony Dahlia had come to stay, not perhaps in its original form, for one can see clearly year after year most striking improvements not only in the colours but in the form of the flowers, and greatest of all, the advance that has been made in the habit of the newer plants, with their sturdy growth and fine stiff stems. The Pæony-flowered Dahlia should be regarded as a garden flower, and judged from an exhibitor's standpoint. We take The Geisha or Liberty as an ideal Pæony flower.

Varieties are now so numerous that it is impossible to mention all that I think are good. I shall confine my list to a dozen varieties—Bertha von Suttner, Nora Lindsay, The Geisha, Holman Hunt, Liberty, South Pole, Mrs. G. Gordon, Mrs. J. B. Riding, Titian, Codsall Gem, Merveille and Ruskin.

The Collarette Dahlia has been to the front during the past two seasons, and no doubt the coming season will see it very much in evidence. It is not a new type, as many people suppose, for it has been grown in this country at least 14 years, having been raised in 1899 and put in commerce in 1901, but, like a good many other plants, its worth was not recognised at first. It seems that while our French and German neighbours have been steadily improving this section, we in this country have failed to recognise the merits of the flowers. In the autumn of 1909 I decided to form a large collection, so I purchased almost every variety I could obtain from France and Germany, and exhibited them in London and elsewhere in the following autumn, staging them as decorative flowers and not show specimens. They were favourably commented upon by the horticultural Press. The trade Dahlia specialists also began to see something in the type, with the result that last year several of the leading Dahlia growers made features of them at the autumn shows, with the result that the Collarette as a type has come to stay. Most of the varieties are very free flowering, the plants have a good, sturdy habit, and throw their flowers well above the foliage, while the cut blooms appear to last longer in vases than those of the ordinary single form. There are two distinct types, the round flower with slightly incurving florets, which is of French origin, and the pointed type, or star-like form, which come from Germany. Then, again, there are distinct collars, the close one, as seen in the variety Maurice Rivoire, and the large, loose collar associated with the variety Baronne Rothschild. No doubt we shall soon see an improvement both in range of colours and form. At present I favour the round-flowered varieties,

because they have greater substance and travel best. It is to be hoped that raisers will not try to increase them in size, for should this occur there will be a danger of losing the stiff, erect stem. I mention this because I have noted that some of the latest varieties from the Continent are larger in size, but the stems are not so good, and, when too large, they lose their decorative value. This defect may be noted in the varieties Crown Princess Charlotte and Johannesfeur. I only propose to give a short list of the most distinct varieties, believing that in the next few years such a list would be quite out of date:—Maurice Rivoire, Souvenir de Chabanne, Albert Maumene, Henri Farman, Baron Rothschild, Gallia, Mad. R. Crozy, Exposition de Lyon, Grand Papa Charmet, Souvenir de Bernadeau, Mad. F. G. Bruant and Mad. Perrier; of the round-flowered type—White Diamant, Diadem, Burgomaster Siefurth, Betty, Leuchtfeur, Mad. L. Viger, Meteor and Rhinekrone."

The discussion was opened by Mr. Joseph Cheal, who said he considered that Pæony-flowered Dahlias possessed many useful qualities; they were entirely distinct from the formality of the Show Dahlias, looked well from a distance, and filled a useful place in the garden, owing to their strong growth. They were best grown naturally, and were more effective in the garden than on the exhibition stand. The Collarette type was a newer section, and the rounded-flowered varieties appealed to him most strongly.

Mr. J. T. West referred to the first Pæony-flowered Dahlias that were shown under the auspices of the Society. He quite agreed with Mr. Riding in not disbudding the plants. The blooms must stand alone without support to be of value as decorative flowers for the garden.

Mr. Stephen Jones referred to the first Collarette Dahlia his firm obtained in 1901, at a price of 50s. Collarettes, in the opinion of Mr. Jones, are good decorative flowers, and must be grown naturally; if disbudded the flowers become large and droop.

Other speakers included Messrs. C. G. Wyatt, J. Emberson, S. Mortimer and C. H. Curtis.

THE WEATHER.

THE WEATHER IN WEST HERTS.

Week ending March 13.

Two remarkably calm days.—The past week was somewhat variable in temperature, but on the whole rather warm for the time of year, so that the long spell of warm weather which set in over five weeks ago cannot yet be said to have come to an end. There were four warm days and three cold ones, but only two cold nights. The ground has become rather cooler, but is still 3° warmer than is seasonable, both at 1 and 2 feet deep. Rain fell on three days, but to the total depth of less than half an inch. On one day there was a slight fall of soft hail. The percolation through both the soil gauges has been gradually decreasing for the last four days, in fact, this morning there was no measurable quantity through the gauge on which short grass is growing. The sun shone on an average for 2¾ hours a day, which is three-quarters of an hour a day short of the mean duration for the second week in March. On one day the sun shone for 7½ hours, but on the last two days of the week no sunshine at all was recorded. Light airs and calms as a rule prevailed. Two days were remarkably calm; indeed, on the first of those two days for 18 consecutive hours my self recording Robinson anemometer showed that at 30 feet above the ground there was no movement of the air at all. The mean amount of moisture in the air at 3 p.m. exceeded a seasonable quantity for that hour by eight per cent. *E. M., Berkhamsted, March 13, 1912.*

TRADE NOTICE.

CHAPLIN BROTHERS, LTD.

The above-named company has been registered with a capital of £1,000, in £1 shares, as nurserymen and florists, at Joynings Nursery, Enfield, formerly conducted by Mr. W. R. Chaplin. It is a private company: the registered office is Joynings Nursery, Waltham Cross, Middlesex.

GARDENING APPOINTMENTS.

Mr. J. Southwell, for the past 19 years Gardener to the late C. W. Digby, Esq., at Meriden Hall, near Coventry, as Gardener to S. Cash, Esq., Rose Hill, Coventry.

Mr. James W. Robertson, for 4 years and 10 months General Foreman at Cowdenknowes Gardens, Earlston, Berwickshire, as Gardener to Mrs. C. W. Corsar, Seaforth House, Arbroath, Forfarshire.

Mr. C. Figg, previously Foreman at Norbury Hall, Hindlip Hall, and Brockhampton Park, Gloucestershire, as Gardener to the Right Hon. Lord Hindlip, Doveridge Hall, Uttoxeter, Derby.

Mr. Edward Robus, for nearly 2 years Foreman at Auchmore House Gardens, Killin, as Gardener to R. Jameson, Esq., Eydown, Surinbridge, North Devon.

MARKETS.

COVENT GARDEN, March 13.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—Eds.]

Cut Flowers, &c.: Average Wholesale Prices.

	s.d.	s.d.
Arums (Richardias)	2 0	2 6
Azalea, doz. bnchs.	3 0	3 6
— mollis, p. bnch.	1 6	1 9
Camellias, per box of 18's and 24's	1 6	2 0
Carnations, p. doz. blooms, best American var.	1 3	1 6
— smaller, per doz. bunches	10 0	15 0
— Carola, crimson, extra large	6 0	—
Eucharis, per doz.	2 6	3 0
Freesia refracta alba, p.dz. bun.	1 0	1 3
Gardenias, per box of 15 & 18 blms.	2 6	3 6
Lilac, per bunch white	2 0	2 6
— mauve	3 0	3 6
Lilium auratum per bunch ...	4 0	5 0
— longiflorum, long, per doz.	2 0	2 6
— short, per doz.	2 0	—
— lancifolium alba, long ...	2 0	—
— — short ...	2 0	2 6
— speciosum rubrum, dz. blooms:		
— long	2 6	—
— short	0 9	1 0
Lily of the Valley, p. dz.bunches:		
— extra special ...	15 0	18 0
— special... ...	10 0	12 0
— ordinary ...	8 0	—
Marguerite, per doz. bunches:		
— Yellow... ...	2 0	2 6
Myosotis (Forget-me-not), p. dz. bunches ...	3 0	4 0
Narcissus, per doz. bunches:		
— Double Van Sion	2 6	3 0
— Emperor ...	3 0	4 0
— Empress ...	2 6	3 0
— Golden Spur...	1 0	1 6
— Henry Irving	1 0	1 3
Narcissus, per doz. bunches:		
— Campanella (Odorus) ...	0 9	1 0
— Poeticus ...	1 6	2 0
— Princeps ...	1 0	1 3
— Sir Watkin ...	1 6	2 0
— Victoria ...	2 6	3 0
— Barrii	2 0	2 6
Orchids, Cattleya, per doz. ...	12 0	—
— Odontoglossum crispum ...	3 0	4 0
Pelargoniums, p. dz. bunches:		
— Double Scarlet	8 0	12 0
Primroses, per doz. bunches ...	1 3	1 6
Roses, 12 blooms,		
— Bridesmaid,	4 0	5 0
— C. Mermet ...	4 0	5 0
— Liberty ...	2 0	4 0
— Niphetos ...	1 6	2 6
— Richmond ...	2 0	3 6
— Sunrise ...	1 6	2 0
— Lady Roberts	2 0	2 6
— Lady Hillingdon	2 0	2 6
— Franz Deegan	3 0	3 6
— Kaiserine ...	1 6	3 0
Tulips, per bunch:		
— double pink ...	0 8	1 3
— — yellow ...	1 0	1 6
— — scarlet ...	1 3	1 6
— p. dz. bunches:		
— white	5 0	6 0
— yellow	6 0	7 0
— scarlet ...	6 0	8 0
— bronze	8 0	9 0
— pink	6 0	8 0
— Darwin, p. bch.:		
— pink	1 6	1 9
— mauve	1 6	1 9
— red	1 6	1 9
Violets, p. dz. bchs.	1 3	2 0
— Princess of Wales, per doz. bunches ...	3 0	4 0
— Parma	1 6	2 0
Wallflowers, per dozen bunches	2 0	2 6

Cut Foliage, &c.: Average Wholesale Prices.

	s.d.	s.d.
Adiantum Fern (Maidenhair), best, dz. bnchs.	7 0	8 0
Agrostis (Fairy Grass), per dz. bunches ...	2 0	4 0
Asparagus plumosus, long trails, pr. ½doz.	1 6	2 0
— medium, doz. bunches ...	12 0	18 0
— Sprengeri ...	10 0	12 0
Carnation foliage, doz. bunches...	4 0	—
Croton foliage, various, per dozen bunches ...	12 0	15 0
Cycas leaves, artificial, per doz.	3 0	12 0
Eulalia japonica, per bunch ...	1 0	1 6
Moss, per gross ...	6 0	—
Myrtle, dz. bchs. (English), small-leaved ...	6 0	—
— French ...	1 0	—
Smilax, per bunch of 6 trails ...	1 0	1 3

Plants in Pots, &c.: Average Wholesale Prices.

	s.d.	s.d.
Acacia lineata, 48's, per dozen ...	18 0	21 0
Aralia Sieboldii, p. dozen	6 0	7 0
Araucaria excelsa, per dozen ...	18 0	21 0
Asparagus plumosus nanus, p.dz.	10 0	12 0
— Sprengeri ...	8 0	9 0
Aspidistra, p. dz., green	21 0	30 0
— variegated ...	30 0	60 0
Azaleas, per doz.	36 0	42 0
Boronia Megastigma, 48's, p. dz.	21 0	24 0
Cinerarias, pr. dz.	8 0	9 0
Cocos Weddeliana, per dozen:		
— 60's	6 0	12 0
— larger, each ...	2 6	10 6
Croton, per dozen	18 0	30 0
Cyperus alternifolius, per doz.	5 0	6 0
— laxus, per doz.	4 0	5 0
Daffodils, per doz.	6 0	8 0
Dracæna, green, per dozen ...	10 0	12 0
Ericas, per dozen:		
— Willmorei, 48's	15 0	18 0
— persoluta ...	27 0	30 0
Ferns, in thumbs, per 100... ...	8 0	12 0
— in small and large 60's ...	12 0	20 0
— in 48's, doz. ...	6 0	—
Ferns, choicer sorts, per doz.	8 0	12 0
— in 32's, per dozen	10 0	18 0
Ficus elastica, per dozen	9 0	12 0
Genistas, 48's, per doz.	10 0	12 0
Geonoma gracilis, 60's, per dozen	6 0	8 0
— larger, each ...	2 6	7 6
Hyacinths white & clrd., p. dz. pots	10 0	12 0
Kentia Belmoreana, per dozen	5 0	42 0
— Fosteriana, 60's, per dozen	4 0	6 0
— larger, per doz.	18 0	60 0
Latania borbonica, per dozen ...	12 0	30 0
Lilium longiflorum, p. doz.	20 0	24 0
— lancifolium rubrum in pots, per dozen ...	15 0	18 0
— lancifolium alba	15 0	18 0
Marguerites, white, per dozen ...	8 0	10 0
Pandanus Veitchii, per dozen ...	36 0	48 0
Phœnix rupicola, each	2 6	21 0
Spiræa japonica, p. dozen pots ...	10 0	12 0

Fruit: Average Wholesale Prices.

	s.d.	s.d.
Apples (English cookers) bushel	6 0	12 0
— Nova Scotian, per barrel ...	17 0	22 0
— Californian Newtowns, pr. case	9 0	11 0
— (Canadian), per barrel	20 0	—
— Oregon (Hood River), per case	16 0	18 6
— American, per barrel	20 0	32 0
Bananas, bunch:		
— Doubles ...	10 0	12 0
— No. 1 ,, ...	8 0	10 0
— Extra	10 0	12 0
— Giant ,, ...	14 0	18 0
— Loose, per dz.	0 6	1 0
— Red coloured...	5 6	6 6
— Jamaica Giants, per ton ...	£10	£12
— Jamaica Ordinary, per box (9 doz.) ...	4 0	5 0
Cranberries, per case (30 qts.)...	10 0	11 0
— Cape Cod, per case (30 quarts)	9 6	—
Dates (Tunis) doz. boxes	4 6	5 6
Grape Fruit, case:		
— 96's		
— 80's		
— 64's	14 0	20 0
— 54's		
Grapes (English), per lb.:		
— Black Alicante	2 3	3 0
— Gros Colman...	2 3	3 0
— (Belgian), Gros Colman, p. lb.	0 9	1 3
— Almeria, p. brl.	11 6	15 6
Per dozen lbs.	3 0	4 6
— (Cape) per case	3 6	6 0
— ,, White...	3 6	6 0
Lemons:		
— (Naples), case	26 0	30 0
— Messina, per case	7 6	17 0
Limes, per case ...	4 0	—
Mangoes, per doz.	6 0	12 0
Melons (Cape) ...	0 10	1 6
Nuts, Almonds, per bag	52 6	—
— Brazils, new, per cwt. ...	85 0	100 0
— Spanish, p. sack	40 0	42 0
— Barcelona, bag	35 6	36 6
Nuts, Chestnuts, per bag ...	3 6	19 0
— Cocoanuts, 100	18 0	23 0
— English Cobs per lb.... ...	0 3	—
— Walnuts (Naples) kiln dried, cwt. cases	54 0	—
Nuts, French Grenobles, per bag	6 6	7 0
— Boeris, per bag	6 0	7 0
Nectarines (Cape) per box ...	8 0	10 0
Oranges, Jamaica per case ...	9 0	10 0
— Californian ...	15 0	16 0
— Denia, case ...	16 0	34 0
— Valencia ...	10 0	12 0
— Jaffa, per case	9 6	—
— Blood, per case	8 0	9 0
— Mandarins, per box ...	0 6	3 6
— Bitter, per ½ chest	16 0	18 6
— Seville Sour ½ chest ...	15 0	18 0
Peaches (Cape), pr. case	6 0	12 0
Pears (Californian), per case ...	10 6	16 6
— Glou Morceau	11 6	12 6
— Easter Beurré	8 6	—
— Winter Nelis	12 6	13 6
— (American) per barrel, 180 lbs.	25 0	26 0
— cases	7 0	—
— (Cape)	4 0	6 0
Pineapples, St. Michael ...	2 6	5 0
Plums (Cape), per case	4 0	6 0
— Apple, per box	5 0	8 0
Strawberries, p. lb.:		
— A quality ...	18 0	21 0
— B quality ...	10 0	15 0

Vegetables: Average Wholesale Prices.

	s.d.	s.d.
Artichokes (Globe), per dozen ...	3 0	4 0
— Ground, per ½ bushel ...	1 0	—
Asparagus, Sprue.	0 10	1 0
— Lauris ...	3 0	5 0
— Paris Green ...	4 0	5 0
— (English), per bundle	3 6	4 6
Beans, Madeira, per basket	5 0	8 0
— Guernsey, Dwarf, per lb.	1 3	1 6
— French, per packet, lb. ...	1 6	1 9
Beetroot, p. bshl.:		
— Long	2 0	2 6
Broccoli, sprouting, per bag ...	2 0	3 0
Brussel Sprouts, per ½ bushel ...	1 0	1 6
— half bags ...	1 0	2 0
Celeriac, per doz.	2 6	3 0
Cabbages (French) per dozen ...	2 6	3 0
— (English), per tally	6 0	10 0
Cauliflowers, p. dz.	2 0	3 0
— (Italian), p. pad	2 0	3 0
— (Cornish), per crate	7 0	9 0
Celery, doz. bndls.	6 0	10 0
— (washed), per dozen bundles	10 0	14 0
Carrots (English), pr. doz. bun....	1 6	2 0
— per cwt. ...	3 0	3 6
— (washed) p. bag	4 0	5 0
Chicory, per lb. ..	0 4	—
Cucumbers, p. doz.	4 0	6 0
Endive, per dozen	2 0	—
Greens, per bag ...	2 6	3 6
Herbs (sweet), pkts., p. gross	7 0	—
Horseradish, 12 bundles ...	12 0	14 0
Leeks, per doz. ...	2 6	3 0
Lettuce (French), per doz. ...	1 0	1 6
Mint, pr. dz. bchs.	4 0	5 0
Mushrooms, cultivated, p. lb. ...	0 8	0 10
Mustard and Cress, pr. dz. punnets	1 0	1 6
Onions (Dutch) per bag	8 0	9 0
— English ...	7 0	9 0
— (Spanish), per case	8 6	9 6
Parsley, ½ sieve ...	2 0	2 6
— per doz. bun.	2 6	3 0
Parsnips, per bag	4 6	5 0
Peas (French) p pad	5 0	6 0
— (Guernsey), lb.	3 0	3 6
Radishes (English), per dozen ...	0 9	1 0
Rhubarb, forced, per 12 bundles	0 8	0 10
Savoys, per tally...	10 0	12 0
Spinach, pr. bshl.	3 0	4 0
Seakale, p. punnet	1 0	1 3
Tomatos (Canary Islands), per bundle... ...	12 0	15 0
Turnips (English), per dz. bunches	2 0	2 6
— bags (washed)	4 0	4 6
— (unwashed) ...	3 0	3 6
Turnip Tops, per bag	2 0	2 6
Watercress, p. dz. bunches ...	0 6	0 6½

Remarks:—English Grapes are very scarce, whilst there are only moderate supplies of Grapes from Belgium, many of the bunches from the Continent being inferior. Forced Strawberries are arriving in the market daily; some of the berries are very fine and realising as much as 21s. per lb. The first consignment of Australian Apples, consisting of 40,000 boxes, each containing from 36 lb. to 40 lb. of fruit, is due to arrive on March 18. Apples have also been received: per s.s. "Shenandoah," 23,793 barrels; and per s.s. "Cambrian," 11,620 boxes and barrels. Shipments of fruit from Cape Colony per s.s. "Walmer Castle" received last week consisted of 3,771 boxes of Grapes; 3,124 boxes of Plums; 3,000 boxes of Pears; and about 1,000 boxes of various fruits. The s.s. "New York" brought 1,900 boxes of Californian Oranges. Seedless Oranges are arriving in increased quantities. Mushrooms are much scarcer and dearer. Imported vegetables are fairly plentiful, whilst supplies of Teneriffe Tomatos are equal to the demand. Outdoor vegetables of all kinds are a good supply. The quality and prices vary considerably. *E. H. R., Covent Garden, March 13, 1912.*

Potatos.

	per cwt. s.d. s.d.		per cwt. s.d. s.d.
Kents—		**Lincolns—**	
Queen's	4 0– 4 6	Maincrops ...	4 3– 4 6
Up-to-Date ...	4 0– 4 6	Blacklands ...	2 9– 3 3
Lincolns—		**Bedfords—**	
Up-to-Date ...	3 9– 4 6	Up-to-Date ...	3 9– 4 0
British Queen ...	3 9– 4 3	**Dunbars—**	
King Edward ...	4 0– 4 6	Up-to-Date ...	5 0– 5 3
Northern Star ...	2 9– 3 6	Maincrop ...	5 3– 5 6
Evergoods ...	3 0– 3 9		

New Potatos.

Teneriffe ... ... 10 0–13 0 | Algerian — ... 12 6–15 0

REMARKS.—Trade remains very steady. There are large stocks of tubers in London, and fresh consignments are heavy for the time of year. There is no prospect at present of prices rising. *Edward J. Newborn, Covent Garden and St. Pancras, March 13, 1912.*

Obituary.

GEORGE HAMPTON.—We regret to record the death of Mr. George Hampton, foreman of the walks and plantations at Windsor Castle. Mr. Hampton, who was 76 years of age, had been 60 years in the Royal service. He was born at Kensington Palace (where his father was employed) in 1836. He entered the Royal gardens, Windsor, as an apprentice in 1852, and after passing through the various departments at Frogmore, he was transferred to Sandringham Gardens for further training, ultimately returning to Windsor in 1865 to take charge of the plantations, roads, and walks in Windsor Home Park. Recently he tripped on the ice and broke a kneecap. He appeared, however, to be getting better, when pneumonia developed. The members of the garden staff at Windsor, including the late Mr. Hampton, were shown in a photograph reproduced in the *Gardeners' Chronicle*, April 29, 1899, fig. 98.

ANSWERS TO CORRESPONDENTS.

BEGONIAS AFFECTED BY A GRUB: *J. T. R.* The grubs destroying your Begonias and other plants are the larvæ of weevils, which are exceedingly destructive, and it is difficult to kill the pests without causing injury to the plants. It may be sufficient if the plants are sometimes turned out of their pots and all the larvæ found in the soil picked out with a pointed stick, or if this method is not effective, shake the roots free from the soil and larvæ, repotting the plants in a fresh compost. Spraying the soil and roots of the plants with carbon bisulphide, or trapping the adult insects with portions of vegetables, such as Potato and Turnip, are other means of combating weevils.

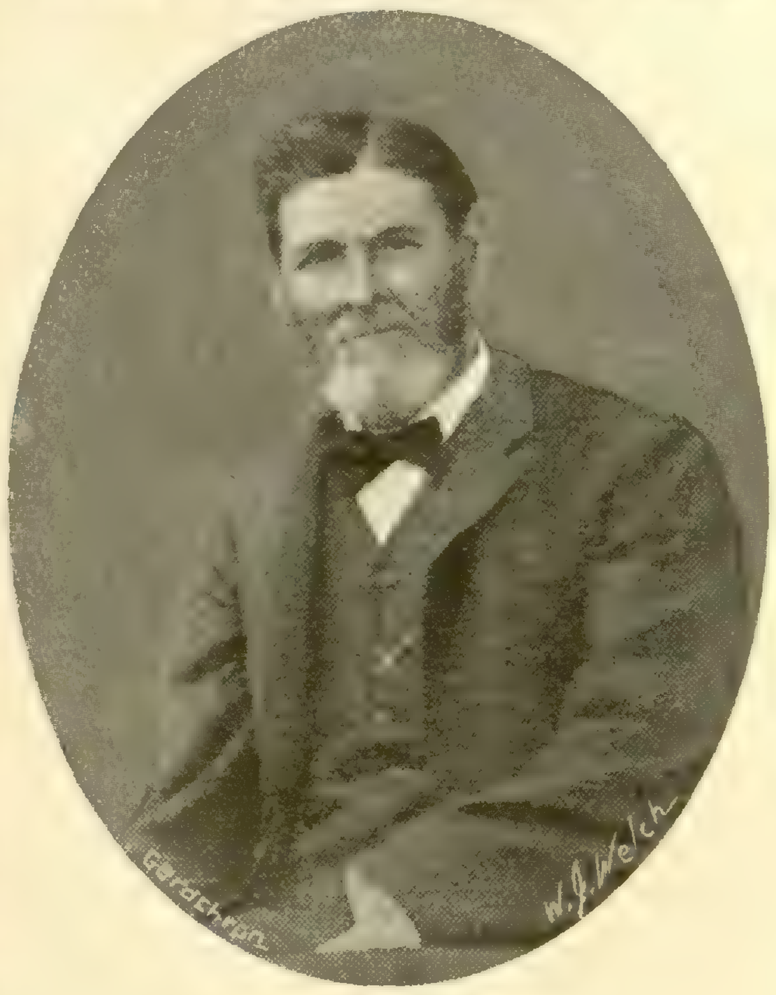
CYCLAMENS AND ROMAN HYACINTHS: *T. E. B.* Eelworms are present in the portions of roots left on the Cyclamen corms, and are undoubtedly the cause of the trouble in both cases. Infested plants should be burned, and the soil in which they have been grown, sterilised by heating. It is advisable to sterilise your potting soil, as eelworm affects many kinds of greenhouse plants.

DESTROYING TREE TRUNKS: *Hortus.* Methods of destroying tree trunks were described in the issues for December 9 and 16, 1911, pp. 411, 440. Your kind expressions are appreciated.

FORCING FRENCH BEANS: *A. J. C.* To obtain a regular supply of French Beans during winter and spring, sowings should be made weekly, employing 7-inch pots up till the shortest day, after which time 9-inch pots should be used, as the plants require more soil and moisture in spring than in the winter season. Seven seeds are sufficient to sow in each pot, thinning the plants to five in each pot. The plants should be placed to within a few inches of the roof-glass, in order to keep them as short-jointed as possible: with the same object in view, the night temperature should not be maintained higher than 60°, especially during cold weather. The soil for the earliest sowings may consist of three parts sandy loam and one part leaf-soil; in the spring use three parts rich loam and one part decayed farmyard manure. Afford liberal supplies of water to the roots, and do not allow the atmosphere to become dry, or insect pests will be sure to be troublesome.

GARDENERS' BENEVOLENT SOCIETY: *R. H.* The Gardeners' Royal Benevolent Institution would not be an approved society under the Insurance Act, because it is not a benefit society. If you wish for particulars of this Institution, write to the secretary, Mr. G. J. Ingram, 92, Victoria Street, London.

GLASSHOUSES FOR TOMATOS: *Tomato Grower.* The houses you describe are not suitable for growing Tomatos for market; they are too narrow. The houses described in the issue for March 2, p. 146, under the heading "Glasshouses for Market Purposes," would suit your purpose in every respect. You could suspend shelves from 9 to 12 inches wide from the purlines supporting the roof on either side of the pathway, with the ends resting on narrow strips of wood, from 9 to 12 inches long, nailed on both sides of the vertical posts, which in this case should consist of wood 2 inches by 3 inches. No. 10 wire will be strong enough to support the weight of the shelves when filled with bedding plants in 3-inch pots or boxes. The Tomato plants should be planted in rows 2 feet apart in the borders (crosswise) on each side of the pathway, and at 1 foot from plant to plant in the rows. Fix a length of gas tubing at both ends of the house on either side of the path at 1 foot from the roof-glass. This should be bolted to the end wall plate at the bottom, and to the door-post at the top, placing a washer or a small plate between the wood and the nut. In order to



THE LATE GEORGE HAMPTON.
(For 60 years an employee in the Royal Gardens).

strengthen these tubes, for the lateral pressure, when the individual wires forming the trellis are being fixed in position, a short length of the same material should be bolted vertically to the wall-plate in the bottom and the end (principal) rafter on the top in the manner indicated, at both ends and sides of the house. No. 14 galvanised wire will be suitable for the trellis. Mark the position, 12 inches apart, which each of the wires is to occupy on the tubings with a piece of chalk. This done, take the end of each wire once round the tube, and then twist it two or three times round the portion of the same wires which is to form the trellis. A raidisseur or wire tightener should be fixed to the tubing at the other end of the house, one to each wire. The wires should be cut about 12 or 15 inches longer than the house, to enable the ends to be taken through the central eye and round the wheel in each raidisseur, and then be tightened with the key to the desired degree. The raidisseurs may be purchased at 3s. per dozen. The individual wires forming the trellis should be kept to within 1 foot of the roof-glass by a series of wire supports made of No. 14 gauge, about 11 inches long, each with one end turned for half an inch into a kind of hook to take the line of wire, and quarter of an inch at the other end, turned at right angles to drive into the rafter at the point where the angle is rounded off, and at a uniform distance from the glass, afterwards closing in the individual hooks over the several lines of wire with a pair of pliers. The suspension wires should be driven into each rafter at 2 feet apart immediately above each line of wire. Place the wire supports in each successive rafter anglewise to those in the preceding one, so that the weight of the crop may be distributed equally over the whole trellis. When the Tomato plants have attained to a height of about 9 inches, loop a length of Tomato string around the stems of each plant, close to the ground, securing the other end of string to the wire overhead. As the plants increase in growth, coil them gently around the strings or tie them somewhat loosely thereto with raffia; always being careful to allow sufficient room in the ties for the development of stem growth. Should you decide to erect houses of the dimensions given in your letter, the foregoing information regarding the making of trellis, planting, and training of the plants will equally apply. The following varieties of Tomato are suitable for market purposes:—Sunrise, Fillbasket, Early Dawn, Hillside Comet, and Holme's Supreme.

JOBBING AND LANDSCAPE GARDENING: *Aberdonian.* Only a person well acquainted with any particular town could answer your question as to whether it offered exceptional opportunities for a jobbing and landscape gardening business. You should first select a district and then prosecute enquiries. There are numerous market nurseries within about 20 miles of the Metropolis, notably those in Mid Kent, Middlesex, and Kent (Swanley district).

NAMES OF FRUITS: *S. Belvedere.* Kedleston Pippin.—*A. S. A.* Alfriston.

NAMES OF PLANTS: *Bournville.* There is but little doubt that the plant is Gasteria verrucosa, figured in *Bot. Mag.*, tab. 837, under the name of Aloé verrucosa, but flowers are necessary for definite determination.—*G. B.* Cornus Mas.—*Elap.* Odontoglossum odoratum.—*F. H.* 1, Oncidium flexuosum; 2, O. stramineum; 3, Bulbophyllum Thomsonii.—*H. H.* 1, Narcissus incomparabilis Sulphur Phœnix or Codlins and Cream; 2, Akebia quinata.

PERSIMMON: *T. H.* A tree of Persimmon, Diospyros Kaki, which fruited in the Succulent house in Kew Gardens, formed the subject of a Supplementary Illustration in the *Gardeners' Chronicle* January 21, 1911: a description of the tree was given in the accompanying text.

RENOVATION OF LAWN: *A. M. S.* The winter is now somewhat advanced for the best manurial treatment. As a preliminary we would suggest that a soil analysis, showing the lime, nitrogen, available phosphoric acid, and potash should be carried out. This will probably cost you the sum of one guinea, and in this case you might communicate with the Analyst, County Laboratories, Chelmsford, as you reside in Essex. If you do not wish to go to the expense of an analysis, we think it will be best to dress the lawn as soon as possible with a mixture of equal parts of loam and well rotted farmyard manure, at the rate of 5 tons per acre. At the same time apply 2-3 cwt. of basic superphosphate, 1 of sulphate of potash, and 2 of bonemeal per acre.

WELLINGTONIA: *W. B. J., Bridlington.* The cause of your tree of Sequoia gigantea (Wellingtonia) dying at the top is most probably due to the drought of last summer. Many trees suffered in a similar manner from this cause, especially those growing on a porous substratum, such as gravel or chalk. As you wish to preserve the tree, your best plan is to remove some of the soil above the roots carefully by means of a fork, and replace it with a rich top-dressing of well-decayed manure and soil. This will probably prevent any further dying of the branches, and give the tree a new lease of life. On any future occasions when drought prevails for a long period, keep the roots well supplied with water by means of a garden hose, which may be allowed to run at the base of the trunk for a day or two at a time.

Communications Received.—E. J. D.—W. A. M.—H. R.—W. F.—C. R.—T. S.—H. R. D.—A. P.—W. K.—J. H.—W. H. A.—W. W.—F. W. C.—Y. P. P., Heston—H. R., Holland—G. M. T.—S. A.—W. D.—R. F.—G. M.—W. P. R.—Iris—J. B. M.—H. S. T.—F. F.—W. T.—J. C., Reigate—H. B.—T. M., Denmark—R. J. W.—E. H. J.—F. C. E., Leeds—H. F. M., Peradeniya—J. G. B.—W. D.—W. W., Berkshire—G. T.—J. C.—J. M. S.

THE GARDENERS' CHRONICLE

ESTABLISHED 1841 — No. 3717

No. 1,317.—Vol. LI. {THIRD SERIES.} SATURDAY, MARCH 23, 1912. {Registered as a Newspaper. WITH SUPPLEMENT.} {PRICE 3d. POST-FREE, 3½d.

SUBSCRIPTION—Inland, 15/-; Foreign, 17/6 [22fr. 10c.] [$4 26c.] per annum. Entered at the New York Post Office as second-class matter.

Postal Address—41, Wellington Street, Covent Garden, W.C. Telegraphic Address—"Gardchron, London." Telephone—Gerrard, 1543.

☞ For CONTENTS see page 179.

NOTICE.

In consequence of the decreased Railway facilities caused by the Coal Strike, the distribution of the "Gardeners' Chronicle" may be delayed, although every effort will be made to prevent inconvenience.

Two Magnificent Peas.

WEBBS' STOURBRIDGE MARROW (Mid-Season). 2s. pint; 3s. 6d. quart. Winner of FIRST PRIZE, N.V.S., London. Mr. E. Beckett, Aldenham House Gardens, writes:—"Wonderfully prolific and of the highest quality; for exhibition purposes it is most valuable."

WEBBS' SENATOR (MAINCROP). 1s. 9d. pint; 3s. quart. Awarded R.H.S. First-class Certificate of Merit. A marvellously prolific cropper of exceptionally rich flavour. Cannot be too highly recommended. WEBB & SONS, The King's Seedsmen, Wordsley, Stourbridge.

GISHURST COMPOUND is harmless in use; its soluble Sulphur, &c., has for 40 years cured Blights and Fungus on Plants, and is good for washing unhealthy dogs. Gishurstine keeps boots dry in all weathers; they will polish. Good for Harness.
Wholesale from—
PRICE'S PATENT CANDLE CO. LTD., London.

ALPINES & HERBACEOUS PLANTS, —Himalayan and other rare Rhododendrons, rare Shrubs, Construction of Rockeries. Catalogues ready.
G. REUTHE, Keston, Kent.

New Phloxes.

GUNN & SONS were Awarded a Silver Cup at the Great Show at Olympia. New Lists now ready. Address: Olton, Warwickshire.

RITCHIE'S SWEET PEAS.—Universally acknowledged to be the best procurable; Exhibition collection, containing the best 12 Spencers, viz., Asta Ohn, Clara Curtis, Edna Unwin, Elsie Herbert, Gladys Burt, Jno. Ingman, Marj. Linzee, Maud Holmes, Mrs. Sykes, Mrs. Breadmore, Prince Asturias, Tennant Spencer, 30 seeds each, 2s. 6d., post free; Sweet Pea list free on request.—
A. S. RITCHIE & CO., Seedsmen, Belfast.

GARDEN PESTS.—Cross's "Clubicide" is the Gardeners' Insurance against damage by Eelworm, Wireworm, Slugs, Maggot, and all Disease Germs and Insect Pests. Kills all harmful Bacteria, reinvigorates the soil, stimulates plant life. In 1s. flasks and ½-gall. and 1 gall. drums. From all Seedsmen.
Sole Manufrs.: A. CROSS & SONS, Ltd., Glasgow.

OSMUNDA for Orchids.—Consignments arrive fortnightly. 2s. 6d. per bushel; per bag, 8s. 6d.
SANDER & SONS, St. Albans.

BUNYARD'S CATALOGUES, free on application.

FRUIT TREES AND VINES.

SHRUBS AND CONIFERS.

ROSES AND OTHER CLIMBERS, in Pots.

HERBACEOUS & AQUATIC PLANTS for present planting.

GEORGE BUNYARD & CO., LTD., Royal Nurseries, Maidstone. Established 1796.

SUTTON'S SUPERB BEDDING ASTERS. A splendid selection, specially adapted for producing masses of colour in beds. Scarlet, Delicate Rose, Bright Rose, Blue, Lilac (Mauve), White. Each per packet, 1s. Collection of the six colours, separate, 5s.

SUTTON'S SUPERB BEDDING STOCKS. Selected with great care, expressly for bedding purposes. White, Yellow, Blush-rose, Peach-blossom, Pink, Terra Cotta, Carmine-pink, Scarlet, Mauve, Blue and Purple. Each per packet, 1s.

SUTTON & SONS, The King's Seedsmen, READING.

FIDLER'S GIANT-FLOWERED SWEET PEAS. Send at once for our collection (C) of 14 named varieties, all separate, containing in all 1,000 good plump new seeds. Post free with catalogue for 1s. FIDLER & SONS, Royal Berkshire Seed Stores, Reading.

BARR'S VEGETABLE AND FLOWER SEEDS of finest selected strains and tested growth. Descriptive Catalogue free.

BARR'S HARDY PERENNIALS, ALPINES, AQUATICS, CLIMBERS, ETC., FOR SPRING PLANTING. Descriptive Catalogue, with Cultural Notes, free.

BARR'S BEAUTIFUL LILIES, Gladioli, Cannas, Montbretias, Tigridias, etc., for Spring Planting. Special Catalogue free on application. BARR & SONS, 11, 12 & 13, King St., Covent Garden, London.

THE Popularity of "XL ALL" Specialities increases every year. All gardeners proclaim that nothing equals these celebrated preparations. "XL ALL" NICOTINE VAPORISING COMPOUND, the gardeners' favourite Fumigant, both Liquid and Cake. "XL ALL" NICOTINE INSECTICIDE WASH for Syringing, Dipping and Dressing Fruit Trees and Plants; Mealy Bug, Scale, etc., cannot exist where this is used. "XL ALL" INSECTICIDE WASH B (*sine* Nicotine), best non-poisonous Wash on the Market. No licence required to sell this. Other preparations of great renown, both poisonous and non-poisonous, are:—"XL ALL" WEED KILLER, "XL ALL" FERTILISER, "XL ALL" ROSE MANURE, "XL ALL" WINTER WASH for Fruit Trees, etc. Don't forget to ask your Nurseryman, Seedsman or Florist for Richards' small pink list.—G. H. RICHARDS, Manufacturer, 234, Borough High Street, London, S.E.

WALTERS & CO., Morland Rd., Croydon, Makers of Lath Roller Greenhouse Blinds; Trellis Screens and Fences, Arches, Arbours, Rose Pillars. Established over 20 years. Write for new 1912 Catalogue.

HUTS FOR THE GARDEN. — Fruit Rooms, Potting Sheds, Workshops, Cycle Houses, Boot Rooms, Servants' Mess Rooms, Children's Playrooms, &c. Send for Illustrated Catalogue, free.
BOULTON & PAUL, Ltd., Norwich.

Roses and Herbaceous Plants.

GUNN & SONS were awarded the 25 Guinea Challenge Cup in each collection at the Leamington Show. Up-to-date List for each now ready. Address: Olton, Warwickshire.

LISSADELL ALPINE & HERBACEOUS PLANTS.—Write for our new illustrated and enlarged List, containing many beautiful novelties at moderate prices. Also List of Seeds collected from above in 1911.
J. A. COOPER, Lissadell (No. 2), Sligo, Ireland.

GREENHOUSE PAINTING & GLAZING "Vitrolite" superior to White Lead Paint, 9/- per gall. "Plastine" supersedes Putty, 16/- per cwt. Full particulars from W. CARSON & SONS, Grove Works, Battersea. Agents throughout the country.

For Advertisement Charges see page iv.

KELWAY'S "Manual of Horticulture" is the best of all Garden Books, 2s., post free. From ——, Esq., Northwood, Middlesex, September 28th, 1911: "I find that I have never forwarded 2s. for your lovely Catalogue you sent me some weeks since. It would be cheap at five times the price, and I sincerely regret the oversight."—KELWAY & SON, Langport, Somerset.

THE MODERN HERBACEOUS BORDER.—Full particulars and prices of Kelway Borders packed, arranged for planting, to flower in tasteful schemes of colour, from—KELWAY & SON, The Royal Horticulturists, Langport, Somerset. From ——, Esq., Summerland, British Columbia, Canada. "The perennial plants, Delphiniums and Pyrethrums, which you sent by post on October 1st last, arrived here on October 26th, and opened up in good condition. The plants apparently were in the best of condition, so should be no apprehension about sending by post."

NOW is the time to plant Kelway's Delphiniums—fine, bold upstanding plants with a wealth of bloom in all shades of blue and purple. They are from strong country-grown stocks, and flourish under almost all conditions. From —— Esq., ——Greenock: "All the Delphiniums received from you last Spring did very well indeed. I have now about three dozen of your Delphiniums. They are the admiration of all the flower lovers in this district." Choice named collections, 15s., 24s., 34s., 56s. a dozen.—KELWAY & SON, The Royal Horticulturists, Langport, Somerset.

LAVENDER.—Common, Giant and Dutch, 3s. per dozen, 21s. per 100; also the dwarf Compact variety, 5s. per dozen, 35s. per 100, and the White-flowered, very sweet-scented, 7s. 6d. per doz., 55s. per 100.—THE GUILDFORD HARDY PLANT NURSERY, Guildford.

WM. DUNCAN TUCKER & SONS, Ltd., 27, Cannon Street, London, E.C.; Works, Tottenham. Conservatories, Winter Gardens, Vineries, Peach-houses, Portable Buildings, etc. Catalogue gratis.

DOUGLAS'S CARNATIONS & PINKS, border and perpetual, are noted all over the world. 5 Gold Medals, R.H.S., 450 Medals and Cups. Newest and best varieties at most reasonable prices, all ready for planting or potting on. Finest hand fertilized seed only sold. Carnation and Picotee seed, all types, 1s. 6d. to 2s. 6d. packet. Auricula, Pink, Polyanthus, finest strain in existence, all 1911 fine crop, now ready for sowing. Send for catalogue, Edenside, Gt. Bookham.

LANDSCAPE GARDENING.—W. INNES STUCKEY, Landscape Gardener, Piccadilly Mansions, Piccadilly Circus, W. (With the late Mr. H. E. Milner).

BATH'S SELECT SEEDS.—New Illustrated Catalogue of Choice Vegetable and Flower Seeds, with full cultural notes, is now ready, and will be sent post free on application.
(Dept. A), R. H. BATH, Ltd., The Floral Farms, Wisbech.

FRUITING VINES IN POTS.—Muscat of Alexandria, and leading Market varieties. We make Vines a speciality.
G. COLEMAN, The Vineries, Burgess Hill, Sussex.

DICKSONS Horticultural Manure & other high-class Fertilizers; also Dicksons Improved Mushroom Spawn. Priced Circulars free on application to DICKSONS, Royal Seed Warehouses & Nurseries, Chester

AUTO SHREDS FUMIGANT kills Leaf-mining maggot, insects in greenhouses, frames. For 1,000 cubic feet, 6d.; 10,000, 3s. 6d. No apparatus.
WM. DARLINGTON & SONS, Patentees, Hackney, N.E.

ORDER TRELLIS-WORK NOW.—Get our book on Trellis-work, showing Screens, Wall Panels, Window Surrounds, Arches, Arbours, &c., post free.
BOULTON & PAUL, Ltd., Norwich.

SALES BY AUCTION.

Monday, Wednesday and Friday next.

MONDAY and FRIDAY NEXT, MARCH 25th and 29th, at 12 o'Clock.—A choice assortment of Perennials and Herbaceous Plants, Lily of Valley, Spiræas, Iris, Pæonies, &c., Japanese Liliums, Gladiolus, Begonias, and other Hardy Bulbs.

At 1.30 o'Clock.—1,500 ROSES, Standard, Dwarf, Climbing, &c., also Fruit Trees in variety.

WEDNESDAY NEXT, MARCH 27th, at 12 o'Clock.—Japanese Liliums in large variety, Begonias, Gloxinias, Gladiolus, Tuberoses, Lily of Valley, Iris, Carnations, Pinks, &c., Herbaceous and Rock Plants, and Perennials.

At 1.30 o'Clock.—4,000 ROSES, English and Continental, Standards, Dwarfs, Climbers, &c., Standard, Pyramidal, and other Fruit Trees.

At 5 o'Clock.—100 lots of Ornamental and Decorative Palms and Plants, Azalea indica, Rhododendrons, Camellias, Aspidistras, Standard Bays, &c., from Belgium, also Stove and Greenhouse Plants.

MESSRS. PROTHEROE & MORRIS will SELL the above by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, E.C. On view mornings of Sale and Catalogues had.

The "Oakdene" Collection of Orchids.

Important Sale of the valuable collection formed by the late Mr. E. Rogerson, by order of the Executors.

Amongst the Odontoglossums are

O. CRISPUM BRITANNIA.
" " LUCIANA.
" " LEONARD PERFECT.
" " MRS. ROGERSON.
" " MABEL WHATELEY.
" " OAKDENE SURPRISE.
" " PITTIANUM.
" " PERFECTION.
" " ROSSENDALE.
" " XANTHOTES.

and many other finely blotched and shapely varieties; also several choice Odontoglossum crispum seedlings and many named Odontoglossum hybrids, including O. ardento-crispum Rogersonii, &c., &c. A very fine collection of Cypripediumes, comprising many well-known varieties, and a quantity of unflowered seedlings, Cattleyas and Lælio-Cattleya hybrids, Sobralias, Oncidiums, Cymbidiums, Lælias, Lycastes, Dendrobiums, choice Miltonias, &c.

MESSRS. PROTHEROE & MORRIS will SELL the above by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on THURSDAY and FRIDAY NEXT, MARCH 28th and 29th, at one o'Clock. On view mornings of Sale and Catalogues had.

ROSE TREES, FRUIT TREES, PERENNIALS, LILIUMS, etc.

Mr. J. C. STEVENS begs to announce that his

SALES by AUCTION

are held every **MONDAY** and **WEDNESDAY** at 12.30.
Catalogues post free.
Lots purchased, packed, and forwarded to all parts.

STEVENS' AUCTION ROOMS
(ESTABLISHED 150 YEARS),
38, King St., Covent Garden, London, W.C.

ROSE TREES.—Sales every Tuesday, Wednesday, and Friday of Roses, Shrubs, Lilies, Gladioli, &c., at Moorgate Auction Rooms, 23, and 25, Moorfields, E.C. (near Moorgate Street Station). Catalogues post free.

PROPERTY FOR SALE.

TO MARKET GARDENERS, Poultry Farmers, Dog Fanciers, and others; on the six mile radius; detached cottage with four bed, bath, three sitting-rooms, and about one acre; sloping south; for sale; lease about 12 years; ground rent only £4.—Agents, NOYS & HOWES, Sydenham Station. Fol. U3543.

BUSINESSES WANTED.

WANTED, to RENT small NURSERY, with about two acres of land with dwelling-house attached; close to a town and railway station.—BRYANT, Lennox House, The Avenue, Erith, Kent.

PARTNERSHIPS.

WANTED, PARTNERS for large Nursery and Fruit Gardens; 20 acres; Freehold; close to main line and station; lovely district.—F. T., Box 22, 41, Wellington Street, Covent Garden, W.C.

EXCEPTIONAL OPPORTUNITY.—MANAGER (Working) required on moderate-sized Nurseries; North of England; must be prepared to invest £200 on good security; good wages and house free.—Apply, Messrs. A. ROBERTSON & CO., Norwich Union Buildings, Piccadilly.

BUSINESSES FOR SALE, &c.

re WILLIAM KERR. In Bankruptcy.

To Florists, Market Gardeners and Nurserymen.

THE Official Receiver in Bankruptcy for Cumberland is prepared to receive Offers for the sale by PRIVATE TREATY of a valuable Market Gardener's and Florist's business established 60 years. The Gardens are situate close to the good Market Town of Penrith, which is a splendid residential centre with a good train service. The grounds are over 7 acres in extent and there are 5 very large well-constructed Glass-houses with modern boilers. The stock is up-to-date and in first-class condition. There is also a good dwelling-house and all necessary offices. The business includes a well-paying retail shop in the town, and an energetic man with a small capital might do well. The Gardens and Books can be seen at any time, and all information obtained from Messrs. R. Dalton and Son, Auctioneers, Carlisle; OFFERS to be made in writing to Kighley J. Hough, Esq., Official Receiver, 34, Fisher Street, Carlisle.

FOR SALE, in leading suburb of Newcastle-upon-Tyne, Leasehold NURSERY, of about five acres, and 1,000 feet run of newly-erected Glass-houses, heated by overhead system; also cold frames; stocked with plants, trees, shrubs, &c.; good water supply; excellent local market and good retail connection.—Apply to T. WALLACE, Chartered Accountant, 42, Mosley Street, Newcastle-upon-Tyne.

FREEHOLD NURSERY to LET or SOLD; 300 feet run of glass (heated) and land; near N. London.—H. H., Box 10, 41, Wellington Street, Covent Garden, W.C.

SUBURBAN JOBBING GARDEN BUSINESS; dwelling house, four greenhouses, stock; suit beginner; low price.—M. G., Box 23, 41, Wellington Street, Covent Garden, W.C.

TO be SOLD, a well-equipped NURSERY, between Manchester and Liverpool markets, in wealthy locality; established 20 years; good trade; owner wishes to retire. To suitable person terms of payment can be arranged.—M. J., Box 2, 41, Wellington Street, Covent Garden, W.C.

FRUIT and FLORIST BUSINESS.—Shop, two Stalls on front, Nursery close to; splendid chance for practical man; sure living.—For price apply, G. PALMER, 263, Aylestone Road, Leicester.

TO BE SOLD, Owner going abroad, capital NURSERY BUSINESS, situate in riverside town and within easy reach of London markets; good local trade; five greenhouses, outbuildings; lights, &c.; dwelling house and shop on main road; rent £50; extra ground if desired, £22; price for stock and goodwill, £400.—Particulars of Messrs. PROTHEROE & MORRIS, 67, Cheapside, E.C.

HAMPTON, Middlesex.—Capital FREEHOLD NURSERY; total area 4½ acres; nine greenhouses and buildings; price £1,500, or would be sold in three lots; owner going abroad.—Full particulars of Messrs. PROTHEROE & MORRIS, 67, Cheapside, E.C.

PUBLISHERS' NOTICES.

Present-Day Gardening.

Edited by R. HOOPER PEARSON, Managing Editor of the GARDENERS' CHRONICLE. Now Ready. Post free, **1/9** each.

Numerous Beautifully Coloured Plates are contained in Each Volume.

1.—**Sweet Peas.** By HORACE J. WRIGHT, late Secretary and Chairman of the National Sweet Pea Society. With Chapter on "Sweet Peas for Exhibition," by THOS. STEVENSON.

2.—**Pansies, Violas, and Violets.** By WILLIAM CUTHBERTSON, J.P., and R. HOOPER PEARSON.

3.—**Daffodils.** By the Rev. J. JACOB.

4.—**Orchids.** By JAMES O'BRIEN, V.M.H., Secretary of the Orchid Committee of the Royal Horticultural Society.

5.—**Root and Stem Vegetables.** By ALEXANDER DEAN, V.M.H., Chairman of the National Vegetable Society.

6.—**Carnations and Pinks.** By T. H. COOK, Head Gardener at Sandringham; JAMES DOUGLAS, V.M.H., and J. F. McLEOD, Head Gardener to Mr. Pierpont Morgan. Contains 8 full-page coloured plates.

7.—**Rhododendrons and Azaleas.** By W. WATSON, with preface by Sir F. W. MOORE, M.A. (the first popular volume published on this subject). Contains 8 full page coloured plates.

8.—**Lilies.** By A. GROVE, F.L.S., with preface by H. J. ELWES, F.R.S. Contains 8 coloured plates.

9.—**Apples and Pears.** By GEORGE BUNYARD, V.M.H. Contains 8 coloured plates.

10.—**Roses.** By H. R. DARLINGTON, with 8 full-page coloured plates. A double volume, price **2/10**, post free. Special presentation edition, with beautiful cover design, in cloth gilt, gilt top, price **3/10**, post free

THE PUBLISHER,
Gardeners' Chronicle" Offices, 41, Wellington St., Covent Garden, London, W.C.

EXHIBITIONS.

WOLVERHAMPTON,

Great Floral Fete,

July 9th, 10th and 11th, 1912.

£900 in Prizes.

Schedules, post free, on application to R. F. AMPHLETT, Secretary, 80, Darlington Street, Wolverhampton.

PLANTS, &c., WANTED.

WANTED, large KENTIA PALMS, from 5 feet to 25 feet in height; large, well-coloured Dracænas and Crotons, also Aspidistras; for cash or exchange.—ROBERT GREEN (1911), LTD., 28, Crawford Street, London, W.

HIGH-CLASS Retailer wants private senders of really good Peaches, Muscats, French Beans, Napoleon Cherries, Comice Pears and other Choice Fruits and Vegetables; cash Mondays.—P. J., Box 16, 41, Wellington Street, Covent Garden, W.C.

WANTED, two large, well-furnished and healthy Dicksonia Antartica Tree Ferns, with stems 7 to 8 feet high.—State full particulars and lowest prices to A. J. KEELING & SONS, Orchid Growers, Westgate Hill, Bradford.

WANTED, "Gardeners' Chronicle," a run from about 1877 to 1904; imperfect may do.—State lowest price to JOHN WHELDON & CO., 38, Gt. Queen Street, Kingsway, London, W.C.

WANTED, a second-hand 26 inch Ransomes' Pony Lawn Mower in thorough condition; approval required.—State price to GARDENER, Stud House, Hampton Court.

PLANTS, &c., FOR SALE.

PERPETUAL CARNATIONS.—Our 1912 Illustrated Catalogue free. Read our "Cultural Treatise," 1s.—YOUNG & CO., Carnation Specialists, Hatherley, Cheltenham.

CUTHBERT'S SPECIALITE MUSHROOM SPAWN.—NEW SPAWN NOW READY. We continue to receive the most gratifying testimonials as to the productiveness and good quality of our Spawn. Per bushel, 5s.—R. AND G. CUTHBERT, Seed and Bulb Merchants, Southgate, Middlesex.

FERNS! FERNS!!—Tree, Climbing, Basket, Stove, Greenhouse, and Garden Ferns; catalogues free.—SMITH, London Fern Nurseries, Loughboro' Junction, London, S.W.

PERPETUAL FLOWERING CARNATIONS; strong, established plants in pots, from 4s. per doz., carriage paid; 20s. per 100, carriage forward; illustrated catalogue, describing 75 leading varieties with cultural hints, post free.—C. F. A. VAN DER SLUYS, F.R.H.S., Ramee, Guernsey.

CUT FLOWERS AND FOLIAGE.—A. W. REDFORD, Wholesale Bulb Grower, Stevenage, offers choice Daffodils, Narcissus, and Tulips in variety daily; boxes free; price lists forwarded on application.

VERBENAS.—The best sorts are Miss Willmott (pink), Princess of Wales (deep blue), Queen of Whites, King of Scarlets, and Lovely Blue (light blue); clean, healthy, strong young plants; carriage paid; 10s. per 100, cash.—H. DUDDERIDGE, The Dorset Nurseries, Blandford.

GARDEN FERNS, 20s. 100.—Cyclamen, Genistas, Acacias, Ericas, Palms, Begonias, Crotons, Dracænas; catalogues free.—SMITH, London Fern Nurseries, Loughboro' Junction, London, S.W.

LONDON PLANES.—Specimen trees, 15 to 25 feet, straight stems, symmetrical heads, good roots, 5s. to 21s. each.—W. FROMOW & SONS, Sutton Court Nursery, Chiswick, W.

SHALLOTS.—Giant Red Shallots, best to grow for Exhibition, 22s. 6d. per cwt.; sample 6 lb., post free, 2s.; also Scotch grown Potatos Up-to date, Factor, &c., 5s. per 112 lb.; catalogue free.—BRINKWORTH & SONS, Southampton.

CENTAUREA CANDIDISSIMA (ragusina).—Strong plants from stores for present potting 7s. 6d. per 100, carriage paid.—J. J. MARRIOTT, Sutton Coldfield.

AQUILEGIA. — Mrs. Scott-Elliott's unrivalled strain of long-spurred hybrids (true) per doz., 3s.; Auricula Alpine, a high-class strain, in richest mixture. per doz. 3s.; Hollyhocks, Chater's superb strain, in 10 separate colours, per doz. 3s. 6d.; all strong-flowering plants.—J. J. MARRIOTT, Sutton Coldfield.

THE

Gardeners' Chronicle

No. 1,317.—SATURDAY, March 23, 1912.

CONTENTS.

Batsford	188	Obituary—	
Books, notices of—		Ellison, C. C.	193
Botanical Magazine...	187	McKay, James ...	193
The Cultivation of Hardy Vines ...	183	Parasitic fungi, the nature of	183
Publications received	188	Plum, Count Althann's Gage	189
Brussels International Exhibition	188	Primula obconica, the evolution of	186
Bulb garden, the ...	181	Purdom, Mr. W., at Pekin	188
Californ an plant diseases	187	St. Fagan's Castle, Cardiff	179
Cumberland gardeners, complimentary dinner to...	187	School gardens	187
Dahlias, collarette ...	189	Scotland, notes from ...	183
Epiphytic Bromeliads, the food of	187	Societies—	
Failure of a society ...	187	British Gardeners' Association	192
Forestry report	187	Manchester and N. of England Orchid ...	193
Golf links, the deterioration of	186	N. of Eng. Hort. ...	193
Hooker, Sir Joseph, bust of the late	187	Royal Horticultural ..	189
International Horticultural Exhibition ...	188	Surveyors' Institution	187
Lawn sands	182	Soil constituent, a beneficent	187
L.C.C. Parks Committee	183	Vegetables—	
Lewis, Mr. Thomas ...	183	Cauliflowers	182
Manchester, horticulture in	189	Week's work, the—	
Meteorological instruments and weather forecasts	187	Flower garden, the...	184
Mycetozoa, the	187	French garden, the ...	185
		Fruits under glass ...	185
		Hardy fruit garden ...	184
		Kitchen garden, the...	185
		Orchid houses, the ..	184
		Plants under glass ...	184

ILLUSTRATIONS.

Cups, presentation, for the International Horticultural Exhibition 188, 189
Plymouth, Earl, portrait of the 192
St. Fagan's Castle, Cardiff (Supplementary Illustration); views in the gardens at 179, 180, 181, 182

ST. FAGAN'S CASTLE.

(See also Supplementary Illustration.)

THE hamlet of St. Fagan's is four miles from Cardiff, and though it has a station on the main Great Western line, which passes indeed within a stone's throw of its castle grounds, yet the invasion of the railroad has not destroyed the rusticity of the country-side.

The beauty of St. Fagan's Castle resists the assault of modernity as surely as the old Norman fortress which preceded it withstood many an attack by equally powerful though less insidious foes. To the visitor standing on the road just outside the village, the passing express which emerges below him from among the trees of a high and overhanging wood directly opposite seems not the noisy intruding monster that so often disturbs the peace of a rural scene, but passes, screened by a white cloud of steam, and noiselessly—if the wind be the right way—a mere incident in a charming landscape.

Thatched cottages, standing in trim little gardens, nestle picturesquely beneath the embattled walls of the castle. Opposite the castle gateway stands the church, well-cared for, and surrounded by well-kept graves. There is indeed evidence on all hands that the Earl and Countess of Plymouth enter sympathetically into the life of the village, and that the labours of the garden staff, under the direction of Mr. Hugh Pettigrew, are not confined within the castle walls. Thus, over 110,000 plants of annual or bedding nature were handled last season in the admirable propagating yard which is conveniently situated close to the entrance of the castle gardens, but on the other side of the road.

As I entered the grounds by Mr. Pettigrew's creeper-clad house, the first thing that struck me was the value of Muehlenbeckia complexa as a wall plant. Many avail themselves of this shrub for planting high on large rockeries and banks, where its sprays of little, dainty leaves fall gracefully; but it is not, I think, so commonly employed on walls. Several specimens may be seen at St. Fagan's draping

FIG. 75.—ST. FAGAN'S CASTLE: THE PINE WALK.

the walls beautifully to the eaves. Many varieties of Vitis are thriving on the numerous old walls which divide the grounds immediately around the castle into little gardens of differing character and almost bewildering number. Vitis Coignetiæ, V. purpurea, V. odoratissima (the male form of V. vulpina) are conspicuous, and the great-leaved V. Thunbergii, which colours finely here in autumn, may be seen in more than one specimen. These old walls are full of interesting native and naturalised flowers and Ferns, and the Spur-Valerian, pink, white, and crimson, is very showy. One patch of the white variety, chance-sown in a dense, symmetrical, fan-shaped group, extending from the ground to the battlement, looks at a distance like some profusely-blooming trained wall shrub.

First comes a garden, planted to colour in somewhat formal beds. There is a blue border in which Anchusas and Delphiniums are conspicuous. This garden, however, depends largely on annuals for its display. Reds and pinks occupy one side of what may be described as a rectangle of beds; purples and mauves and certain pale blues the opposite side, the broad intervening space of grass being divided into numerous beds and planted in white. Dorothy Perkins and Hiawatha Roses are used largely in the red and pink borders; Viola cornuta purpurea and other Violas in the purple and mauve; and the dead-white variety of V. cornuta is found useful in the white beds. Outside the rectangle are paths and wall-backed borders. Flowering shrubs and fruit trees occupy the walls, and in the borders are yellow plants. Near by are some weeping Roses budded as standards—Tausendschön, Flower of Fairfield, Dorothy Perkins, and others. Wichuraiana Roses planted in the earth-filled top of a low wall thrive excellently—Jersey Beauty in particular keeping its leaves glossy and green, even in hot, dry weather. In one corner is a fine specimen of Davidia involucrata—14 to 15 feet high and 10 feet through. It has not, however, produced flowers during the five years it has been planted. It is to be hoped it may soon follow the example of the specimen at Messrs. Veitch's nursery at Coombe Wood. From this garden we pass between outhouses covered with white and blue Wistaria to the Rose garden; the grassy approach is fenced with green wooden trellis, covered with rambling varieties and backed by flowering shrubs, among which is a large specimen of Choisya ternata. In the centre of the garden is a Bay tree formed into a bower over a seat and surrounded by a trellis. This is encircled by a little cement moat, in which Nymphæas of smaller habit grow at intervals in baskets of wire-netting. Such

baskets are to be preferred to pots, because they allow of better aeration of the soil. The beds in the grass beside the water are planted with dwarfs, backed by bush Roses, of which the exquisite and sweetly-scented Zéphyrine Drouhin is perhaps the best. Amongst the numerous dwarfs, General McArthur, Gustav Grünervald, and Ma Capucine should be noted. Many of the paths between these beds are arched over and covered with climbing varieties. A closely-planted double row of Limes encloses the garden at one end, and the question of what to grow underneath them has found its solution in Sedum spurium. This, of course, remains green, and does not acquire the red on the leaves nor does it flower well; but to find anything that will remain perpetually green under these trees, in spite of the Lime sugar-droppings and the dense shade, is a triumph, and might not have been lit upon amongst the sun-loving Stonecrops except by happy chance.

Beyond is a large sloping bank, which, at the time of my visit, was allotted to Blue Ageratums, amongst which a few groups of Scarlet Pelargoniums were scattered in effective contrast. Thence we enter a garden of flagstones with crevice- and carpet plants, of which the accompanying illustration (fig. 78) gives an excellent idea. This is quite a feature of the place. This garden and an adjoining one are surrounded by a Thuya hedge, one side of which is 50 years old—the other sides five! But by reason of the gardener's art no difference is apparent to the casual observer. Many interesting Alpine plants are exuberantly happy in these somewhat novel surroundings. Thymes and Menthas fill the air with fragrance as we walk over them. A charming spot for leisure hours, and brimful of interest to the plant lover, it is an admirable example of how rock plants may be grown successfully where more natural conditions are unfeasible or not wanted.

The main approach to the castle, flanked by old Cedar trees, and passing through a gateway in the old Norman wall, leads into a courtyard on the eastern side of the castle. This old wall is also full of flowers, and the promenade on its top behind the battlements is doubtless appreciated more now than by the sentries of the 17th century. Charles I. visited the castle in 1645, and the Royalist and Parliamentary forces came into collision in 1648, when a bloody battle was fought in a field which still bears witness in its name—Cae Meirch. In the centre of the courtyard is an immense lead cistern bearing the date 1620. It was found in a field in the district, but its previous history is obscure. On the northern aspect is situated the Dutch garden shown in the photograph (fig. 76). Low, conical pillars of Golden Yew relieve the darker green of the Box walls, and the beds are a mass of violet with Viola cornuta purpurea. One walks across a sunk bowling green and up a flight of stone steps which lead through iron gates to the Mulberry grove, which consists of two old veterans with great prostrate arms and several less ancient though by no means young trees. The two are probably at least 200 years old, and some comparative striplings planted some 36 years ago, will be ready to take their place when at last they shall have run their course. A fine fruit wall bounds the Mulberry grove on the north and a long hedge of that incomparable hedge Rose, Zéphyrine Drouhin, so conspicuous in the Rose garden, has been planted recently, and flanked this year with Mignonette.

FIG. 77.—ST. FAGAN'S CASTLE: A TERRACE PATH.

FIG. 76.—ST. FAGAN'S CASTLE: THE DUTCH GARDEN.

We must not leave the old walled-in gardens without making mention of some of the more or less tender shrubs which are planted in various places. Tecoma radicans (Bignonia) was in flower, climbing, by aid of its aerial rootlets, 6 or 8 feet. Lonicera sempervirens minor, the most handsome of all cultivated Honeysuckles, was flowering profusely; this was under glass, however—in an old greenhouse. Azara microphylla must have attained its full height, for I judged it to be 15 feet, but Nicholson gives its height as 12 feet. Fabiana imbricata is a beautiful Heath-like shrub for a south wall, with waxy, white, tubular flowers; Piptanthus nepalensis flowers well, and is practically evergreen; Olearia macrodonta flowers profusely above its grey-green Holly-like leaves. Pueraria Thunbergiana and Aristolochia Sipho (Dutchman's Pipe) are large-leaved climbers of some merit. Polygonum Baldschuanicum forms a feature in more than one place, notably in the middle of the Dutch garden. It was flowering freely last year in June, and doubtless bloomed again in autumn.

A surprise awaits the wanderer through these small, enclosed gardens, each with its distinctive character, all more or less flat, and, with the exception of the Mulberry grove, somewhat formal. Ascending to the battlements of the western wall, he sees the land fall abruptly to the westward, the castle being, in fact, built on the edge of a steep valley, which runs up from the neighbouring Ely River. Its steep side has been formed into a series of terraces, this being almost the only method possible of treating it, unless indeed an immense rockery—a veritable piece of mountain side—had been constructed. In some recent extensions at the head of the ravine this idea was discussed, but was finally discarded, and the terraces have been continued for a distance almost as great as the original length. The top and highest wall has some large Fig trees on it, and at its northern end is a square look-out tower; stone steps lead from terrace to terrace,

but the descent may be made by sloping walks at the northern end of the terraces or by a long flight of stone steps on the south. Half-way down, the beautiful stone figures of two musicians standing conspicuously on the parapets of the terrace wall, are playing for ever to the valley below. The terrace walls are covered with climbers—Akebia quinata, many beautiful Honeysuckles, and others. One slope is left as a grass bank, from which spring bold groups of German Iris and sprays of Wichuraiana Roses. At the bottom are four fish ponds, which are planted with Water-Lilies and divided by level grass. Chains of Roses supported on pillars run alongside the water's edge. These terraces and ponds were designed and laid out by the Earl of Plymouth's father. The photograph (see Supplementary Illustration), taken from the bottom, shows how clearly and beautifully chimneys, gables, terrace walls, and statuary appear in the placid depths of the pools; while the illustrations taken from the musicians' terrace (figs. 77 and 79) show the long afternoon shadows creeping over the upper part of the glade. Some attempt has been made to ornament the banks of the stream which feeds the ponds with natural stonework, and it is intended to form a rockery some day, to which a more delightful setting could hardly be desired. The stream divides and flows around an island, and the great blocks of dolomitic conglomerate of the sort known locally as "Radyr stone" are sufficient to suggest how fine an effect may be accomplished. This fine stone may be seen in many of the local railway bridges—(Templemeads Station, Bristol, is built of it). It is very effective, the lines of stratification being easily imitated with it, but it is hardly porous enough to be an ideal stone from a cultural point of view. Umbellularia californica (Californian Sassafras) has wintered out on these terrace walls; it possesses an odour of camphor, and in its native home makes a useful timber tree, and grows to a height of 100 feet. Jasminum primulinum does well, and a later Jasmine called J. Wallacianum was in full flower in June, following J. primulinum most opportunely. Schizophragma hydrangeoides is climbing an Ash in the orchard. The new terraces are in a somewhat unfinished condition, but many good shrubs already adorn the walls. Eriobotrya japonica (syn. Photinia japonica—"Japanese Medlar" or "Loquat"), and the Chinese species, P. serrulata, are already fine specimens. Buddleia Colvilei, with its red Pentstemon-like flowers, is 15 feet up, and I noticed a good specimen of Indigofera. At the bottom another pond has been constructed, and, in place of stone, two walls of Cupressus macrocarpa flank the western side. The other side of the valley is wooded, and at the fringe by the pools a group of Gunneras is situated. Polygonum cuspidatum also sends up its ornamental leaves. The wood contains some fine Tulip trees and Scotch and Austrian Pine; Cedars, Beech, and Ilex of fine stature clothe the slope; above and below are open grass walks, and near the top is a maze—of not very intricate design.

Beyond this about 100 acres of park have been recently taken in to form a new kitchen garden, a French garden, more tennis courts, and some very interesting experimental plantations of forest trees. A public footway intervenes, so that a subway leads to these new grounds. Beech, Oak, Ash, Spanish Chestnut, Tulip trees, and wild Cherry have been planted in woods separated by broad rides, which will make for the generations to come a miniature forest quite close to this fine old home. *Caltha.*

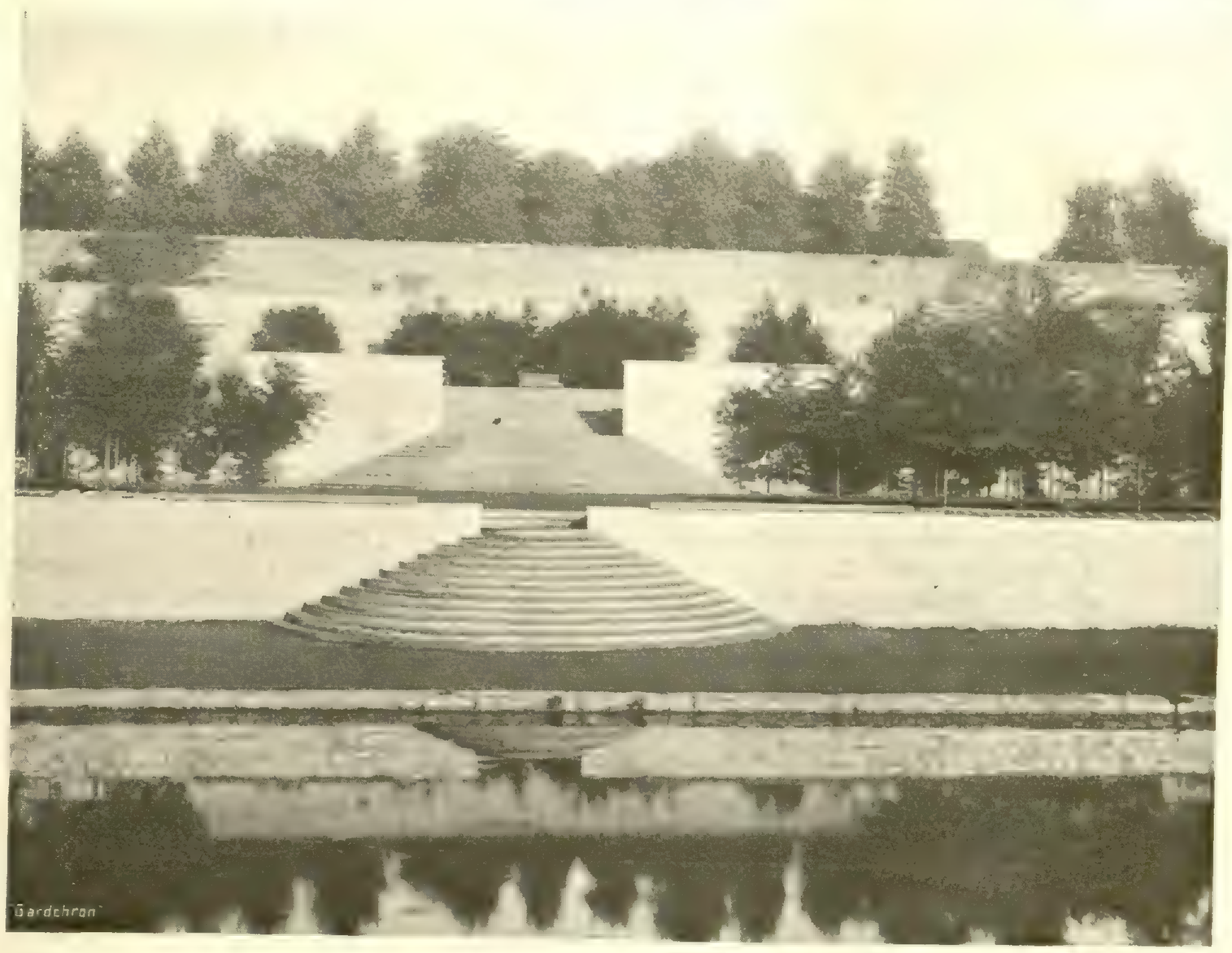


FIG. 79.—ST. FAGAN'S CASTLE: THE NEW TERRACES.

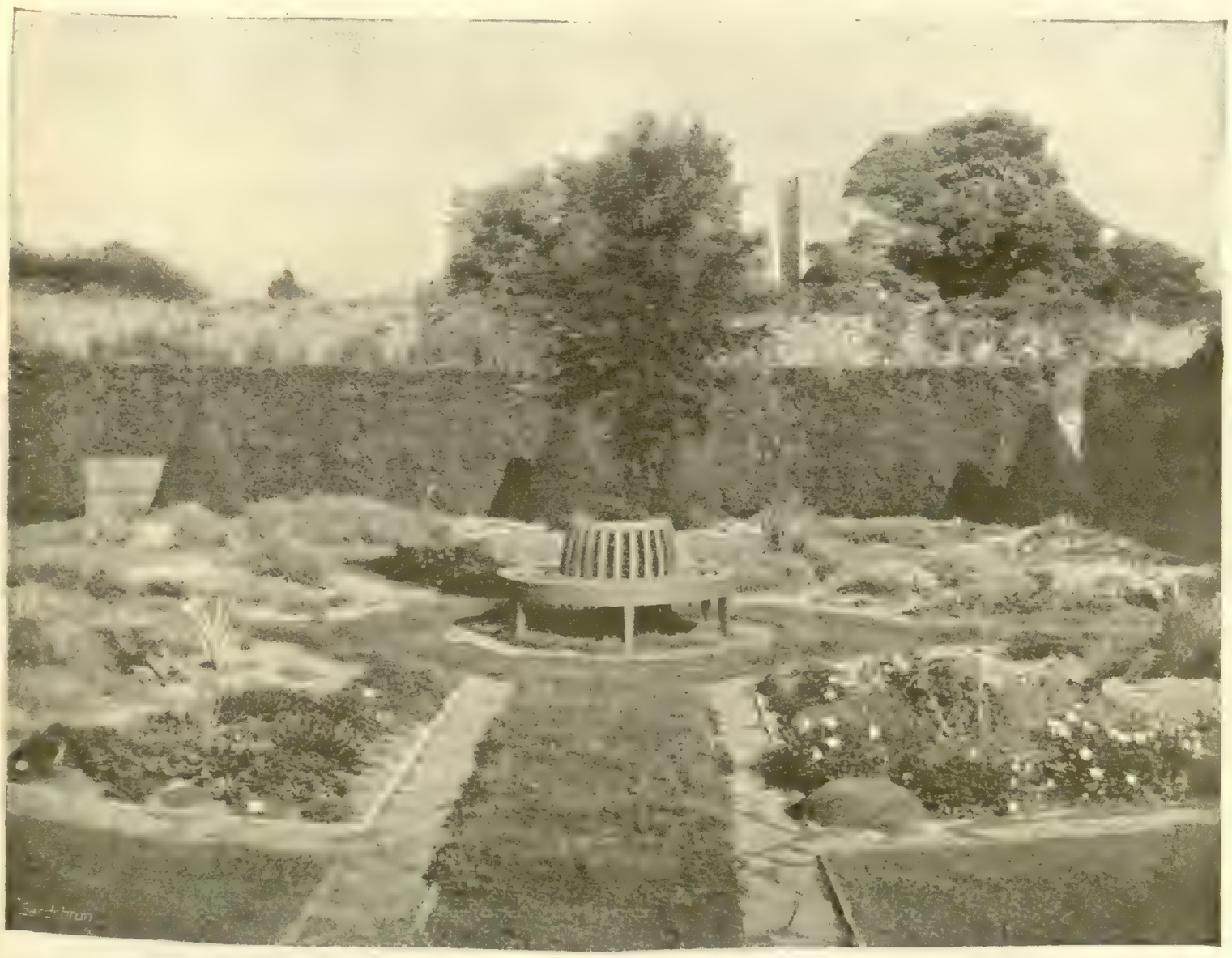


FIG. 78.—ST. FAGAN'S CASTLE: AN ENCLOSED GARDEN WITH FLAG-STONED PATHS.

THE BULB GARDEN.

HIGH PRICES FOR GLADIOLI.

GLADIOLUS "Glory of Noordwijk," raised by Mr. Alkemade, of Noordwijk, in Holland, in 1909, is a pure yellow variety. Mr. Alkemade found occasion recently to sell his stock, and the price realised was 20,000 guilders. A "guilder" is worth about 1s. 8d. in English currency. The whole stock of corms weighed only a little over a kilo. (1 kilo. equals 40 ounces). A few weeks ago, 20 young corms (kralen) of the same variety sold for 500 guilders.

At a recent sale at Beverwiyk, one corm of Gladiolus "Meteor," raised by Mr. J. B. Bos, of Overween, was sold for 89 guilders.

NARCISSUS FOR FORCING.

AT present, Narcissus Golden Spur, raised in Holland, on the Backershegon Estate, near the Hague, is largely employed for forcing. Dutch growers are now of opinion, however, that the English-raised variety King Alfred is far better for the purpose, and it will shortly supersede Golden Spur. The two varieties were shown together a short time back at the Beverwiyk Exhibition, and it was evident that King Alfred was the better sort.

HYACINTH PAUL KRUGER.

THIS variety is the result of a cross between Czar Peter and La Grandesse, and was raised by Mr. J. Beumer, at Hessenheim, in Holland. It is an extremely fine flower, beautifully formed, and of a clear porcelain-blue colour. *G. P. Posthumus.*

VEGETABLES.

CAULIFLOWERS.

IT is usual, when sowing seeds of Cauliflowers in boxes, to use a compost in which leaf-mould largely predominates. Although I have used such a compost, I consider it a wrong practice, and from practical experience I have reason to believe that a too free use of this material in the soil for seeds and seedling Cauliflowers encourages fungous diseases.

To obtain clean, healthy plants from sowings made in February and March, the seeds should be sown in well-drained boxes, using a compost composed of three parts chopped turfy loam, passed through a half-inch sieve, and one part rough sand. The compost should be pressed firmly with a flat piece of board before the seeds are sown, thinly covering them with the finer soil of the compost till they are just hidden.

When the seedlings are large enough to handle they may be pricked out into boxes, having a depth of 6 inches, and filled with the same kind of soil as recommended for the seeds. When planting out permanently, lift the plants out of the boxes with as much of the soil adhering to the roots as possible, and plant with a trowel in ground which has been previously well prepared.

It is the general practice to apply nitrate of soda only when the plants are forming their inflorescences, under the belief that to apply it sooner would favour the development of leaf at the expense of flower. But I have always had the best results when nitrate of soda has been applied the first month after planting out permanently, the fertiliser being sprinkled around the plants thinly once a week, and hoed in the ground immediately afterwards. *Thos. Francis, Harrow Road, Warlingham, Surrey.*

LAWN SANDS.

UNDER this name, a great variety of proprietary and other materials are sold, having for their object such remedial purposes as the removal of worms, the killing of insects and grubs (to use popular names), deterrent actions on certain common weeds, and, finally, the general improvement of the grass of the lawn. All these actions are often modified in practice, but the materials are still of sufficient practical use to warrant a few brief notes on some of the most important and easily used and made.

The removal of worms can hardly be considered advantageous to the lawn, apart from the suppression of the unsightly worm casts. In fact, Darwin very clearly demonstrated that worms were not only splendid natural drainers and aerators of the soil, but that, in their casts, they brought to the surface enough fine earth every five years to give a coating 1 inch in thickness. What is, perhaps, of more importance is that the earth so brought to the surface is passed through their bodies, and so exposed to their processes of digestion. Certain of the digestive fluids being acid in character, the inorganic particles of the soil are rendered more available to the plant. As regards the nitrogen in the organic matter, this is rendered more susceptible to the processes of putrefaction and nitrification. Worms are, however, credited with increasing the rate at which the lime is exhausted. Of the materials used for the removal of worms, quicklime and corrosive sublimate are most common. The former is usually slacked, and then treated with soft water in a tub, so as to dissolve as much as possible. Solution is aided by a little sugar. After being allowed to settle, the clear lime water contains about one-tenth per cent. of calcium hydroxide. This, watered on the lawn, will cause the worms to come to the surface, when they can be swept off. Corrosive sublimate (mercuric chloride) is sold dissolved in water, to which some salt has been added, and also various colouring materials. This solution is diluted according to the instructions, and watered on the lawn, where it acts as a poison on the worms. Users must be very careful, as the solution is highly poisonous; it also corrodes buckets, water cans, and nearly all metals not very thoroughly protected by paint. A useful solution for home use can be made by dissolving 1 ounce corrosive sublimate and 2 ounces salt in 10 to 15 gallons of soft water. This should be applied sparingly to the lawn with a can. Care should be taken to keep all domestic animals off the area, while fowls and game should not be allowed to pick up the worms or eat the grass.

To kill insects and grubs (using these terms in their popular sense) many volatile materials are used. One of the most common and effective is crude naphthaline. This is mixed with sand in varying proportions, a sample recently examined having over 50 per cent. of naphthaline. For sand a common substitute is flue dust or grit, obtained from the back of gas retorts, and at the bottom of smoke shafts. The flue dust obtained from slow-combustion furnaces often contains coal products, which are in themselves inimical to insect life.

Regarding the destruction of weeds, we can only now deal with a few of the most persistent and disfiguring ones. Thus Plantains of all kinds are very much weakened, if not entirely killed, by applications of sulphate of ammonia. This nitrogenous manure, at the same time, stimulates the grass, so that it will overrun the Plantain. Sands containing 10 to 50 per cent. of this material are on the market for this purpose. To these is often added 2 to 5 per cent. of sulphate of iron, to kill Dandelions. Its effect varies greatly with the soil, rainfall, and amount of sunshine, and, as yet, its action is not understood. The leaves are killed, but this does not appear sufficient to rid the lawn of Dandelions. In America, spraying with sulphate of iron has been tried with very varying results. Thus, in the North Dakota, Iowa, Ohio, and Colorado experiments, a solution containing 1¼ to 1½ lb. per gallon, applied at the rate of 50 to 60 gallons per acre, by means of a knapsack sprayer, gave very favourable results. The treatment was repeated every four to six weeks throughout the season, and by the end all Dandelions had disappeared. On the other hand, similar trials carried out at the New York Agricultural Experimental Station during the past two seasons have failed. In fact, before the conclusion of the second season, spraying had to be discontinued, as the grass, chiefly Poa pratensis, was being killed. The treatment certainly killed the leaves, but fresh ones grew again lower down the root, and though eight to ten sprayings certainly weakened the plant, it was by no means killed. In some parts, Thistles are troublesome, perhaps more in the field than on lawns, and a remedy which has proved successful in many cases is kainit. This crude potash manure should be applied in the spring, when the Thistle begins to grow, a pinch being placed in the heart of each plant. From the experiments so far reported, such treatment killed the plant within a week, and none of its roots came up the next season. With large areas, the method is somewhat tedious; but it has been found more effective than a general broadcast dressing, which, for manurial purposes, is best applied in the autumn, at the rate of 4 cwt. per acre.

The remaining lawn sands are mostly more or less complete manures, designed for spring and early summer application; that is, for use when everybody begins to pay attention to the garden. This being the case, they are compounded of the most available manures, so that the results shall be apparent in a night, as it were, otherwise they would be thought by many users to be ineffective. A sample recently examined was mainly composed of dissolved bone, sulphate of potash, sulphate of ammonia, and nitrate of soda, mixed with about 50 per cent. of sand. By some, the sand may be considered useless, but it serves at least three very useful purposes, namely, to minimise the burning effect of many of the manures, to make the preparation pleasant to apply, and, finally, to assist in keeping the surface from becoming hard during the summer heat. This last property is most important on heavy soils, as it tends to make a thin layer of the surface soil into a mulch, by which much loss of water is prevented. As a rule,

FIG. 80.—ST. FAGAN'S CASTLE: VIEW ON THE TERRACE.

(See p. 181.)

lawn sands can be easily and economically compounded from the raw materials, and the following is a dilute one for home use :—Sand, 67 lbs.; sulphate of ammonia, 7 lbs.; nitrate of soda, 7 lbs.; superphosphate, 21 lbs.; sulphate of potash, 7 lbs.; and sulphate of iron, 3 lbs. Apply at the rate of about 5 cwt. per acre, that is, 5 lbs. per 40 square yards, between the end of March and the middle of May, according to season. If the soil is on the light side the proportion of sand can be reduced to one-half, and its place taken by some heavy loam, or very thoroughly-decomposed organic matter. It must be remembered that such dressings can only be considered as of a temporary or stimulative nature, and should not be allowed to interfere with the general upkeep of the lawn. *J. W. Tayleur, Theale, Berks.*

NOTICES OF BOOKS.

The Cultivation of Hardy Vines.

*Vine Growing in England** is the title of a treatise, which, instead of treating of the subject of vine-growing as a whole, deals only with the cultivation of the vine in the open air. The author appears to have made the subject of open air vineyards a hobby, and the book is rich in quotations from writers of bygone times.

The author opens with the following quotation from William Speechly, which forms a fairly true keynote to the remaining pages of the book :—

> Of all the numerous sorts of fruit indulgent Nature produces for the use of man, that of the Grape must be esteemed her noblest gift; for although the various others not only affords comfort, but many of them even contribute to the luxury of the human race, yet none of them tend so eminently as does this fruit "to glad the heart." Hail, then, precious vine! let me modestly presume to treat thy culture and to set forth thy virtues, a theme worthy of the immortal gods! Oh may thy superior excellences everlastingly inspire man with duty and with unfeigned gratitude to the all bounteous Giver.

Many practical vine growers will be surprised at the author's opinion as to the success of vines in poor soil. Thus, on p. 25, the author remarks :—

> I do not see why land suitable for vineyards should anywhere be valued at more than five shillings an acre. The reason for this is that, so far as I know, no other crop in such poor or barren land could be cultivated successfully at a higher rent.

In dealing with what he describes as the "decline" of our English climate he quotes—and apparently agrees with—statements made by a Mr. Williams, of Hereford, who wrote in 1804 upon the subject of the climate of Great Britain. Among other things blamed by this person for causing the decline in the character of the English climate was the introduction of an excessive number of alien trees into our woodlands! The writer of *Vine Growing in England* goes on to say (p. 28) :—

> The trees Williams forbids are the Walnut, the Chestnut, the Horse Chestnut, and the Poplar. I should add the Plane and the Sycamore, except for street shading, as in London.

Tree lovers must certainly feel thankful that at present there are no censors of trees. Notwithstanding the supposed inimical effects of these alien trees, Mr. Tod has evidently a very high opinion of our climate as a whole, for he takes it for granted that vines growing in the open will produce and ripen a crop of fruit regularly every year. So assured is he that he lays down a hard and fast rule that a sabbatical year must be observed when the vines must be prevented from bearing any fruit, so as to add to their life and fertility. So far as our experience goes, the rule is valueless, for we have found that in vine culture out-of-doors, for every fruitful year there have been two or three fruitless ones.

Those who take an interest in the culture of Grape vines in the open will find helpful hints in this book. *P. C.*

* By H. M. Tod. (Chatto & Windus.) 1s. net.

THE NATURE OF PARASITIC FUNGI.

THEIR INFLUENCE UPON THE HOST PLANT.

By far the largest number of fungi causing plant diseases are of microscopic character, hence I will confine my remarks exclusively to this large group. Many of the microscopic forms of fungi which we may find on dead plants and parts of plants have appeared like moulds on clothing, wall paper, bread, &c., i.e., they have not been responsible for the death of the plant. These fungi have been designated as saprophytes, and are, by their mode of life, distinguished from parasitic fungi, which are capable not only of attacking living plant tissues, but also of maintaining themselves from the food manufactured by the attacked plant for its own use, which partnership frequently results, as no doubt the reader has had the misfortune to experience, in the partial or complete destruction of the host plant.

I do not desire to attach much importance to this separation of fungi into saprophytes and parasites. Our experience has repeatedly shown that fungi may live part of their life according to the one or other mode referred to.

For the purpose of my article, it is unnecessary to refer in any greater length to saprophytic fungi.

Microscopic fungi, as the name indicates, are extremely minute organisms, whose study necessitates a more or less powerful microscope. Yet, notwithstanding the minuteness of these objects, some are of a decidedly complicated structure. The use of a microscope serves to reveal a vegetative and a generative portion in each of these individuals.

The vegetative part of fungi is analogous, in a certain degree, to the roots, stem, branches, and leaves of higher organised plants, inasmuch, at any rate, as the vegetative parts of a fungus are responsible for the taking up of food required for its own use. The vegetative portions of fungi consist of very fine, branched more or less, long, transparent or coloured tubes, which may be likened to a human hair or fine capillary glass tubes. These tubes are technically known as vegetative hyphæ. They are exceedingly small, measuring often less than a two-thousandth part of an inch in breadth, while their length may vary from a 25th of an inch to large dense masses covering whole parts of plants. The contents of these tubes consist of protoplasm, which is, in many cases, partitioned off by means of small separating walls or septa. The hyphæ may develop within the tissues of plants, or cover their surface; collectively, they are spoken of as the mycelium.

As soon as the vegetative part of a fungus has had time to undergo a certain development or growth, the generative portion is produced. This consists of the reproductive organs or fructifications, which may be of very diverse construction, but which, like the seeds in flowering plants, serve the purpose of reproduction.

Reproduction of fungi is effected by spores, which, when ripe, leave the parent plant in various ways, and which are capable of growing independently into new plants.

The sexual development of fungus spores, similarly to the seeds of higher plants, is accurately known in comparatively few instances. It is generally accepted that most fungus spores are produced asexually, that is, without egg and sperm cells. The simplest form of spore is that known as conidiospores or conidia. Conidia are produced by the rising up from the mycelium of a number of erect hyphæ, all of which produce at their tips a single spore or a series of spores. These spore-bearing branches are known as conidiophores. They may rise free into the air, or they may be produced in separate chambers, protected by a hardened membrane, which bodies are termed Pycnidia. Frequently the conidiophores branch, and each branch segments itself into successive spores. This is the case, for instance, in the fungus causing the common Potato disease Phytophthora infestans. In other fungi, the production of spores does not take place by this act of segmentation, but the contents of the hyphæ itself forms into generally spherical spores. In this way certain smut spores of grain are produced.

A very common method of spore production consists in the formation of small sac-like organs, technically termed asci. These are much broader than the hyphæ, and are generally club-shaped. Each ascus contains from two to eight spores, often more, but always an even number. The spores produced in this manner are known as ascospores, and the group of fungi endowed with this method of reproduction is known as Ascomycetes. These forms of fungi are again subdivided according to the number of spores in each ascus, and the manner in which the asci are produced, which may be singly, as in the Peach leaf curl fungus, or in flat or rounded discs, as in the Larch canker fungus, or in fruiting bodies similar to the pycnidia, but here termed perithecia. These conditions of spore production may become still more complicated, as one species may produce several kinds and crops of spores.

The spores of microscopic fungi differ greatly in size and form. Their colour is more generally hyaline or transparent, but they may also be brown, grey, pink, &c. Their form varies greatly. They may be oval, round, rod-shaped, or sickle-shaped, with pointed or rounded ends. They may be single cells, or divided into two or many sections, smooth or pitted, with netlike markings or appendages. Their appearance, however, is constant in each fungus. These characters, together with the manner in which they are produced, are regarded as specific and generic distinctions, and are largely used for the purpose of classification. When ripe, the spores are shed in various ways, the conidiospores simply become detached, and are carried away by the air. Spores produced in pycnidia or perithecia may either ooze out, or be expelled with force through a hole at the apex of the fruiting bodies. Others, again, are freed by the collapse or decay of the conceptacles in which they are produced. When ripe, the spores either pass through a period of rest, as winter spores, or they immediately germinate, when they may be regarded as summer spores. Germination can only be accomplished successfully when there is sufficient moisture available. Hence we all have had the experience that some fungus diseases seem to spread readily during moist, warm weather—Apple and Pear scab, Potato disease, mildews, and others. In favourable conditions, the spores take up a large quantity of water and begin to swell, often to double their original size. The next step in germination is a rupture in the cell wall, followed by the production of a germinal hypha, which is pushed into the particular substratum, leaf, twig, &c., where it quickly begins to ramify. Just as there is great variation of fungus spores, so the germination of the various spores is likewise very different, and frequently an important factor for distinction of species. Conidiospores most generally germinate by producing directly one or more germinal tubes, which are capable of infecting plant tissues. Smut spores, however, produce first a so-called short promycelium, on which secondary and even tertiary spores may be formed which, on germination, produce the tube causing infection. The loose smut of Barley and Wheat, however, produce infection tubes directly. Similar in behaviour are the teleutospores of the rust fungi. They also produce a promycelium and secondary spores when germinating. *H. T. Güssow, Dominion Botanist, Ottawa, Canada.*

(To be continued.)

The Week's Work.

THE ORCHID HOUSES.

By J. Collier, Gardener to Sir Jeremiah Colman, Bart., Gatton Park, Surrey.

Miltonia.—Plants of Miltonia vexillaria are pushing forth flower-spikes from the partly-developed pseudo-bulbs. At this stage every precaution must be taken against attacks of thrips, which, if not kept in check, will attack the tender flower-buds, causing them to become deformed. The foliage should be syringed on bright days, which will not only keep down thrips, but also be beneficial to the growth of the plants. The syringing should be done sufficiently early in the day for the foliage to become dry before night arrives. The house should receive frequent mild fumigations with a reliable vaporising compound. The above remarks apply also to M. Roezlii and M. Bleuana, which is a hybrid between M. Roezlii and M. vexillaria. M. Roezlii should be grown in a shady part of the warmest house, but M. vexillaria and M. Bleuana should, for the present, be grown in the intermediate house. These Miltonias should be shaded at all times from bright sunshine.

Dendrobium.—Plants of Dendrobium Phalænopsis Schröderianum and its varieties are developing new growths, and any specimens that require fresh rooting materials should receive attention in this respect as soon as new roots appear at the base of the plants. The plants will grow equally well either suspended from the roof rafters or on the stage. An important detail in their culture is to place them near to the roof-glass, so that they may obtain all the light possible. If it is intended to suspend the plants, they should be placed in shallow pans, preferably those without side holes. Plants stood on the stages should be grown in pots. It is not advisable to repot those plants which were potted last season if the compost is still good, although some of the old material may be picked carefully away from between the roots and replaced with fresh compost. The receptacles should not be larger than are necessary, as the plants do not need too much rooting space. In potting, about half fill the receptacle with crocks for drainage purposes, and arrange the plant so that the growth is level with the rim of the pot, making it secure by tying the pseudo-bulbs to a neat stick. In the case of specimens in pans, the pseudo-bulbs should be secured to the wire handle. Carefully work in between the roots a mixture of three parts A1 fibre or Osmunda fibre and one part Sphagnum-moss. These materials should be cut rather short, adding some crushed crocks and a little silver sand. Pot moderately firmly, and prick in some living Sphagnum over the surface of the compost. The plants should be watered carefully until the young roots have grown well into the new compost, when water may be afforded liberally. During its season of active growth, this Orchid requires considerable heat and plenty of atmospheric moisture. When the weather is bright, overhead syringings should be afforded at least twice daily. When in full growth, the plants will require shading for about three hours during the middle of the day. There are many beautiful varieties of this species, the finer sorts including Gatton Park variety, exquisita, Miss Louisa Dean, splendens, and hololeuca. Dendrobium bigibbum and D. superbiens are closely-allied species, and require a similar treatment.

THE HARDY FRUIT GARDEN.

By F. Jordan, Gardener to Lady Nunburnholme, Warter Priory, Yorkshire.

Grafting. — Trees intended for grafting that were treated as advised in the Calendar for January 20, p. 39, should have the stems shortened to where the graft will be inserted, choosing as smooth a portion of the stock as possible. Several forms of grafting may be practised, but the simplest methods are generally the most successful. The work should be done as soon as the sap commences to rise, using scions which have been heeled in under a north wall, or shady trees, for the purpose of keeping the buds dormant. The middle portion of the scion is generally the best for the purpose. Whip or tongue grafting is a simple method, and one in much favour. It is an advantage if the stock and scion are about the same diameter; but if unequal, the scion should be placed at one side of the stock, so that the cambium layers may be in juxtaposition. Make cuts of equal sizes on both stock and scion: form tongue by slitting the stock slightly inwards about half the length of the cut surface of the stock in a downward direction, and a corresponding slit on the scion for fixing the latter on the stock. The tongue gives greater security in holding the scion in position, and promotes a speedier union. The scion should have from four to six good buds, be promptly placed on the stock as soon as it is prepared, and instantly bound firmly, but not too tightly. Exposure of the cut surfaces to wind and weather after being united militates against success, and a band of either clay or grafting wax is necessary. Grafting wax may be purchased cheaply from any nurseryman, or clay worked into a pliable state, with a little cowdung added, may be used, tying a layer of moss on larger stocks to prevent the clay from cracking. Weak stocks or any that fail when grafted may be budded later in the year: budding makes a neat and strong union.

Cleft Grafting.—This method of propagating fruit trees is not so much practised as formerly, but it is still frequently employed for grafting large trees of Cider Apples, the heads not being so liable to become damaged by strong winds. The stock is split with a large knife or chisel, and held open with a wedge until the scion is pushed in at the outside of the stock, the graft being cut in the form of a wedge. The wedge must be removed when the scion is inserted, so that the stock may close and hold the graft tightly. The latter should be cut with a shoulder that it may rest upon the stock, and this will assist in protecting the graft from the weather. Two, four or more scions may be inserted in one stock, if the latter is large enough to accommodate them.

Crown Grafting.—This method of grafting is somewhat similar to cleft grafting. Select a portion of the stock most suitable for inserting the grafts, and, preferably, cut the top in a sloping manner, so that the wet cannot remain on it. Make a slit at the highest portion of the stock, 2 or 3 inches in length, and open the edges of the bark with a budding knife. Next slice off the scion about the same length, and form a shoulder. Run the scion down behind the bark, from the top of the stock to the bottom of the slit. Bind the stock and scion together, and place a layer of wax or clay over them as before. Two or more scions may be inserted on a single stock, always taking care to see that the bark is made to join perfectly on both sides, so that the work may be successful.

PLANTS UNDER GLASS.

By Thomas Stevenson, Gardener to E. Mocatta, Esq., Woburn Place, Addlestone, Surrey.

Greenhouse Climbers.—Many greenhouse climbing plants are commencing to grow freely, and potted specimens may require larger pots. Such plants as Plumbago capensis, Habrothamnus, Swainsonia, and Bougainvillea trained on walls should have their strong shoots tied as they grow, allowing them a little more freedom of growth as the flowering season approaches. If trained on the roof, with plants on stages beneath them, the shoots should be disposed somewhat thinly to permit a fair amount of light to reach the lower plants. Climbing plants in greenhouses are, perhaps, best trained on pillars or on wires up the main rafters of the greenhouse, as in these cases they do not rob other plants of much light. The shoots may be allowed a little more freedom just before the flowering period. Whenever possible the plants should receive a good syringing to keep down insect pests, but if this is not convenient, light fumigations should be given now and again, as, once the plants become infested with aphis or any other insects, they are liable to make those beneath them unsightly.

Solanum Wendlandii may be grown either as a climber or in pots. Young shoots may be rooted now in gentle heat, potted on into 4½-inch pots, and grown fairly hardy. Specimens in pots from 18 inches to 2 feet high will produce a good truss of bloom.

Plumbago rosea.—This warm greenhouse or stove plant is very useful for furnishing a supply of bloom during the winter or early spring. The present is a suitable time for propagating a batch of plants, the young growths striking very readily if inserted in a light, sandy soil and plunged in the propagating frame. If rooted three in a pot and potted on in this way they make better plants than when grown singly. A fairly light, peaty compost suits them best. They grow very well during the summer months in a warm pit, but must be shaded a little during the hottest part of the day. The young plants should be pinched two or three times during the growing season to induce a bushy growth, but stopping must not be done late in the season or the shoots will not attain sufficient strength to produce good flowers.

Humea elegans.—Late plants of Humea elegans may still be potted on, large 32s or 24 size pots being the most suitable receptacles. To secure good specimens, the plants must be grown under fairly cool conditions and watered with great care, the roots being impatient either of an excess or deficiency of moisture, causing the foliage to quickly turn a yellow colour. To ensure inflorescences of a good colour, the plants should occupy a light and well ventilated house during the period of flowering, or they may be placed out of doors in a somewhat sheltered position, taking care to cover the pots over to prevent the soil drying too quickly.

Plants in Frames.—With the lengthening days and increasing sun heat plants in frames must be ventilated freely. This applies more especially to subjects that have been in the frames all the winter. Those that have recently been placed in frames to harden them must be ventilated with caution.

THE FLOWER GARDEN.

By J. G. Weston, Gardener to Lady Northcote, Eastwell Park, Kent.

Roses: Hybrid Perpetuals.—After this date the annual pruning of Hybrid Perpetual Roses may be carried out, pushing the work forward or delaying it, according as the locality is early or late. Roses generally are in a very forward condition, having produced shoots, in many instances, several inches long. This fact may induce some to prune too early, in which case the shoots produced after pruning will also be liable to severe injury from late frost in April and May. The pruner should possess a wide knowledge of the habits of growth of the different varieties. The first thing to do is to cut out all old and decaying wood, the next to remove weak shoots and inside growths, finally cutting back the remaining shoots. The extent of this "cutting back" must be governed by the purpose for which the Roses are grown—whether for exhibition, for garden decoration, or solely for producing large quantities of blooms. When the Roses are required for exhibition, hard pruning is necessary to produce a limited number of flowers of extra quality rather than a good quantity of average blooms. Always prune to a bud pointing outwards, as this tends to keep the middle of the bush open, and to allow the whole of the plant to benefit from the sunshine and air. As a general rule, the weaker growers should be cut fairly hard, the strong growers being left with several more buds on each growth. An old-fashioned method of dealing with very strong shoots of some varieties, and where the situation allows of it, is to bend the shoots over, pegging them down about 12 or 18 inches from the ground—retaining practically the whole of the shoot, except the unripened tip. These strong shoots, if well ripened, will flower nearly the whole length, greatly increasing the number of blooms over a given space. I have followed this practice on borders where standards were planted at intervals, with very satisfactory results. After the pruning is completed, clean up the beds and borders, and if the Rosebeds are cut out on turf, the edges should be neatly cut with the edging knife. Lightly fork over the beds, digging in any manure left on the surface as a mulch, the latter being objectionable to many people when the Roses are out. See that all labels are in their proper places, and substitute new ones in

cases where this is necessary to maintain accurate nomenclature. If the Roses are cultivated in beds for garden decoration, Violas or other low-growing plants may be grown with them, the conditions suiting Violas admirably. Care should be taken in the selection of colours, so that they do not clash.

TEAS AND HYBRID TEAS.—All protective material should be cleared away, but the pruning of these more tender Roses should be deferred till quite the end of the month or the beginning of April, the locality and climatic conditions being the best guide to the proper time. Prune them hard back, according to the variety, the best shoots usually starting from the base of the plant.

CLIMBING ROSES.—If the directions given in a former calendar were carried out, no further attention is required. In any case, these should be pruned before any others.

SOWING SEEDS OF ANNUALS.—This is an important month for seed sowing, the majority of annuals not already sown requiring immediate attention. Nemesias, Phlox Drummondii, Stocks, Asters, Verbenas, Marigolds and other kinds are best sown in boxes or pans under glass, and pricked out afterwards. By this method the delicate seedlings may be the more readily protected from birds and slugs. But many showy annuals thrive best if sown in their permanent quarters; for example, Godetias, Clarkias, Nigella, Shirley Poppies, Lavateras, Larkspurs, annual Chrysanthemums and Nasturtiums. These should be sown now that the plants may have a long season of growth.

THE KITCHEN GARDEN.

By EDWIN BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

GLOBE BEETROOT.—Where means exist make a sowing of this vegetable in a cold frame, and, preferably on a mild hot-bed. Sow the seeds in drills, drawn at about 10 inches apart and, until they germinate, keep the frame close. When sufficiently large to handle thin out the young plants to 8 or 9 inches apart, and admit fresh air on all favourable occasions: on still, warm days the lights may be removed entirely. The watering of the plants must be attended to carefully. Young roots grown in this manner are much to be preferred to those stored from last season.

BROCCOLI.—A sowing of Broccoli of a suitable variety, such as Michaelmas White, should be made at once to provide plants for an autumn supply. Sow the seed thinly in boxes, and raise the seedlings in a cool house, transferring them, when they are large enough, to a cold frame.

BRUSSELS SPROUTS. — Make a sowing of Brussels Sprouts for supplying an early crop of this vegetable in the same manner as recommended for Broccoli. Dwarf Gem is an excellent variety for sowing now, and especially suited for small gardens.

CAULIFLOWERS.—Plants of Cauliflowers that are being grown in pots, as recommended in an earlier Calendar, should have rooted freely, and may be transferred from the cold frames to a house where a night temperature of from 55° to 60° is maintained. Assist the plants by occasional applications of liquid manure. A few plants may be put out in the open in sheltered, warm positions, especially if cloches or hand-lights are available for protecting them should cold weather prevail. Boughs of Spruce Fir form suitable wind breaks. It is essential that the plants are well hardened before they are transferred to the open, and especially those raised this spring.

VEGETABLE MARROWS.—Another sowing of Vegetable Marrows should be made about this time for planting out in frames on mild hot-beds. Sow the seeds singly in small pots, and germinate them in a brisk heat. When the seedlings are large enough pot into 5 or 6-inch pots before they are planted out permanently.

SEAKALE. — An open site and ground well worked and manured should be selected for this vegetable. If the land is heavy add materials that will lighten it. At the earliest opportunity when the weather permits plant the sets in rows made at 18 inches apart, allowing 12 inches between the plants in the rows. Plant by means of a dibber.

SPINACH.—Small sowings of Spinach should be made from now onwards in the open ground to maintain a regular supply. For the earliest sowing select a sheltered position, such as between rows of early Peas. Sow the seed thinly in shallow drills. The soil should be stirred on the surface between the rows of plants of the earlier crops raised in frames, on a mild hot-bed, to promote a quick growth. Admit fresh air on all favourable occasions.

SORREL.—Maintain a supply of Sorrel, as this herb is often required for use either as a vegetable or salad. Sow seeds as soon as possible in shallow drills at a foot apart, and thin the seedlings to 6 inches apart. Plant them out later in the autumn in well-prepared ground. Old clumps may be divided and replanted. Remove the flower-spikes as they appear.

FRUITS UNDER GLASS.

By E. HARRISS, Fruit Foreman, The Royal Gardens, Windsor.

EARLY FIG TREES IN POTS. — The trees which were started into growth in December or early in January will soon be ripening their fruits, and from the present time until the actual ripening process commences the trees must be given plenty of stimulating manures. Liquid manure from the farm-yard may be alternated with a reliable artificial fertiliser, and soot-water will also be found valuable. If roots are plentiful near the surface of the soil, apply a dressing of well-decomposed cow or horse manure. Thoroughly syringe the foliage twice daily with tepid rain water, and keep the atmosphere moist by frequently damping the floors and other bare surfaces in the house. If it is desired to hasten the ripening of the fruit, the temperature at night may be raised to 65°, unless the weather is unusually cold, when 60° will be ample. The Fig, in common with most other kinds of fruit trees, is not the better for excessive forcing by artificial means. Therefore, endeavour as much as possible to do the forcing during the day, especially during fine, sunny weather. Continue to stop and regulate the young growths, thinning the shoots freely where they are becoming so thick as to prevent light and air from reaching the fruits. When the fruits are actually ripening, syringing must be discontinued and the atmosphere kept less damp. Plenty of air must also be admitted at that stage, using both top and bottom ventilators during warm, genial weather, and leaving the ventilators open a little during the night.

FIG TREES IN BORDERS.—Established trees which have their roots confined in shallow and restricted borders will need careful attention in regard to watering. When water is necessary, take care that sufficient is given to thoroughly soak the soil. Trees carrying full crops of fruit must be given plenty of stimulants, especially toward the final stages of development. Such trees will be greatly assisted by a good surface dressing of rich, well-rotted farm-yard manure. Stop the shoots regularly at the fourth or fifth leaf, and liberally thin out the growths where they are too numerous. Weak, unfruitful branches may be removed or cut hard back, with a view to getting fresh shoots from the base. If the trees are heavily cropped with fruits, these may be thinned, but it is wise in the case of the first crop not to hasten unduly in this matter, as the least check to the trees will often cause a great many of the fruits to fall. The second crop must be thinned liberally, or the fruits will be useless. The foliage must be syringed during fine weather, paying particular attention to the underside of the leaves, in order to keep the trees free from red-spider. Should the leaves become affected with this pest, they must be sponged with a weak solution of soft soap and sulphur. Ventilate the house freely during favourable weather, but prevent cold draughts by every means possible. Close the houses early in the afternoon after syringing the trees.

VINE "EYES." — When the roots of these recently-propagated plants have reached the sides of the pots the young plants must be shifted into larger pots. Six-inch pots will be suitable for most of the plants, and the compost may consist chiefly of fibrous loam mixed with a little mortar-rubble and crushed bones. This compost should be placed in a heated structure to get thoroughly warm before it is used, and the potting should be done in the house where the vines are growing. The plants must again be plunged in a moderately-warm hot-bed. The minimum temperature of the house should not be less than 65°. Damp the walls and paths frequently and syringe the plants twice daily. Ventilate the house carefully in the forenoon, closing it again after syringing early in the afternoon. Watering must be done very carefully until the roots penetrate the new soil. Give the plants another shift as soon as they are ready.

THE FRENCH GARDEN.

By PAUL AQUATIAS.

HOT-BEDS.—The continued damp weather has involved extra labour in keeping the crops on hot-beds clean and healthy, as decayed leaves have been very prevalent, especially on Lettuce and Radish plants. The beds intended for the sowing of Turnips are now at liberty, the Lettuces having been marketed. The soil in the frames should be stirred and made level with the rake. Seeds of the variety Half Long White or Early Flat Red-top may be sown. 10 rows in every light, 11 lots of 3 seeds each being inserted in each row. As soon as the cotyledons appear, ventilation should be given on every possible occasion. Light waterings will be beneficial during bright weather, and help to keep down aphis. This crop has always been a remunerative one, especially where attention is given to the ventilation and watering of the plants as success is only assured when they are grown without a check. As the frames intended for forcing Strawberries become vacant, after the Lettuces are cut the Strawberry pots should be plunged up to the rims, 90 plants per frame. The lights should be kept closed except on very bright days till the trusses appear, and no watering is necessary beyond a spraying of the new leaves on fine days, as it is essential to keep the plants moderately dry whilst the foliage is expanding.

CROPS ON BEDS UNDER CLOCHES. — The crop of Cabbage Lettuces will be ready for marketing in a few days, and should be marketed without delay to afford more room to the Cos Lettuces, which are now filling the cloches. After the dull weather experienced recently attention must be given to the shading of the plants on sunny days, spreading mats over the glasses from 11 a.m. till 2 p.m. It is too early to whiten the glasses with lime.

UNHEATED FRAMES. — These are now producing the only Radishes available. The Lettuces are exceedingly fine, especially the variety Little Gott, White Seed, an excellent strain for this class of work. The variety Passion requires ample ventilation day and night, and the lights may be removed entirely in the day time, when the weather is fine, and replaced at night.

NURSERY BEDS.—Plants of the first batch of Melons are ready for stopping by cutting the main stem across the base of the petiole of the third leaf. The cotyledons should also be removed close to the stem. The last sowing of Melons is now made to produce plants for fruiting early in September. The Tomato plants are ready to be pricked out on a mild hot-bed. Here, the frames are filled with 4 or 5 inches of good loam, and when the soil is warmed, the seedlings are set 650 to 700 plants in every frame. The lights must be kept closed and shaded when necessary till the plants are well established. Seeds of Celery Long Winter Green should be inserted in boxes or sown broadcast on a mild hot-bed. We prefer this variety to the white or self-bleaching strains for old manure beds, as the plants are more vigorous, and not so liable to disease. Further sowings will be made weekly till the end of April for the yearly supply. Celeriac, when grown, is sown very early to provide plants for planting as early as possible.

OPEN-AIR CROPS.—The first heads of Spring Cabbages have been cut, though the bulk will not be ready until early in April. Spinach sown in the autumn is growing well, but unfortunately there are many bare places in the batch, owing to the damp weather. Early plants of Cos and Cabbage Lettuces are well established, and Cauliflowers will be set between them at intervals of 18 inches. Further sowings of Radish and Spinach may be made weekly where there is a demand for this class of produce, either in ground by themselves or amongst other crops.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, *as well as specimens of plants for naming, should be addressed to the* **EDITORS, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Special Notice to Correspondents.—*The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.*

Local News.—*Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Illustrations.—*The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens or of remarkable plants, flowers, trees, &c., but they cannot be responsible for loss or injury.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.*

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, MARCH 26—
Bournemouth Spring Fl. Sh. (2 days).

WEDNESDAY, MARCH 27—
Roy. Hort. Soc. General Exam. Liverpool Hort. Assoc. Sh. (2 days). Roy. Botanic Soc. meet.

THURSDAY, MARCH 28—
Torquay Dist. Gard. Assoc. Spring Fl. Sh.

SATURDAY, MARCH 30—
Soc. Française d'Hort. de Londres Ann. Dinner.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—43·8°.

ACTUAL TEMPERATURES:—

LONDON.—*Wednesday, March 20* (6 P.M.): Max. 47°; Min. 35°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—*Thursday, March 21* (10 A.M.): Bar. 29·0°; Temp. 53°; *Weather*—Dull.

PROVINCES.—*Wednesday, March 20:* Max 45° Ireland S.W.; Min. 34° Scotland, N.

SALES FOR THE ENSUING WEEK.

MONDAY AND WEDNESDAY—
Rose Trees, Fruit Trees, Perennials, Liliums, Trained Bay Trees, Palms, &c., at 12.30, at Stevens's Auction Rooms, 38, King Street, Covent Garden, London.

MONDAY AND FRIDAY—
Perennials and Herbaceous Plants, Hardy Bulbs, &c., at 12; Roses and Fruit Trees at 1.30, at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

WEDNESDAY—
Japanese Lilies and Hardy Bulbs, Herbaceous and Border Plants, at 12; Roses and Fruit Trees, at 1.30; Palms and Plants at 5; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

THURSDAY AND FRIDAY—
The "Oakdene" collection of Orchids, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 1.

The Evolution of Primula obconica.

There exists in the whole range of horticultural science no more fascinating problem than that of the course and mode of evolution of florists' flowers. The brilliant results of the florists' art are patent in every garden, but the causes which underlie the production of improved strains are secret and unknown alike to the florist and to the man of science.

An understanding of the causes which lead to the amelioration of cultivated plants is rendered the more difficult in the case of many species by the complications due to cross-breeding; but even in the case of those plants which are free from the suspicion of being hybrids, we have no sure knowledge of the causes of the variations which provide the starting-point for the florists' work of improvement. To attribute the new forms to selection is only to state a method and not to discover a cause. All the florist means by selection is the picking out of forms which have a new and desirable quality and breeding from those forms till that quality is fixed and, it may be, made more apparent.

Hence it is that even with such plants as P. sinensis, which, by common consent, is regarded as a pure species, we have no certain knowledge of the nature of the internal changes which express themselves in enhanced beauty and size of flower, greater vigour, changed shape and colour of leaf; in short, in an almost infinite variety of ways.

We may therefore leave aside for the time being any attempt to unravel the skein of causes at work in the production of new forms from old, and devote ourselves, in the present instance, to a consideration of the course of evolution in a particular plant. The example which we choose is that of P. obconica, the history of which has been traced in a singularly able manner by Mr. A. W. Hill (assistant director Royal Botanic Gardens, Kew), in the current number of the *Journal of Genetics*.

Except in one particular, P. obconica is an ideal subject for historical research. Its annals are short, though by no means simple. The order of evolutionary events which P. obconica has undergone during its 33 years cultivation in Europe are not obscured by the mists of time. The men are still alive who have raised from the somewhat stiff, small, pale-lilac, yellow-eyed flower the large-flowered and brilliantly-coloured strains of the present day. They have taken out the yellow eye and replaced it by a rosy or magenta centre; they have doubled the size of the petals and frayed out their edges; they have produced pure-white forms, and races with rose, carmine, and violet-blue flowers; in short, they have changed it in almost every particular, except with respect to its objectionable skin-irritating hairs.

As appears to have been the case with Primula sinensis and with other plants, P. obconica was somewhat shy of change when first introduced. For some years after Maries, whilst collecting for Messrs. Veitch, brought the chance seed in earth from China in 1879, P. obconica clung to its modest lilac-yellow-eyed habit of flower. Then in 1886 white forms appeared in the Royal Botanic Garden, Edinburgh, and in the following years—as chronicled by Mr. Richard Dean in these pages—a slight purple appeared round the eye. Messrs. Vilmorin obtained a pure-white, large-flowered strain in 1896, and it is noteworthy that this form, like others raised previously, possessed fimbriated instead of notched petals. Rose-pink forms were fixed as early as 1896, in which year Messrs. Sutton exhibited them at a meeting of the R.H.S. Mr. Ware also in the same year obtained flowers of a "warm, rose tint." In 1903 Vesuve, a red variety, was produced by Messrs. Rivoire, and in 1904 Messrs. Barr exhibited a deep lilac-crimson named Crimson King.

Mr. Dickson, head gardener to the Duchess of Bedford, has contributed notably to the extension of the colour range in P. obconica, by producing first a small blue variety (1904) and then in 1906 a larger-flowered blue.

In addition to the characters which we have enumerated—flower-colour, size, and shape—P. obconica has sported also into the inevitable double. The first example of doubling appeared with Messrs. Vilmorin in 1901, and, curiously enough, has not as yet occurred elsewhere, though it may be predicted with confidence that it will.

With respect to the vexed question of the purity or hybridity of the "species" Primula obconica, Mr. Hill adopts a cautious attitude. That P. obconica is not a hybrid in the ordinary sense seems perfectly clear. No matter what be the other species of Primula used for hybridising, the offspring, if any are obtained, are pure P. obconica. Nevertheless, as Mr. Hill points out, this fact does not preclude the possibility of foreign pollen producing some effect; for example, of both stimulating the egg cells of P. obconica to develop and of passing into those egg cells substances which may modify the course of development of the "parthenogenetic" eggs. This hypothesis of a "semi-parthenogenesis" is not to be dismissed lightly; nor is it to be accepted till more evidence is forthcoming. Students of genetics are now busy with P. obconica, and we hope that success, equal to that which has fallen to the florists in improving the species, may attend their efforts to discover the causes which have admitted of that improvement.

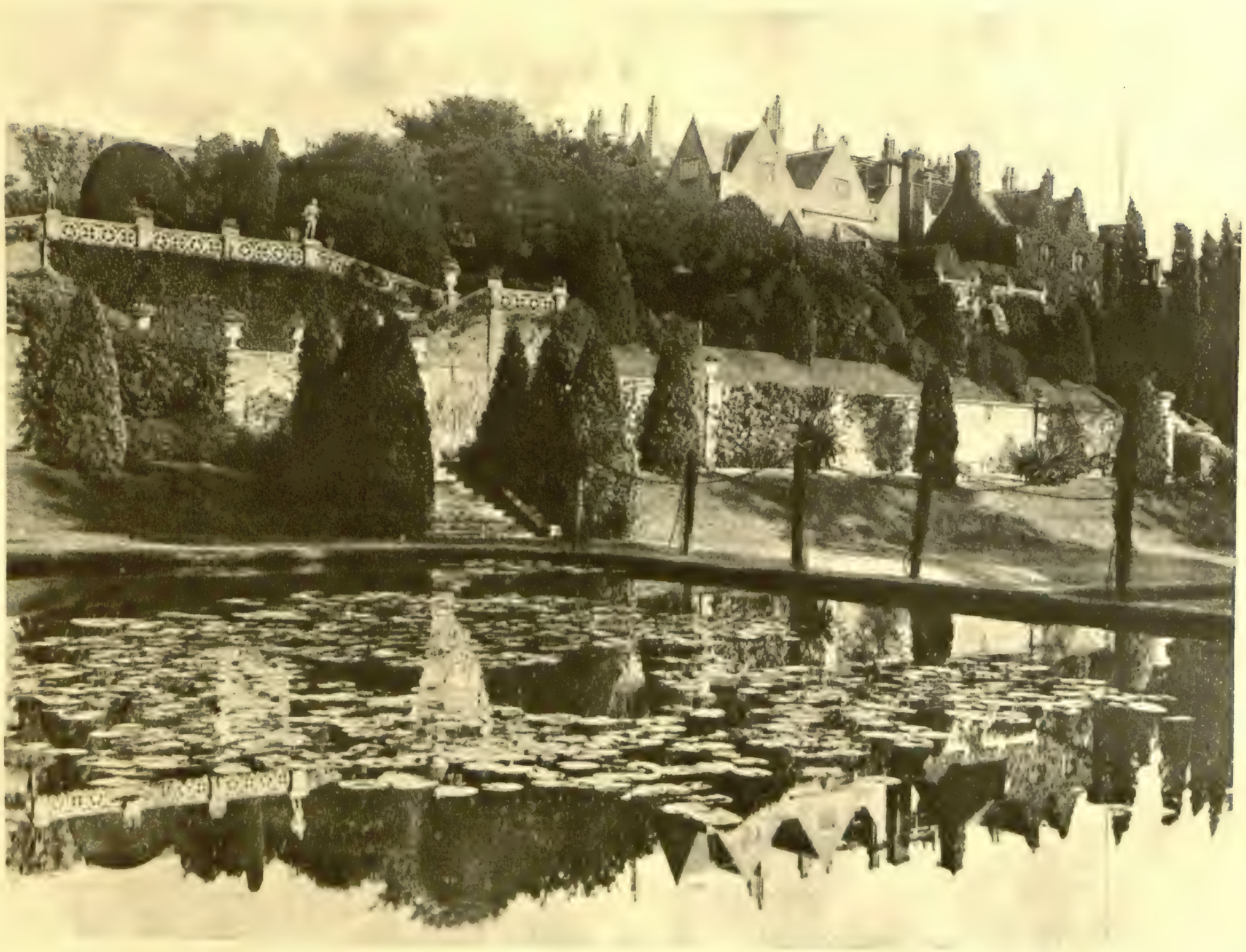
We recommend all who are interested in the subject of the evolution of florists' flowers to read Mr. Hill's excellent paper, and we suggest to the editors of the *Journal of Genetics* the advisability of reprinting the article separately, possibly without the plates, in order that it may be available to many horticulturists who are not in a position to subscribe to the *Journal*.

The Deterioration of Golf Links.

It is a melancholy fact that not a few inland golf links show, after a few years use, marked deterioration. The way through the greens comes to support a ranker grass, with the consequence that balls, even when driven into the middle of the fairway, lie close and badly. Not unnaturally, the average player makes the most of the real grievance that his good shots are punished. But worse remains to be said. Worms seem to multiply even faster than links themselves, and there can be no two opinions of the disastrous effects which they produce. It is no consolation to the golfer to be told of the beneficent work of worms in improving soil. The golfer has no use for improved soil—except on the greens. What he recognises is that the greasy casts spoil the game during the winter and spring months and also make the links unsightly.

There seems to be little doubt that the deterioration of many inland links is to be attributed to the consolidating effect produced by the tramp of the golfing legions: occasionally it is emphasised by the injudicious use of artificial fertilisers.

The remedy in the case of "heavy going"—apart from drainage—consists in the unsparing, though judicious use of gritty material. Sand, of course, is to be used whenever it is available and after an experienced person has determined, either by feel or by microscopic



St. Fagan's Castle, the Welsh Residence of the Earl of Plymouth.

examination, that its particles are coarse and sharp-angled. Failing sand, or supplementing it, cinders, crushed breeze, and the like should be employed through the greens. If a crusade against worms is undertaken, it must be carried on in no half-hearted manner and not without previously counting the cost. That the worms may be killed out is certain, but the cost is a serious consideration, and the operation must be repeated every year or two.

On the whole, we think that it will be found more profitable to attempt to ameliorate the physical conditions of the soil; to make it less worth while as a place of residence for worms and, in consequence, more worth the while of the long-suffering player over inland courses.

"Botanical Magazine." — The issue for March contains illustrations and descriptions of the following plants:—

Brunfelsia undulata, tab. 8422.—This is an old-garden plant, a native of Jamaica, having been introduced to this country about a century ago. In some gardens it is grown under the name of Portlandia grandiflora, also a West Indian plant, but with opposite leaves. The inflorescence of the Brunfelsia is extremely handsome, forming clusters of large white flowers at the ends of the branches. B. undulata differs from most of its congeners in having a cup-shaped calyx, and very short, obtuse lobes, a distinction which is shared by B. americana, from which it is distinguished by the leaves tapering at both ends, those in B. americana being obtuse. The plant requires a warm house and grows best in a loamy soil.

Syringa Julianæ, tab. 8423.—This species has been confused with S. villosa, Vahl., and the specimens from which the *Botanical Magazine* figure was prepared, were received at Kew from Messrs. James Veitch & Sons, under that name. Seeds were sent from Western China by Mr. E. H. Wilson in 1901, and plants were raised in the Coombe Wood Nursery. S. Julianæ forms a moderately-sized bush, flowering at the end of May and in June. The blossoms are a purplish-lilac colour and fragrant.

Dombeya calantha, tab. 8424.—This plant is an erect shrub, growing about 12 feet high, and bearing corymbs of rose-coloured flowers which have a superficial resemblance to those of the Musk Mallow. Plants were raised at Kew from seeds sent in 1911 by Mr. J. M. Wood, Director of the Botanical Garden at Durban, where the species has been in cultivation under the name of D. spectabilis. The plant has grown vigorously in the Mexican house at Kew, and, but for severe pruning, would have attained tree-like dimensions.

Corokia cotoneaster, tab. 8425.—This plant is a native of New Zealand and almost hardy in this country, a specimen in Canon Ellacombe's garden at Bitton, near Bristol, having supplied the materials for the *Botanical Magazine* plate. The flowers are a bright yellow colour, and are succeeded by small, orange-coloured berries. The leaves are only 5 to 6 lines long, and 2 to 4 lines wide; they are coloured on the under sides with a white tomentum.

Cereus Silvestrii, tab. 8426.—The flowers of this succulent are very striking, being a bright orange-scarlet colour; the plant illustrated is bearing ten inflorescences, and has the appearance of being a good garden subject. The species is a native of Argentina, and, in common with all succulents, enjoys plenty of sunshine, needing very little moisture during the winter season.

Sir Joseph Hooker.—Mr. Pennachine has completed a portrait bust of the late Sir Joseph Hooker, from a sitting taken just before his death. The bust, which is at Mr. Pennachine's studio at Ealing, is an excellent piece of work.

The Surveyors' Institution.—The next ordinary general meeting will be held at The Institution on Monday, April 15, when a paper will be read by Mr. R. M. Kearns (Fellow) entitled "The Cost of Labour in Connection with the Erection and Maintenance of Buildings." The annual dinner will be held at the Whitehall Rooms, Hotel Metropole, on Tuesday, April 23.

Failure of a Society.—The Shirley, Millbrook, and Freemantle Horticultural Society, an offshoot of the Royal Southampton Horticultural Society, after being in existence for 46 years is to be wound up, owing to a lack of support. At the annual meeting the position of the society was discussed, and it was stated that the committee were, last year, unable to pay the whole of the prize money. In 1898 £115 was received for admission to the society's exhibition; in 1902 the gate money amounted to £55; whilst last year the takings were only £15. When Shirley was an urban district gardening was an important industry in the neighbourhood, and the annual horticultural exhibition was made the occasion of a public holiday.

Complimentary Dinner to Cumberland Landscape Gardeners.—In order to mark the completion of extensive alterations to the grounds attaching to Rhine Hill, Stratford-on-Avon, the residence of Miss Smith, by Messrs. Hayes, landscape gardeners, Keswick, Miss Smith invited the staff of Messrs. Hayes, her own gardeners, and those intimately connected with the scheme to dinner at a local hotel.

Forestry Report.—The University Press, Cambridge, has published, at the instance of the Forestry Committee, the report of Mr. E. R. Burden on his recent visit to the United States and Canada. Mr. Burden's object in making this visit was to study the methods of research into the structures, properties and utilisation of timber employed in the United States and Canada, and to enquire into the nature of the training given to Forestry students in this branch of the subject.

The Food of Epiphytic Bromeliads.—The Bromeliaceæ, to which order the Pine-apple belongs, contains many plants remarkable for their epiphytic habit and peculiar form. Recent investigation (see *Nature*, March 14, 1912, by M. C. Picado prove that the epiphytic Bromeliads are able to absorb by means of parts of their leaves, not only mineral salts but also organic nitrogen compounds, such as proteins, which compounds are produced as by the digestion of the vegetable and animal substances which fall into the cavity formed by the overlapping bases of the leaves.

The Mycetozoa. — Students of that most fascinating though lowly group of organisms known as the Mycetozoa and claimed alike by botanists and by zoologists as falling within their respective territories, will welcome the new edition of Lister's Monograph, which has now been issued.* The new volume, which has been prepared by Miss Gulielma Lister, contains much new material, and is beautifully illustrated by plates, many of which have been reproduced by the three-colour process.

* *A Monograph of the Mycetozoa*: A Descriptive Catalogue of the Species in the Herbarium of the British Museum, by Arthur Lister, F.R.S. Second edition, revised by Gulielma Lister. Pp. 304, 201 plates (120 coloured), 56 woodcuts. London, 1911. 8vo. Published by the Trustees of the British Museum. Price £1 10s.

School Gardens.—According to statistics recently published in the *Standard* there are at the present time school gardens attached to 2,000 elementary schools. The number of scholars receiving instruction is 35,000 boys and 1,200 girls. In London alone there are about 200 school gardens. The movement for the establishment of such gardens is not confined to this country, but has spread to the United States, Germany, Austria, and Sweden.

Californian Plant Diseases. — *Bulletin* No. 218 of the College of Agriculture (University of California)—a substantial volume of about 150 pages—is almost a text book on the subject of plant diseases. It is prefaced by a brief outline of the principles of plant physiology, and deals with injurious atmospheric and soil conditions before proceeding to give a list and brief descriptions of the more specific plant diseases in California with directions for treatment. The *Bulletin*, which is copiously and well illustrated, concludes with a list of fungicides. Armed with such ample instructions the grower in California ought to be well prepared for dealing promptly with the numerous pests which attack his plants.

A Beneficent Soil Constituent.—Experiments recorded recently in these pages have demonstrated that various poisonous substances may be isolated from soils. The converse discovery is now announced by Messrs. E. C. Shorley, M. X. Sullivan, and J. J. Skinner (U. S. Dept. of Agriculture Bureau of Soils Bill, No. 83), who have isolated from soil an organic compound creatinine, which appears to exercise a markedly beneficent action on the growth of plants. This substance (creatinine) is well known to the animal physiologist as a decomposition product of proteins, and may therefore be expected to occur at all events in small quantities in the soil. Mr. Shorey finds that it is also present in various organic fertilisers, including stable manure. Creatinine occurs also in plants, and indeed the amount of this substance which occurs in the soil appears to depend on cultivation; planted soil showing a larger amount than unplanted soil. The most interesting observations from the practical point of view are those made on the effects of these substances on plant-growths. From these experiments, carried out by Mr. Skinner, it would appear that creatinine is capable of replacing to some extent at all events other sources of nitrogen. Thus plants cultivated in solutions containing only potash and phosphates grow more vigorously when creatinine is added. Further, the effect of creatinine on plants supplied both with it and with nitrates is to lower the absorption of the latter without detriment to the growth of the plant. It seems probable that the long-known beneficent action of such slow-acting organic fertilisers as horn shavings and wool waste may be due to the creatinine and allied bodies produced during the decay of the fertilisers.

Meteorological Instruments and Weather Forecasts.*—This little book should prove useful to the young gardener who wishes to gain an intelligent understanding of the use of meteorological instruments. A simple account of the physical properties of air, of the nature of winds and snow is given in the introduction. Subsequent chapters deal with thermometers, barometers, with instruments for the measurement of wind and rain, and with miscellaneous instruments (sunshine recorders, earth thermometers, sundials and the like). The final chapter is devoted to weather forecasts.

* *The Model Engineer Series*, No. 16. Price 6d. Illustrated. (London: Percival Marshall & Co.)

ROYAL INTERNATIONAL HORTICULTURAL EXHIBITION.—The "Western Counties of Scotland" Cup (see fig. 81) is presented by subscribers in the counties of Ayr, Argyll, Bute, Dumfries, Dumbarton, Lanark, Kirkcudbright, Perth, Renfrew, Stirling, and Wigtown for competition at the forthcoming International Show. Mr. JAS. WHITTON, Secretary for the West of Scotland, kindly informs us that the cup is 21½ inches in height, without plinth, weighs 120 ounces, and is in Georgian style, with richly chased floral decoration, having on one side a large shield in high relief with the arms of the different subscribing counties engraved thereon. A replica of this shield is shown on the opposite side with the title of the cup and an appropriate inscription engraved on it.

———The bowl illustrated in fig. 82 is presented by Messrs. GEO. BUNYARD & CO., LTD., Maidstone. It will be awarded for the best exhibit in the open class for a collection of nine dishes of fruit of distinct kinds.

AUSTRIA AND THE ROYAL INTERNATIONAL HORTICULTURAL EXHIBITION. — The Vienna Horticultural Society is arranging a 10 day excursion to London for the International Exhibition. The party will start on May 22, and will proceed straight to London. In addition to visiting the exhibition, visits will also be made to the principal nurseries, Kew, the R.H.S. gardens at Wisley, Hampton Court, and other places. On the return journey, a halt will be made at Rotterdam, and a day or two spent in Holland and Belgium, the programme terminating at Frankfort-on-Main, after a visit to the celebrated Palm garden in that city.

ECHO OF THE BRUSSELS INTERNATIONAL EXHIBITION.—The medals and diplomas awarded the members of the jury of the Brussels International Horticultural Exhibition, held in 1910, have just been distributed. The British jurors, namely, Messrs. WILLIAM WATSON, A.L.S., STUART H. LOW, and R. HOOPER PEARSON, have been sent the mementoes through the Exhibition Department of the Board of Trade.

L.C.C. PARKS COMMITTEE.—In the *Gardeners' Chronicle* of March 16, the list of members of the Parks Committee of the London County Council for the coming year was published. The committee have now met and appointed as their chairman Mr. J. W. LORDEN, who was vice-chairman last year. Major H. B. LEWIS-BARNED was elected as vice-chairman.

MR. THOMAS LEWIS.—Friends of Mr. THOMAS LEWIS, of Messrs. JOHN WATERER & SONS, Bagshot, will learn with regret that he has recently sustained bereavement in the death of his daughter.

MR. W. PURDOM.—Considerable anxiety has been felt for the safety of Mr. PURDOM, who is engaged in plant collecting in China for Messrs. JAS. VEITCH & SONS, and has encountered serious perils during the revolutionary war. We are glad to learn from a telegram just received from Pekin that Mr. PURDOM has succeeded in reaching that city.

PUBLICATIONS RECEIVED. — ***Meteorological Notes and Remarks upon the Weather During the Year 1911, with its General Effects upon Vegetation,*** by James Whitton. (Glasgow: Robert Anderson.)—***Outlines of Evolutionary Biology,*** by Arthur Dendy, D.Sc., F.R.S. (London: Constable & Co., Ltd.) Price 12s. 6d. net. —***The Garden at Home,*** by H. H. Thomas. (Cassell & Co., Ltd., London.) Price 6s. net.

BATSFORD.

(Concluded from p. 164.)

THE ROCKERY.

BATSFORD is the home of the ideal material for making a rock garden; for here is quarried the sandstone amongst which so many Alpine plants luxuriate. Recent visitors to Kew will have seen tons of it being placed in a portion of the rockery there, which has been so skilfully and artistically re-made. The Batsford rockery is a splendid example of the unostentatious structure. The run of the ground has been followed, and the boulders so cunningly placed, that the rockery suggests a rather low hill-side, which has been acquired for the cultivation of Alpine and allied plants. As is proper, neatness and order prevail; the plants possess legible though inconspicuous labels. No useful purpose would be served by giving anything approaching a complete list of the great variety of rock plants which may be so easily seen and admired, but it will be interesting to note a few of the rarer and more than usually luxuriant plants, taken very much in the order

FIG. 81.—ROYAL INTERNATIONAL HORTICULTURAL EXHIBITION.

(Cup presented by the Western Counties of Scotland.)

in which they occur. Daphne Blagayana seems perfectly at home, as also does the difficult dwarf Rubus arcticus, which is growing alongside the commoner R. australis, with yellow branches and spines. Hypericum reptans carpets the ground between a couple of boulders, just below a good specimen of Dahpne Cneorum. Gentiana acaulis, the despair of some gardeners, is very healthy, as also are Saxifraga Aizoon, S. longifolia, and S. Clibranii. The useful little Arenaria balearica draws ample nourishment from the porous sandstone, and serves as an attractive carpet for a double crimson-flowered Helianthemum, which flowers with great freedom. A large clump of Sempervivum arachnoideum has found an ideal home under the shelter of an overhanging boulder, and the silvery tips of a Juniperus prostrata, which hugs a flat boulder, are very striking in appearance.

THE GLASSHOUSES.

In the glasshouses, which are on the other side of the path, the same indications of high cultivation and careful attention are at once apparent. The vineries contain clean canes of such varieties as Black Hambro', Madresfield Court, Lady Downes, and Muscat of Alexandria. The variety Barbarossa bore some enormous bunches last season, but, as Mr. Gardiner succinctly remarked, "Very nice to look at, but that's all." The season of indoor Peaches was over, but the ripening growths of Royal George, Bellegarde; Pineapple and Lord Napier Nectarines all indicated good crops for the next season. Several houses are devoted to the culture of Melons, which are in daily request over a long period, and Figs are also a favourite fruit. In a heated pit the dwarf Beans were already making good progress, and other pits were being prepared for the forcing of various high-class vegetables. The plant houses all contained fine healthy batches of useful subjects. Carnations are grown on a large scale, and so, of course, are Chrysanthemums; while the ever popular Begonia Gloire de Lorraine was full of health and vigour. Bouvardias are found to be valuable, for many buttonholes have to be supplied, and house decoration is practised on an extensive scale. Poinsettias (Euphorbia pulcherrima) and Clerodendron fallax furnish the rich bright colour which is so telling in the dark oak-panelled rooms of the mansion.

The kitchen garden forms a long square facing east-south-east, and is very attractive with its ornamental pond in the middle, where the chief paths, with their flower borders, meet. The various vegetables necessary for supplying the needs of a large establishment are to be found here, and indicate again good culture, combined with intelligent anticipation of future requirements. The hardy fruit is, of course, an important feature of this large garden; for the most part the standard varieties are relied upon, but a trial is given to promising novelties. *A. C. B.*

SCOTLAND.

THE SCOTTISH FRUIT TRADE AND THE INSURANCE ACT.

A MEETING of the members of the Glasgow fruit trade was held on the 13th inst. in the City Hall for the purpose of considering the desirability of forming an approved society under the Insurance Act among members of the Scottish fruit trade. Councillor Gardner presided, and said that there should be no difficulty in securing the minimum of 5,000 members among the trade in Scotland, with centres in different parts of the country. It was decided that the question be considered by the executive of the various trade associations.

EDINBURGH AND LEITH FRUIT AND FLOWER TRADERS AND THE SHOPS ACT.

A MEETING of the Edinburgh and Leith Fruit and Flower Trade Association was held in Edinburgh on the 14th inst. to consider the Shops Act, 1911, and a proposal to apply for a closing order for a weekly half-holiday every Wednesday. A motion in favour of the proposal was carried by a large majority, and it was agreed to take a plebiscite of those interested.

DUMFRIESSHIRE AND GALLOWAY HORTICULTURAL SOCIETY.

A MEETING of the directors of this society, which has held no show since 1910, was held recently and a statement of the accounts presented. At the end of the last show there was a deficiency of £76 14s. 11d., but this had been reduced by special subscriptions. There was now nothing unpaid but the prize money. The accounts showed an income of £185 6s. 1d. and an expenditure of £185 17s. 9d., leaving a balance due to the secretary of 11s. 8d. and to the prize winners of £39 11s. 6d. The chairman, Mr. Jas. Henderson, Elmbank Gardens, and others present expressed satisfaction with the statement. It was decided to hold no show this season.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

"Wake Up" Manchester.—I was glad to see your leading article on "Wake up" Manchester. It is a great pity and a great loss to horticulture in the North of England that the Old Trafford Gardens went down. But in view of the present day municipal and corporation movements with regard to public gardens, would it not be better for horticulture generally, provided the trust deeds allowed it, if the trustees were to set up a Northern Wisley, where the money would be well spent in training young gardeners and educating them for their work? I feel sure Manchester University would co-operate in such a scheme and that the money would be forthcoming, provided the public had confidence in the executive. *J. Bernard Hall, Rawdon, Leeds.*

———The leader in your last issue on horticultural affairs in Cottonopolis will, it is hoped, do something to rouse Manchester people from their seeming apathy in this matter. Let us look at the facts. Manchester is situated in the heart of a great industrial country: within a comparatively small area there is a population of millions. The counties of Yorkshire and Cheshire are adjacent, Derbyshire within a short distance, and North Wales within easy reach. Transit facilities by rail and road are good, not only within the counties mentioned, but northwards in the Westmoreland direction and the north-east, and southwards to the Midlands. So much for situation and accessibility. What of the population? Manchester prides itself on its trade, on its business acumen, and its commercial achievements. As a city, even with the most enthusiastic Mancunian, it cannot lay claim to beauty. I have an impression that Bernard Shaw classes it with some other important commercial centres that, in his opinion, should be burnt down. Be this as it may, Manchester contains an unusually large number of wealthy men; many reside in the suburbs, over the Cheshire border, in North Derbyshire, on the Lancashire coast, and in North Wales, whilst within easy reach are ducal establishments famed for their gardens. There is an enormous well-to-do middle class and a large population of generally well-paid workers. From a population point of view, then, everything should be in favour of Manchester being a centre of interest in horticulture. The fine shows formerly held at Old Trafford, referred to by you in your article, are now but a memory. The gardens in which they took place, still the property of the Botanical Society, are given over to roller skating, dancing, gravitation railways, and side shows. Under the name of "White City" what were once fine, well-stocked and interesting gardens have no longer any claim to horticultural pretensions. The man in the street has a hazy idea of having heard of a botanical society, but there is nothing to remind him to-day of its existence. The Orchid Society hides its light under a bushel. Ask any person you meet on one of their show days where the show is held. He cannot tell you. In all probability he has never heard of the society. One cannot blame him; there is no sign of its existence visible to the public. In spite of all this, there is a very real and widespread love of plants and flowers throughout the north of England. This is by no means confined to the well-to-do, but is characteristic of all classes. The attempts that one may easily see to grow plants in the most uncongenial surroundings are pathetic to witness. The miner, whose "striking" propensities are just now so much in the public eye, is very often a keen cultivator of Dahlias. In days past Lancashire was famous for its cultivation of "show" Gooseberries, many societies holding exhibitions and keeping carefully-tabulated records of name, size, and weight of the prize berries. Neither was the cultivation of the Auricula neglected; many noted growers of this one-time popular flower hailed from Lancashire. So much for past achievements. What is the position to-day? If we except the modest annual show held by the northern section of the National Carnation Society, we find that one of the wealthiest areas in the world is unable to boast of one single horticultural exhibition in the year. Outside Manchester there are several small societies of a more or less local character that, in a limited way, attempt to keep horticulture alive. There are numbers of gardeners' improvement societies, some with a large membership. The British Gardeners' Association has also made some progress in the formation of branches. There is also a development of garden suburbs. All this goes to show that there is plenty of material available if it were properly organised. The fact of the North of England Horticultural Society establishing itself in Leeds is also an indication of a want that is felt. In Lancashire and adjacent counties there are some of the largest nurseries in Great Britain, whilst in Manchester itself several firms of seedsmen and nurserymen have headquarters, from which extensive businesses are carried on. What of the Botanical Society? On its own showing, from the extract you printed of its latest report, it has assets valued at over £45,000 after meeting all liabilities, and yet—it does nothing. Surely it is time a forward movement were made. Could not the Society itself formulate a scheme whereby the various interested bodies I have mentioned and the general public will be interested, or is the initiative to come from outside? No one who knows Manchester will require to be reminded of the many successful exhibitions connected with various interests that are annually held within the city. Surely horticulture—the oldest calling on earth—should not lag behind. *Mancunian.*

Fig. 82.—Royal International Exhibition.
(Bowl presented by Messrs. Bunyard & Co.)

———If it be true that what Lancashire says to-day the whole country says to-morrow, horticulturists had better close their ears. But it is not true. Manchester has turned her lovely botanical gardens into a noisy playground, and has fallen into the rear with respect to horticultural progress. The Orchid Society is active, but its operations are not exactly alluring, notwithstanding the assistance rendered by trade growers from the south and west. Manchester itself can do little in the way of good horticultural display, but the suburbs have no climatic disadvantages, as one may see by the successes of the few there who still make much of their gardens. It may be owing to the ease with which one may run up from Manchester to the Metropolis that there is less effort to maintain fine gardens and hold imposing horticultural exhibitions than there used to be; but the falling off is more likely to be due to the disbanding of the society which in the best days of the late Bruce Findlay was a force not only in Manchester but throughout the country. There is wealth enough, and, notwithstanding appearances, there are still many among the people of Manchester who take a keen delight in gardens and plants. All that is needed is a little initiative on the part of a few influential amateurs and others interested with a view to the formation of a society for the promotion of horticulture. The society would make the running, and we know from what has happened elsewhere that frequent periodical meetings and shows in a suitable and conveniently situated hall can do more for gardening and gardeners than any number of lecturers or books can. If some wealthy gardeners of the type of the late Baron Schroder would advance the money to build a hall and offices for a horticultural society in Manchester the rest would be easy. Twenty-five years ago one could spend a profitable week in the gardens about Manchester, whilst, nowadays, unless he be a buyer or seller of spotted Odontoglossums or big Cypripediums he will find very little to interest him. *W. K.*

Collarette Dahlias (see p. 176).—Visitors to the shows at the Horticultural Hall last autumn who saw the exhibits of Collarette Dahlias made by Mr. Riding and other growers, cannot fail to have realised that in this section they have the promise of securing the most attractive type of garden Dahlias yet introduced. In spite of the efforts made by raisers, the Cactus-flowered varieties have been far from satisfactory. The Paeony-flowered varieties are too large, loose and devoid of form, whilst the plants grow very tall. But those of the new Collarette section grow only a medium height, produce flowers on stiff stems in great abundance, and of a size which enables them to harmonise with those of other kinds. The "collar" at the base of the true florets helps to retain the latter longer after being cut than is the case with Single Dahlias. Some of the colour combinations in these Dahlias are very beautiful. *D.*

Count Althann's Gage Plum.—Your reviewer of W. P. Hedrick's book on the *Plums of New York* corrects the author's spellings of "Althann," which he had written Altham. Turning to Dr. Hogg's *Fruit Manual*, I find he spells it "Althann," and gives its origin as the garden of Comte Joseph Althann, in Bohemia. So much may no doubt be taken for exactness. Turning to two of our greatest fruit firm's catalogues, I find one prints the name as Reine Claude de Comte "Hathem," whilst another describes it as Comte de Althan's Gage, being content to use one "n" only. Dr. Hogg shows that the name "Althann" is commonly spelt wrongly, yet it seems the error continues. I like the Doctor's simple appellation, Count Althann's Gage, as being far better than introducing the Reine Claude, and, indeed, not only in this case, but in that of the Reine Claude de Bavay, the simple terms Althann's Gage or De Bavay Gage, are much better and easier. *A.*

SOCIETIES.

ROYAL HORTICULTURAL.

March 19.—The usual fortnightly meeting was held on Tuesday last in the Society's Hall, Vincent Square, Westminster, when another excellent exhibition was presented. The show was not quite so large as on the previous occasion, but it was necessary to requisition both the annexes for the accommodation of groups. Orchids were again displayed in large numbers, and the Orchid Committee granted one First-class Certificate and one Award of Merit. In the floral section a Gold Medal was awarded to Messrs. James Veitch & Sons, who showed three separate groups, Azaleas and forced shrubs, greenhouse plants and Cyclamens respectively. Other important exhibits before the Floral Committee included Ferns, Carnations, Pelargoniums, Rhododendrons, and hardy flowers. The Floral Committee granted seven Awards of Merit.

The Fruit and Vegetable Committee found rather more than usual to inspect, but this body made no award to a novelty.

The Narcissus Committee sat for the second time this season, and the groups of Narcissi were

unusually good for a March show. Novelties were plentiful, and the Committee conferred three Awards of Merit to new varieties.

At the 3 o'clock meeting in the lecture room, Mr. H. B. May gave a lecture on Ferns, dealing especially with those which are suitable for cultivation by amateurs. By means of a special lantern apparatus living specimens were reflected on the screen, enlarged, but showing the characters excellently.

Floral Committee.

Present: Henry B. May, Esq. (in the Chair); and Messrs. C. T. Druery, W. J. Bean, John Green, T. W. Turner, F. Herbert Chapman, J. T. Bennett-Poe, C. R. Fielder, C. Blick, J. Jennings, W. Howe, J. F. McLeod, R. C. Reginald Nevill, John Dickson, Charles Dixon, H. J. Cutbush, A. Turner, H. J. Jones, F. Page Roberts (Rev.), Charles E. Shea, Chas. E. Pearson, W. P. Thomson, W. G. Baker, W. J. James, R. W. Wallace, George Paul, W. B. Cranfield, and R. Hooper Pearson.

Messrs. James Veitch & Sons, Ltd., Chelsea, exhibited, as a bank of flowers, a beautiful group of Rhododendron indicum (Azaleas), Lilacs, Viburnum Opulus, various Cherries, Peaches, and a double-flowered form of Prunus Pissardii. Messrs. Veitch also furnished a table with a miscellaneous collection of greenhouse flowering plants, Azaleas, Primula obconica of a choice strain, Streptosolen Jamesonii, Begonia Gloire de Sceaux, Primula kewensis, Amphicome Emodii, and Lily-of-the-Valley being the chief subjects. A third exhibit shown by this firm was comprised entirely of Cyclamens, shown in batches of distinct colours, all the plants being of magnificent quality. (Gold Medal.)

Messrs. W. Cutbush & Son, Highgate, put up a remarkably showy exhibit of forced shrubs intermingled with greenhouse plants. Magnolias were especially good, particularly M. Soulangeana and M. Lennei; Pyrus Malus Scheideckeri, Camellia reticulata (especially handsome), Spiræa confusa, Rhododendron fastuosum (lavender), Hydrangea Mouillere and Prunus triloba were all good. Adjoining the forced shrubs was an imposing exhibit of Carnations, representative of the best varieties in commerce, Lady Meyer (pink), Lord Rothschild (clove), Beacon (scarlet), R. F. Felton (pink), Countess of Onslow (puce, showing scarlet), Rose Pink Enchantress, and Mrs. MacKinnon (scarlet, scented), are a selection. (Silver-gilt Banksian Medal.)

Messrs. Stuart Low and Co., Bush Hill Park, Enfield, showed beautiful blooms of perpetual-flowering Carnations, arranged with Ferns in vases and epergnes. The choicer varieties were Baroness de Brienen, a very large flower of salmon-pink colour; Lady Alington, rose-pink; Rose Doré; May Day, flesh colour; Carola, crimson; R. F. Felton, soft pink; Lady Meyer, pink (new), and Beacon, scarlet. Messrs. Low also showed greenhouse plants, including several species of Acacia, Dracæna Bruantii variegata, Boronia megastigma, Erica codonodes, Cyclamens in variety, and Camellias. (Silver Banksian Medal.)

An imposing exhibit of Ferns was staged by Messrs. J. Hill & Son, Barrowfield Nurseries, Lower Edmonton. The collection embraced 100 species and varieties, many showing rich tinting in the new fronds. There were fine specimens of Platycerium grande and P. Hillii, also large plants of Adiantum scutum, Blechnum latifolium, Lastrea erythrosa, Brainea insignis, Davallia Speluncæ, D. tenuifolia Veitchii, and Onychium auratum. (Silver-gilt Banksian Medal.)

Messrs. H. B. May & Sons, The Nurseries, Upper Edmonton, filled a large table with Ferns, varieties of Clematis, and Gardenia florida (jasminoides), the best-habited Gardenia for growing in pots. The blue Primrose was also shown well. (Silver Banksian Medal.)

Mr. L. R. Russell, Richmond, showed a fine exhibit of forced shrubs, with a bordering of Brunfelsia floribunda and Primula obconica, completed by a line of P. malacoides. Standard plants of Lilac, Forsythia, Azaleas, and Prunus triloba were arranged on a ground of Azaleas and Ferns. As a separate exhibit Mr. Russell showed hardy plants of seasonable subjects. (Silver Flora Medal.)

Messrs. R. and G. Cuthbert, Southgate, staged a small collection of forced shrubs, as a complement to their large exhibit of bulbous flowers. (Bronze Banksian Medal.)

Messrs. R. Gill & Sons, Tremough, Penryn, Cornwall, exhibited hardy Himalayan Rhododendrons, the new Primula Winteri, and Andromeda floribunda. Amongst the Rhododendrons we noticed Henry Shilson, Duke of Cornwall, crimson, with black spots; Mrs. Henry Shilson, pink; R. barbatum, red; R. arboreum album, and R. a. Blood Red. (Silver Banksian Medal.)

A Bronze Banksian Medal was awarded to Lady Mary Holland, Eaton Place, London, for a dozen plants of seedling Hippeastrums.

Messrs. Jarman & Co., Chard, put up a small group of a star-flowered strain of Cineraria named Cactus stellata. There was a good range of colours in the plants, the light and dark blues being especially fine.

Messrs. Wm. Artindale & Son, Nether Green, Sheffield, exhibited bunches of Primula obconica, representing a fine, large-flowered strain of this showy greenhouse plant.

Mr. H. Burnett, Guernsey, was awarded a Silver Banksian Medal for a fine exhibit of perpetual-flowering Carnations.

Messrs Allwood Bros., Wivelsfield, Haywards Heath, were the exhibitors of perpetual-flowering Carnations, having large blooms of Gloriosa, White Wonder, Wivelsfield Wonder, May Day, and other choice varieties.

Messrs. W. Wells & Co., Merstham, Surrey, showed varieties of perpetual-blooming Carnations.

Messrs. H. J. Jones, Ltd., Ryecroft Nurseries, Hither Green, showed 40 varieties of zonal-leaved Pelargoniums, arranged on a rather dull ground of green cloth. The following were the finest sorts in their respective colours:—scarlet, Fred Gulliver; salmon, Mr. T. F. Bunting; crimson, Mrs. Harry Wood; purple-tinted, James Wraight; white, Mrs. H. Perkins; magenta, J. W. Moorman; and orange, Harry.

Messrs. H. Cannell & Sons, Swanley, Kent, exhibited 60 distinct varieties of zonal-leaved Pelargoniums, the large collection making a bright group. A new variety, named H. Bartlett, is a fine scarlet flower, the "pips" being 3 inches across. (Silver Banksian Medal.)

Messrs. Geo. Mount & Sons, Ltd., Canterbury, showed Roses, included the varieties Lady Hillingdon, Mrs. Geo. Shawyer, Richmond, and Liberty.

Mr. George Prince, Longworth, Berkshire, made a feature of the delightful Fortune's Yellow in a small exhibit of Roses.

Examples of turf, with specimens of dried grasses, of varieties suitable for lawns and bowling greens, were shown by Mr. James Macdonald, Harpenden, Hertfordshire.

A Silver Banksian Medal was awarded to Mrs. Charrington, Byfleet (gr. Mr. W. H. Hawthorn), for a group of Cyclamens arranged with Ferns.

Hardy Flowers.

Mr. Maurice Prichard, Christchurch, Hampshire, showed Alpine plants, receiving a Silver Flora Medal. The plants were all splendidly grown, those of Primula helvetica alba and P. denticulata being of outstanding merit. Iris stylosa speciosa was shown as a large batch of cut flowers. (Silver Flora Medal.)

Messrs. J. Cheal & Sons, Lowfield Nurseries, Crawley, planted a rockery with Alpines and backed with dwarf shrubs and Conifers. (Bronze Banksian Medal.)

Mr. Geo. Reuthe, Keston, Kent, showed large numbers of Alpine plants and uncommon shrubs. The beautiful Camellia reticulata was noticed, also the rare Rhododendron intricatum (blue) and R. Metternichii. There was also a fine truss of R. grande. Amongst the Alpines, Hepatica triloba grandiflora (lilac), Saxifraga Borisii and S. Stribneyi were conspicuously good. (Bronze Banksian Medal.)

Messrs. Ware, Ltd., Feltham, arranged a very effective rock-garden, making a kind of plateau, with large boulders cropping out, and planted between the drifts with Epigæa repens, Viola gracilis, Aubrietia Wallacei (bright lavender), Draba bruniæfolia (olympica) (yellow), Trillium grandiflorum (white), and Soldanella Clusii (purple). (Bronze Banksian Medal.)

A pale pink-flowered Anemone pulsatilla was shown by Royal Tottenham Nurseries, Ltd., Dedemsvaart, Holland. The plants attracted much attention, the colour being very pleasing, and marking a distinct development in this pretty Alpine flower.

Messrs. John Peed & Son, West Norwood, London, showed a charming rock-garden exhibit, and, being close to a window, the colours of the flowers appeared remarkably bright. The intense blue of Scilla sibirica, Chionodoxa sardensis, Anemone blanda, with purple Crocuses, Primula farinosa and Aubrietia Perkinsii (lavender) all showed to advantage.

Messrs. Whitelegg & Page, Chislehurst, Kent, also exhibited a rockery on which Primula malacoides was planted. The fine purple Aubrietia Mrs. Lloyd Edwards was shown well in a depression between rocks.

Mr. Clarence Elliott, Six Hills Nursery, Stevenage, made an effective rockery, on which Viola gracilis, Primula marginata, P. Allionii and Pulmonaria angustifolius azurea were seen to advantage.

Messrs. Thompson & Charman, Bushey, Hertfordshire, showed, on a rockery, well-flowered plants of Anemone pulsatilla, Fritillaria buchanica (bluish-white), Euphorbia Wulfenii, the new Ribes laurifolia and the white variety of Corydalis tuberosa (cava).

The Misses Hopkins, Mere Gardens, Shepperton, staged a rock-garden exhibit, planted with Anemones, Daisies, Hepaticas, Primula rosea, P. denticulata and Anemone pulsatilla.

The Burton Hardy Plant Nursery, near Christchurch, Hampshire, arranged a rockery with a variety of suitable flowering plants, such as Primula nivalis, P. marginata, P. villosa, Polyanthuses, Myosotis "Ruth Fisher," Anemone pulsatilla, Morisia hypogæa and Aubrietia Mrs. Lloyd Edwards, all fine plants of their respective kinds.

Messrs. Bakers, Wolverhampton, staged boxes of Alpine flowers, amongst which we noticed Pulmonaria saccharata, Iris cristata, Cypripedium spectabile (very fine specimens), Ranunculus amplexicaule, Megasea afghanica (a pure white-flowered species), Phlox amœna and Shortia galacifolia.

Mr. James Box, Lindfield, Haywards Heath, showed Alpine and hardy plants in season. (Bronze Flora Medal.)

Other exhibitors of hardy plants were Messrs. G. & A. Clark, Ltd., Dover; Mr. Reg. Prichard, West Moors, Dorsetshire; and The Guildford Hardy Plant Nursery.

A Silver Banksian Medal was awarded to Miss Ough, Streatham, for a collection of floral paintings.

Awards of Merit.

Corylopsis Veitchiana.—The Hon. Vicary Gibbs (gr. Mr. Beckett) exhibited another new species of Corylopsis recently introduced from China. The plant showed a much freer habit of growth than C. multiflora, which gained an Award of Merit at the previous meeting, but for garden purposes the inflorescences were similar.

Hippeastrum "Musigny."—This is one of the most resplendent varieties of Hippeastrum we have seen. It is a large, well-formed flower, and the pure crimson colour is brilliant to the last degree.

Hippeastrum "Rose du Barri."—Like the variety already described, this beautiful Hippeastrum was shown by Lord Rothschild, both being seedlings raised by his gardener, Mr. A. Dye. "Rose du Barri" is a fine flower of a tint that may be best described as French rose. It is distinct in Hippeastrums. The value of both varieties is well above that of the average exhibition flower.

Primula Knuthiana.—Messrs. James Veitch & Sons exhibited plants of a pretty little Primula collected by their representative, Mr. Purdom, in Shensi (N. China). It has mauve-coloured flowers and slightly mealy leaves, in general habit resembling the plant known to gardeners as P. frondosa, which is really P. farinosa frondosa. The name Knuthiana was given the imported plants after comparing them with an illustration of P. Knuthiana Pax.

Prunus Pissardii Moseri, fl. pl.—This is a variety with good-sized, semi-double flowers of a pretty shade of pink. Shown by Messrs. Jas. Veitch & Sons.

Pseudotsuga (Abies) Douglasii Fletcheriana.—This variety of Pseudotsuga Douglasii may well

be described as a pigmy form. It is so much branched that the specimen, though only about 18 inches high, was 2 feet in diameter. The exhibitors stated that the plant was raised from a seed 16 years ago. It may be recommended for the rockery, where its dense habit will be an advantage. Shown by Messrs. Fletcher Bros., Chertsey.

Rose "Rose Queen."—This hybrid Tea Rose is an American seedling, and the forced flowers exhibited by Mr. W. E. Wallace, Eaton Bray Nurseries, showed it to be a first-class variety for that purpose. The flowers are of good form, and the colour reminded us of the variety Lady Ashtown. This Rose is likely to become very popular.

Narcissus Committee.

Present: E. A. Bowles, Esq. (in the Chair); Miss Willmott, Rev. C. T. Digby, Messrs. P. D. Williams, Walter T. Ware, Herbert Smith, P. Rudolph Barr, Joseph Jacobs, H. Chapman, F. Barchard, W. B. Cranfield, G. W. Leak, W. W. Fowler, C. Bourne, J. T. Bennett-Poë, A. M. Wilson, W. Poupart, W. Goldring, and C. H. Curtis (secretary).

Messrs. Barr & Sons, Covent Garden, London, staged an interesting collection of cut blooms. Besides a selection of the standard varieties, there were many unnamed seedlings, and especially of trumpet Daffodils. Of the named varieties we especially noted Bedouin (with a broad, white perianth, and large, fiery-orange cup), Atlas (a monster trumpet Daffodil), Maximus (rich yellow, with twisted perianth segments), Venus (pale in colour), Athene and Cyrus, the two last-named varieties being good trumpet Daffodils of pale primrose colour. Sparkler is a splendid large-cupped Narcissus, with a rich corona, whilst Lady Bird, although a smaller flower, is even brighter in colour. (Silver-gilt Flora Medal.)

Mr. Alex. M. Wilson, Shovell, Bridgwater, showed a fine selection of flowers. Many were seedling varieties of great merit, the short-cupped varieties being especially good. Tita (medio-coronata), Sealing Wax (parvi-coronata), and Inglescombe (a very large double-flowered trumpet Daffodil, of fine form and rich colour) were the best of the named varieties. (Silver-gilt Bronze Medal.)

Mr. C. Bourne, Simpson, Bletchley, gave especial prominence in his group to the variety Helios, which received an Award of Merit, and to St. David, a very large, rich-yellow trumpet Daffodil. Alys, a pure-white large coronata variety, with pairs of slightly pendulous flowers, is very pretty. The dainty little Campanella Jonquils, with their clusters of sweetly-scented, rich-yellow flowers, found many admirers. (Silver Flora Medal.)

Messrs. R. H. Bath, Ltd., Wisbech, showed Daffodils and a quantity of Chionodoxa Luciliæ in vases, also Tulips, Hyacinths, and Narcissi growing in bowls containing fibre. The best of the Daffodils were Dream (a pendulous variety, having a white perianth and primrose trumpet), and Weardale Perfection. (Silver Flora Medal.)

The Rev. G. H. Engleheart, Dinton, Salisbury, exhibited a splendid lot of seedlings. The trumpet Daffodils arranged in the back row were splendid. All the varieties were shown with numbers, and one variety, indicated by $\frac{12}{12}$, seems to be a decided advance on the trumpet Daffodils in commerce; this variety has a very broad trumpet with boldly-frilled edges. Another variety with smaller flowers, nearly pure-white in the perianth and having a pale-apricot trumpet, was very charming. The varieties of Narcissus having large coronas possessed rich colours.

Messrs. Jas. Carter & Co., Raynes Park, again exhibited a spring garden. On this occasion the scheme was that of an informal rockery and waterfall. A breadth of Daffodil King Alfred, comprising a great number of blooms, made a very effective mass of colour. The more sober tints of the groups of Iris around the pool of water contrasted well with the rich colour of the Daffodils.

Messrs. Cutbush & Sons, Highgate, filled a side table with a large number of standard varieties of Daffodils growing in 6-inch flower pots. The plants were well flowered, and included such varieties as King Alfred, Princess Mary, Maximus, Henry Irving, Telamonius plenus, James Walker, and Victoria.

Messrs. R. & G. Cuthbert, Southgate, Middlesex, staged many well-flowered Tulips. The Darwin varieties, which are so useful as cut flowers, included Clio (buff shades), Mrs. Moon (yellow), La Tulip Noire (nearly black), and Pride of Haarlem (deep rose). The longer-petalled, May-flowering varieties, such as Summer Beauty and Crimson Globe, were very showy.

Robert Sydenham Limited, Birmingham, exhibited a small selection of Narcissus, and pot plants of Liliums, Astilbes, Tulips, and Lily-of-the-Valley. The new poeticus Narcissus Nellie Price, which has a distinct band of rich colour around the eye, was pretty, as also was one named Mrs. Brett.

Messrs. S. Bide & Sons, Alma Nurseries, Farnham, Surrey, showed three varieties of Tulips arranged in tall stands.

Messrs. Young & Co., Hatherley, Cheltenham, exhibited Tulips and Narcissi.

Mr. J. C. Martin, Highertown Bulb Gardens, Truro, sent some excellent Daffodil blooms, but owing to the train service being disorganised they did not arrive in time for the committee to inspect them.

Awards of Merit.

Narcissus "Robespierre."—An Incomparabilis variety, having a large, fiery-orange cup; a splendid bloom. (From Mr. A. M. Wilson.)

N. "Rubalite."—A very pretty flower, with a white perianth and an orange-red eye. (From Mr. Alex. M. Wilson.)

N. "Helios."—An exceedingly fine bloom, having a pale yellow perianth, and an enormous, rich yellow cup, tinted with orange. (Shown by Mr. W. T. Ware.)

Orchid Committee.

Present: J. Gurney Fowler, Esq. (in the Chair), and Messrs. Jas. O'Brien (hon. sec.), Gurney Wilson, F. M. Ogilvie, T. Armstrong, A. A. McBean, W. Cobb, J. Charlesworth, J. E. Shill, H. G. Alexander, A. Dye, W. H. White, J. Wilson Potter, J. S. Moss, W. Bolton, de B. Crawshay, C. J. Lucas, Stuart Low, and Harry J. Veitch.

H. S. Goodson, Esq., Fairlawn, West Hill, Putney (gr. Mr. G. E. Day), was awarded a Silver Flora Medal for an extensive and well-arranged group, at the back of which was a good selection of varieties of Phaius Norman and P. Marthæ, the labellums of the latter variety being very dark and finely coloured. Good Odontoglossums, including forms of O. crispum, the best of which was the variety Mrs. Goodson, a richly-blotched flower. O. ardentissimum "Goodson's variety," O. a. var. Dayanum, O. Aireworth, good O. eximium, and other showy Odontoglossums and Odontiodas, the best of the latter being O. Charlesworthii, the original form which secured the First-class Certificate. Of the Lælio-Cattleyas the very dark form of L.-C. Charlesworthii with rich ruby-red lip was the best, and a good selection of Cypripediums, Cymbidiums was noted.

Messrs. Sander & Sons, St. Albans, were awarded a Silver Flora Medal for a showy group, the centre of which was of their very fine type of Dendrobium Wardianum. With them were two forms of the new and pretty Cymbidium Gottianum and other Cymbidiums, Dendrobium delicatulum, some hybrid Cattleyas and Lælio-Cattleyas, C. Olaf var. venusta (Parthenia Prince of Wales × labiata Cooksoniæ)—a very pretty white flower with rose-purple front to the lip—and forms of C. Vulcan, Cattleya Schröderæ, C. Trianæ in many varieties; pretty Odontoglossums, both species and hybrids, a selection of Brasso-Cattleyas, Megaclinium maximum, Gongora leucochila, Lycaste Imschootiana, and the bright-red Renanthera Imschootiana, Bulbophyllum cæspitosum and other Bulbophyllums were also noted.

Messrs. Charlesworth & Co., Haywards Heath, were awarded a Silver Flora Medal for a group of rare species and hybrids, in which were the rare Angræcum germinyanum, a species from Madagascar, with narrow sepals and petals and long curved spur to the white apiculate labellum; the rare and beautiful Neomoorea irrorata with a very fine spike, Angræcum citratum with spikes over a foot in length; good forms of Odontoglossum ardentissimum, and other showy Odontoglossums, all finely flowered; Lælio-Cattleya Marathon, and L.-C. Nelthorpe Beauclerk, both of good form and colour; forms of Cattleya Trianæ, including the white alba floribunda and showy red Odontiodas.

Sir Jeremiah Colman, Bart., Gatton Park (gr. Mr. Collier), staged a small group in which were his handsome Odontoglossum Queen of Gatton (see Awards); O. Japonais, a grand plant of the scarlet Odontioda Bradshawiæ, with two spikes, one bearing 54 flowers; O. gattonensis, with a spike of 45 flowers; Bulbophyllum mandibulare, B. barbigerum, Megaclinium falcatum, and the charming little Maxillaria sanguinea, Eulophia Saundersii.

G. Hamilton Smith, Esq., Killoran, Finchley (gr. Mr. Coningsby), received a Silver Banksian Medal for a compact group including good specimens of Cymbidium eburneo-Lowianum, C. Balliæ, C. Lowgrinum, C. eburneum, C. insigne, and a selection of Lycaste Skinneri, the variety Mrs. G. Hamilton Smith being one of the largest and finest yet shown.

Messrs. Hassell & Co., Southgate, were awarded a Silver Banksian Medal for a group in the centre of which were two finely flowered Angræcum sesquipedale, around them being Cypripedium Maudiæ, and other Cypripediums; Cattleya âmethystoglossa, C. Trianæ, Brasso-Cattleya Digbyano Mendelii and other Brasso-Cattleyas; Masdevallia Bella, Sophronitis grandiflora; various Odontoglossums, including O. crispum Cooksonii, and O. c. virginale.

Messrs. Stuart, Low & Co., Bush Hill Park, were awarded a Silver Banksian Medal for an effective group of Cattleyas, Lælio Cattleyas, Odontoglossums, &c. Specially noteworthy were Brasso-Lælio-Cattleya Cooksonii enfieldensis (C. Dowiana × B.-L. Gratrixiæ), with pretty copper-orange flowers with ruby lip; a selection of Brasso-Cattleyas, Oncidium splendidum, O. sarcodes, fine Cattleya Schröderæ, good scarlet Odontiodas, the rare orange-red Polystachya paniculata, Sophronitis violacea, Cymbidium insigne, C. eburneum, good white Dendrobium Jameseanum and Cypripediums.

Messrs. J. & A. A. McBean, Cooksbridge, were awarded a Silver Banksian Medal for a group containing a grand specimen of Odontoglossum Phœbe with three fine-branched spikes, surrounded by good forms of O. crispum, O. ardentissimum, together with the large, pure-white variety album, a good O. nebulosum, &c. Among the hybrids, one of the best was the new Lælio-Cattleya Euripides (L.-C. Golderest × L.-C. Myra), a pretty flower of clear cowslip-yellow colour and good shape.

Lieut.-colonel Sir Geo. L. Holford, K.C.V.O., Westonbirt (gr. Mr. H. G. Alexander), sent Lælio-Cattleya Alpha "Westonbirt variety" (L.-C. Ernestii × C. Schröderæ), a pretty, pale-yellow flower, and others. (See Awards.)

De B. Crawshay, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), showed a grand form of Cymbidium insigne, a good home-raised Odontoglossum excellens, and Odontioda Bella (C. Noezliana × O. bellatulum), of a deep-red colour.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), sent Cymbidium Lady Colman "Rosslyn variety" and C. Lowgrinum.

Mr. E. V. Low, Vale Bridge, Haywards Heath, sent the rare, white-petalled Cattleya Luddemanniana Stanleyi, Cymbidium aureum Surprise with seven flowers and forms of Dendrobium chessingtonense.

Messrs. Jas. Veitch & Sons, Chelsea, showed a very fine hybrid between Lælio-Cattleya Bella and L. purpurata, silver-white tinged with lilac and with a broad, ruby-claret coloured lip.

R. G. Thwaites, Esq., Streatham (gr. Mr. Black), showed Sophro-Cattleya Atrens gloriosa of a deep rich red, Odontioda Sanderæ "Black's variety," a bright-scarlet flower, and other Odontiodas.

E. H. Davidson, Esq., Borlases, Twyford (gr. Mr. Cooper), sent Odontoglossum crispum Clarissa, a large-flowered form, and Odontioda Cooksoniæ var. Eric, deep scarlet.

J. H. Hill, Esq., Burgess Hill, Sussex, showed Dendrobium Austinii var. J. H. Hill of fine shape and colour.

J. T. Bennett-Poë, Esq., Holmewood, Cheshunt (gr. Mr. Downes), showed Cymbidium Colmaniæ "Holmewood variety" and a spike of C. Lowianum "Woodhall's variety" with 25 flowers.

Monsieur Mertens, Ghent, sent five good Odontoglossums and Odontiodas.

Samuel Larkin, Esq., Ridgways, Haslemere, sent Lælio-Cattleya Endymion with large and well-coloured flowers.

Mr. C. F. Waters, Deanlands Nursery, Balcombe, showed a very distinct Cattleya Schröderæ with white flowers tinted with pink and of good shape, the petals and lip being crimped, and Lycaste Skinneri "Water's variety" of good colour, the lip being ruby-red.

G. M. Bird, Esq., Manor House, West Wickham (gr. Mr. Redden), showed Odontoglossum crispum Luciani.

AWARDS.

First-class Certificates.

Odontoglossum crispum "Samuel Gratrix," from Samuel Gratrix, Esq., West Point, Whalley Range, Manchester (gr. Mr. Brown), a grand variety, presumably a home-raised seedling from some finely-blotched O. crispum. In shape it is one of the best yet shown. The sepals and petals are equally broad and beautifully marked with light violet colour. The large, crimped labellum is white with some reddish-purple blotches in front of the yellow crest

Award of Merit.

Cattleya Dirce "Westonbirt variety" (*C. Vulcan* × *C. Warscewiczii*), from Lieut.-colonel Sir George L. Holford, K.C.V.O. (gr. Mr. H. G. Alexander), a very handsome hybrid with a great resemblance in colour and form to C. Vulcan. Flowers rosy-lilac, veined with claret-purple, and well indicating C. Schilleriana, one of the parents of C. Miss Harris var. Vulcan.

Cultural Commendation

to Mr. H. G. Alexander, Orchid-grower to Lieut.-colonel Sir George Holford, K.C.V.O., for a marvellous specimen of the brilliant-scarlet Sophronitis grandiflora with nearly 100 flowers.

Fruit and Vegetable Committee.

Present: A. H. Pearson, Esq. (in the Chair); and Messrs. J. Cheal, C. G. A. Nix, W. Bates, G. Woodward, E. Beckett, J. Vert, H. Markham, H. W. Williams, A. R. Allan, G. Reynolds, J. Davis, H. E. Humphreys, A. Grubb, P. C. M. Veitch, G. Wythes, A. Bullock, A. Dean, W. Poupart, J. Harrison and A. W. Metcalfe.

A Cultural Commendation was awarded to Mr. G. Woodward, Barham Court Gardens, Maidstone, Kent, for handsome fruits of Lane's Prince Albert Apple, which was exhibited to show its excellent dessert qualities at this late season. The flesh was soft and of very pleasant flavour.

F. E. Wiendholt, Esq., Rhodes Farm, Inganga, Rhodesia, sent a collection of South African Apples, some of the fruits were very attractive, although others were spotted. The best specimens were those of Monro's Favourite, Cleopatra, a handsome yellow fruit tinted with rose; Scarlet Nonpareil, rather large and much striped; Rome Beauty, and Sykehouse Russet. (Silver Banksian Medal.)

Sir Daniel Gooch, Hylands Park, Chelmsford (gr. Mr. W. Heath), showed 17 dishes of Apples, including nine of the variety Annie Elizabeth, six rather small fruits of Newton Wonder, and two of Royal Jubilee, which were sent as Golden Spire. (Silver Banksian Medal.)

Messrs. Dianellon & Vergopoulos, Cyprus, sent baskets and dishes of the large oval Cyprus Orange. The fruits had a very thick rind, but the flesh was fairly sweet and pleasant eating. (Silver Banksian Medal.)

Mr. Cotterell, Elsenham, Essex, showed examples of saddle or crown grafting, in which one-half the split base of the scion is carried over the crown of the stock.

Messrs. James Carter & Co., Raynes Park, set up three large mounds of excellent forcing Cabbage Lettuces, generally with hearts firm and well blanched. (Cultural Commendation.)

Messrs. Sutton & Sons, Reading, exhibited a collection of salads, including Early Paris, the old Stanstead Park, and All-the-Year-Round Cabbage Lettuces, Improved Telegraph Cucumbers, blanched Chicory, Dandelions and Endives, Mustard and Cress, Radishes, Celeriac, Blood-red Beets, and, in pots, plants of Tarragon and Lamb's Lettuce. Messrs. Sutton also showed a basket of well-blanched Seakale, fronted by numerous firm, white hearts of Harbinger Cabbage. (Silver Knightian Medal.)

BRITISH GARDENERS' ASSOCIATION.

March 14.—The first dinner held by this association took place at the Holborn Restaurant on this date. The President, the Right Hon. the Earl of Plymouth, occupied the chair, and a company of about 50 members and friends were present. After the usual loyal toasts had been observed, the chairman proposed the "British Gardeners' Association." He expressed his appreciation at having been asked to become president of the association, and also to take the chair at the first dinner. The attendance was much smaller than both he and all present had expected, owing to the serious state of affairs from which the country was suffering. I know, said his Lordship, you will acquit me of touching upon controversial matters, as I certainly shall not do in my reference to this question, which affects the whole country. I feel that in this dispute we are forgetting the interdependence between Labour and Capital. The stability of our commerce is dependent upon a working together of all the interests, whatever they may be, in the commercial prosperity of the country. It necessitates that there shall be some real confidence between those who have interests to defend, and I do not think you will accuse me of saying too much when I state that there can be no confidence if obligations that have been definitely entered into, with the sanction of those concerned, are broken. Every fair-minded person in this country desires to see a fair day's wage given for a fair day's work.

You are now in the very start and beginning of this association. You are now recognising the proper position of the great horticultural industry, and the gardeners of Great Britain. You have, I think, most rightly formed an association with the intention, I believe, amongst other things, of bringing gardeners together, considering the interests you have to protect, and the best and most practical way of protecting them. You have the other objects of bringing in touch with yourselves those who require your services, and, furthermore, I believe, you are doing what, among great and important societies, all professional men have already done in this country, and that is to put a seal upon the competence of those who are and have the right to term themselves British gardeners. I feel that it is in the first interests of your association to consider not only the welfare of your own profession, but that of everyone in this country interested in horticulture, which is far wider. With those objects I am most heartily with you, and therefore thank you for electing me as president. I give you the toast of "The Association," and hope that it may have many years of increasing prosperity.

Mr. R. J. Frogbrook, Chairman of the Executive Council, responded on behalf of the association, and thanked the President for the kind manner in which the toast had been given. He said that many gardeners and others in different parts of the country were mistaking the objects of the association, they desired to assist employers by endeavouring to secure only good and practical gardeners as members of their association. Last year an examination of the members was held, and the results were satisfactory.

The Earl of Plymouth then presented the Gold Medal of the association to Mr. John Weathers, and a resolution engrossed on vellum, thanking him for the admirable manner in which he had performed the duties of secretary. Mr. W. H. Chandler was also presented with the Gold Medal and Certificate won in the recent examination.

Other toasts included those of "The Branches," proposed by Mr. E. F. Hawes, and responded to by Mr.. J. Collier; "The Visitors," by Mr. T. Bevan, for which Mr. H. C. Preece replied; "The Press," by Mr. A. E. Cresswell, with response by Mr. T. W. Sanders; "The Officers and Committee," by Mr. C. H. Curtis, responded to by Mr. T. Winter; and "The Chairman," proposed by Mr. R. S. Garnett.

The President, replying to the last toast, stated that though the gathering had been fewer in numbers than desired, it would impress all with the fact that the members were determined to make the value of the association as great as possible. He was sure that determination of that kind would assure success. I shall, said the speaker, always feel proud of the honour you have done me by asking me to take the chair at this first dinner.

During the evening an excellent programme of vocal and instrumental music was rendered.

Fig. 83.—the earl of plymouth.
(President of the British Gardeners' Association.)

MANCHESTER AND NORTH OF ENGLAND ORCHID.

MARCH 7.—*Committee present:* Rev. J. Crombleholme (in the Chair); Messrs. R. Ashworth, J. Bamber, C. Parker, H. Thorp, Z. A. Ward, J. C. Cowan, J. Cypher, J. Evans, W. Holmes, A. J. Keeling, D. McLeod, and H. Arthur (secretary).

A *Silver-gilt Medal* was awarded to Z. A. WARD, Esq., Northenden (gr. Mr. Weatherby), for a group of fine, well-grown Odontoglossums.

Silver Medals were awarded to W. R. LEE, Esq., Heywood (gr. Mr. Branch); Col. J. RUTHERFORD, M.P., Blackburn (gr. Mr. Lupton), both exhibitors staging Odontoglossums; J. MCCARTNEY, Esq. (gr. Mr. Holmes), for a group composed principally of Cattleyas; A. WARBURTON, Esq., Haslingden (gr. Mr. Dalgleish), for Odontoglossums; Messrs. J. CYPHER & SONS, Cheltenham, for a miscellaneous group; and Messrs. SANDER & SONS, St. Albans, for a general collection.

Other exhibitors were Rev. J. CROMBLEHOLME, Clayton-le-Moors (gr. Mr. Marshall); O. O. WRIGLEY, Esq., Bury (gr. Mr. Rogers); J. J. HOLDEN, Esq., Southport (gr. Mr. Johnson); WM. THOMPSON, Esq., Walton Grange, (gr. Mr. Stevens); H. THORP, Esq., Rhodes; Messrs. CHARLESWORTH & Co., Haywards Heath; Messrs. HASSALL & Co., Southgate; Mr. J. EVANS, Congleton; Messrs. A. J. KEELING & SONS, Bradford; and Mr. W. SHACKLETON, Great Horton.

AWARDS.

FIRST-CLASS CERTIFICATE.

Odontoglossum × *In Memoriam King Edward* (parentage unknown), from J. J. HOLDEN, Esq.

AWARDS OF MERIT.

Cattleya Cappei (Trianæ × Schröderæ), from J. J. HOLDEN, Esq. *Odontoglossum triumphans* "Ward's" variety, from Z. A. WARD, Esq.; and *Cypripedium Carola* (Euryades splendens × Thompsonii), from WM. THOMPSON, Esq.

NORTH OF ENGLAND HORTICULTURAL.

MARCH 14.—The monthly meeting of the above Society was held at the Central Bath, Bradford, on this date. Many who had intended showing were prevented, owing to the disorganised train service. The exhibition was opened by the Lord Mayor of Bradford, Ald. J. B. Moorhouse, J.P. This was the first time the Society has held a show at Bradford, and the attendance was so encouraging that it was decided to hold a show in this town every season.

Floral Committee.

Large Silver-gilt Medal to Messrs. R. P. KER & SON, Liverpool, for a very fine exhibit of Hippeastrums.

Silver-gilt Medals to Mr. C. ENGELMANN, Saffron Walden, who showed Carnations, those especially noteworthy being Carola, Lady Northcliffe, Triumph, and White Wonder, and Messrs. YOUNG & Co., Cheltenham, also for Carnations, including the varieties Mikado and Black Chief.

Large Silver Medal to J. HILL, Esq., Chellow Dene, Bradford (gr. Mr. G. Dunsmore), for a collection of forced plants and bulbs.

Silver Medals to Messrs. WM. ARTINDALE & SON, Sheffield, who exhibited a collection of a fine strain of Primula obconica; Messrs. JOHN BROOKE, Bradford, for a collection of forced bulbs, Lilies, and other plants in bloom; and Messrs. J. WOOD, Boston Spa, for an exhibit of rockwork.

Large Bronze Medals were awarded to Messrs. W. CONWAY & SONS, LTD., Halifax, for a rock garden; Messrs. BROADHEAD & SON, Wooldale Nurseries, Huddersfield, who showed a small rockwork exhibit; Messrs. SAM. DEAN & SONS, Victoria Nurseries, Bradford, who exhibited forced bulbs; and F. SPENCER, Esq., Bradford, for forced bulbs and greenhouse plants.

AWARDS.

A First-class Diploma was awarded to Carnation "Lady Northcliffe," shown by Mr. C. ENGELMANN, Saffron Walden, and a Second-class Diploma to Hippeastrums Pink Perfection and Ruby Queen, shown by Messrs. R. P. KER & SON, Liverpool.

Orchid Committee.

Large Silver Medals were awarded to J. H. CRAVEN, Esq., The Beeches, Keighley (gr. Mr. F. W. Corney), for a collection of Orchids; W. SHACKLETON, Esq., Bradford, for an exhibit mainly of Odontoglossums; and J. HARTLEY, Esq., The Knowle, Morley (gr. Mr. W. Coupe), for a general collection.

Silver Medals to Messrs. A. J. KEELING & SONS, Bradford, for a group containing many well-flowered Dendrobiums; Messrs. MANSELL & HATCHER, Rawdon, Leeds, whose Dendrobiums were conspicuously good; and N. GALLOWAY, Esq., Great Horton, Bradford, for a small group, consisting of Odontoglossums, Dendrobiums, Cattleyas, and Cypripediums.

A *Bronze Medal* was awarded to E. V. Low, Esq., Haywards Heath, Sussex, for a miscellaneous collection.

AWARDS.

First-class Diplomas were awarded to Odontioda eboraicum, shown by J. H. CRAVEN, Esq., The Beeches, Keighley; and for four well-grown and flowered white seedlings of Dendrobium Cybelle, shown by W. H. ST. QUINTIN, Esq., Scampston Hall, York (gr. Mr. F. C. Puddle); Second-class Diplomas were granted to Dendrobium nobile "Thwaites' variety," and D. chessingtonense, shown by J. HARTLEY, Esq., The Knowle, Morley (gr. Mr. W. Coupe).

Obituary.

C. C. ELLISON.—Readers will learn with regret of the death of the Rev. C. C. Ellison, M.A., of the Manse, Bracebridge, Lincoln, at the age of 77. From his earliest youth to the last day of his long and honoured life he loved gardening with a passion which was all-absorbing. He was Vicar of Bracebridge Parish for a great number of years, but he eventually retired in order to obtain more leisure to follow his two hobbies of gardening and ivory-turning. He, however, continued to take an active interest and practical part in the work of the church to the time of his death, being chaplain of the small private church at Boultham Hall on the estate of his brother, the late Colonel Sir R. Ellison.

JAMES MCKAY.—Mr. James McKay, florist and landscape gardener at Baltimore, U.S.A., died recently at Bay View Hospital. Mr. McKay was born in Scotland 67 years ago, and was at one time employed in the Royal Gardens at Sandringham. He settled in America about 15 years ago.

THE WEATHER.

THE WEATHER IN WEST HERTS.

Week ending March 20.

The sixth warm week in succession.—The first day was the warmest of the month as yet, but since then the day temperatures have been either cold or about average. There were no cold nights. The ground is still 3° warmer at 2 feet deep, and 2° warmer at 1 foot deep, than is seasonable. Rain has fallen on each of the past six days, and to the total depth of over three-quarters of an inch. Last night there was a slight fall of snow. Since the month began there have been only five days without rain, the total measurement being 2½ inches, or about half-an-inch more than the average quantity for the whole month. During the week 3¼ gallons of rainwater have come through the bare soil gauge, and 2 gallons through that on which short grass is growing. The sun shone on an average for 1¾ hours a day, which is only about half the average duration for the middle of March. Three days were very nearly, or altogether, sunless. The winds have been, as a rule, of moderate strength, and have come mostly from some point of the compass between S. and W. The mean amount of moisture in the air at 3 o'clock in the afternoon exceeded a seasonable quantity for that hour by 5 per cent. An Early Rivers Peach growing on a south wall in my garden came first into blossom on the 16th, or six days earlier than its average date for the previous 26 years, and five days earlier than last year. *E. M., Berkhamsted, March 20, 1912.*

CATALOGUES RECEIVED.

TILLEY BROS., 133, London Road, Brighton—Farm Seeds.
WM. WATSON & SONS (LTD.), Clontarf Nurseries, Dublin—Garden Flowers.
G. S. EVANS, Bexley Heath, Kent—Carnations.
Mrs. A. M. PYM, Vine House, Woodstone, Peterborough—Nursery Stock.
A. F. DUTTON, Iver, Buckinghamshire—Carnations.
E. P. DIXON & SONS, LTD., Hull—Farm Seeds.
LISSADELL NURSERIES, Sligo, Ireland—Alpine and Hardy Herbaceous Plants; Shrubs.

MARKETS.

COVENT GARDEN, March 20.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—EDS.]

Cut Flowers, &c.: Average Wholesale Prices.

	s.d.	s.d.
Arums (Richardias)	2 0	2 6
Azalea, doz. bnchs.	3 0	3 6
— mollis, p. bnch.	1 6	1 9
Camellias, per box of 18's and 24's	1 6	2 0
Carnations, p. doz. blooms, best American var.	1 3	1 6
— smaller, per doz. bunches	10 0	15 0
— Carola, crimson, extra large	6 0	—
Eucharis, per doz.	2 6	3 0
Freesia refracta alba, p.dz. bun.	1 3	1 6
Gardenias, per box of 15 & 18 blms.	2 6	3 6
Lilac, per bunch white	2 0	2 6
— mauve	3 0	3 6
Lilium auratum per bunch ...	4 0	5 0
— longiflorum, long, per doz.	2 0	2 6
— short, per doz.	2 0	—
— lancifolium alba, long ...	2 0	—
— — short ...	1 6	2 0
— speciosum rubrum, dz. blooms:		
— long	1 9	2 0
— short	0 9	1 0
Lily of the Valley, p. dz. bunches:		
— extra special ...	15 0	18 0
— special... ...	10 0	12 0
— ordinary ...	8 0	—
Marguerite, per doz. bunches:		
— Yellow... ...	2 0	2 6
Myosotis (Forget-me-not), p. dz. bunches ...	3 0	4 0
Narcissus, per doz. bunches:		
— Double Van Sion	1 0	1 6
— Emperor ...	2 0	2 6
— Empress ...	1 6	2 0
— Golden Spur...	1 0	1 6
— Obvallaris ...	0 9	1 0
— Campanella (Odorus) ...	0 9	1 0
— Poeticus ...	1 3	1 6
Narcissus, per doz. bunches:		
— Princeps ...	1 0	1 3
— Sir Watkin ...	1 6	2 0
— Victoria ...	2 0	2 6
— Barrii	1 6	2 0
Orchids, Cattleya, per doz. ...	12 0	—
— Odontoglossum crispum ...	3 0	4 0
Pelargoniums, p. dz. bunches:		
— Double Scarlet	8 0	12 0
Primroses, per doz. bunches ...	1 3	1 6
Roses, 12 blooms,		
— Bridesmaid,	3 0	4 0
— C. Mermet ...	3 0	4 0
— General Jacqueminot ...	1 0	1 6
— Liberty ...	2 0	4 0
— Madame A. Chateney ...	2 6	4 0
— Niphetos ...	1 6	2 6
— Richmond ...	2 0	3 6
— Sunrise ...	1 0	1 6
— Lady Roberts	2 0	2 6
— Lady Hillingdon	2 0	2 6
— Franz Deegan	3 0	3 6
— Kaiserine ...	1 6	3 0
Sweet Peas (white), pr. doz. bnchs.	2 0	2 6
Tulips, per bunch:		
— double pink ...	0 8	1 3
— — yellow ...	1 0	1 6
— — scarlet ...	1 3	1 6
— p. dz. bunches:		
— white	5 0	6 0
— yellow	6 0	7 0
— scarlet ...	6 0	8 0
— bronze... ...	8 0	9 0
— pink	6 0	8 0
— Darwin, p. bch.:		
— pink	1 6	1 9
— mauve	1 6	1 9
— red	1 6	1 9
Violets, p. dz. bchs.	1 3	2 0
— Princess of Wales, per doz. bunches ...	3 0	4 0
— Parma	1 6	2 0
Wallflowers, per dozen bunches	2 0	2 6

Cut Foliage, &c.: Average Wholesale Prices.

	s.d.	s.d.
Adiantum Fern (Maidenhair), best, dz. bnchs.	7 0	8 0
Agrostis (Fairy Grass), per dz. bunches ...	2 0	4 0
Asparagus plumosus, long trails, pr. ½ doz.	1 6	2 0
— medium, doz. bunches ...	12 0	18 0
— Sprengeri ...	10 0	12 0
Carnation foliage, doz. bunches...	4 0	—
Croton foliage, various, per dozen bunches ...	12 0	15 0
Cycas leaves, artificial, per doz.	3 0	12 0
Eulalia japonica, per bunch ...	1 0	1 6
Moss, per gross ...	6 0	—
Myrtle, dz. bchs. (English), small-leaved ...	6 0	—
— French ...	1 0	—
Smilax, per bunch of 6 trails ...	1 6	—

Plants in Pots, &c.: Average Wholesale Prices.

	s.d.	s.d.
Acacia lineata, 48's, per dozen ...	18 0	21 0
Aralia Sieboldii, p. dozen	6 0	7 0
Araucaria excelsa, per dozen ...	18 0	21 0
Asparagus plumosus nanus, p.dz.	10 0	12 0
— Sprengeri ...	8 0	9 0
Aspidistra, p. dz., green	21 0	30 0
— variegated ...	30 0	60 0
Azaleas, per doz.	36 0	42 0
Boronia Megastigma, 48's, p. dz.	21 0	24 0
Cinerarias, pr. dz.	8 0	9 0
Cocos Weddeliana, per dozen:		
— 60's	6 0	12 0
— larger, each ...	2 6	10 6
Croton, per dozen	18 0	30 0
Cyperus alternifolius, per doz.	5 0	6 0
— laxus, per doz.	4 0	5 0
Daffodils, per doz.	6 0	8 0
Dracæna, green, per dozen ...	10 0	12 0
Ericas, per dozen:		
— Willmorei, 48's	15 0	18 0
— persoluta ...	27 0	30 0
Ferns, in thumbs, per 100... ...	8 0	12 0
— in small and large 60's ...	12 0	20 0
— in 48's, doz. ...	6 0	—
Ferns, choicer sorts, per doz.	8 0	12 0
— in 32's, per dozen	10 0	18 0
Ficus elastica, per dozen	9 0	12 0
Genistas, 48's, per doz.	10 0	12 0
Geonoma gracilis, 60's, per dozen	6 0	8 0
— larger, each ...	2 6	7 6
Hyacinths white & clrd., p. dz. pots	10 0	12 0
Kentia Belmoreana, per dozen	5 0	42 0
— Fosteriana, 60's, per dozen	4 0	6 0
— larger, per doz.	18 0	60 0
Latania borbonica, per dozen ...	12 0	30 0
Lilium longiflorum, p. doz.	20 0	24 0
— lancifolium rubrum in pots, per dozen ..	15 0	18 0
— lancifolium alba	15 0	18 0
Marguerites, white, per dozen ...	8 0	1 0
Pandanus Veitchii, per dozen ...	36 0	48 0
Phœnix rupicola, each	2 6	21 0
Spiræa japonica, p. dozen pots ...	10 0	12 0

Fruit: Average Wholesale Prices.

	s.d.	s.d.
Apples (English cookers) bushel	6 0	12 0
— Nova Scotian, per barrel ...	17 0	22 0
— Californian Newtowns, pr. case	6 0	8 0
— (Canadian), per barrel	20 0	—
— Oregon (Hood River), per case	16 0	18 6
— American, per barrel	20 0	32 0
Bananas, bunch:		
— Doubles ...	10 0	12 0
— No. 1 „ ...	8 0	10 0
— Extra	10 0	12 0
— Giant „ ...	14 0	18 0
— Loose, per dz.	0 6	1 0
— Red coloured...	5 6	6 6
— Jamaica Giants, per ton ...	£10	£12
— Jamaica Ordinary, per box (9 doz.) ...	4 0	5 0
Cranberries, per case (30 qts.)...	10 0	11 0
— Cape Cod, per case (30 quarts)	9 6	—
Dates (Tunis) doz. boxes	4 6	5 6
Grape Fruit, case:		
— 96's	14 0	20 0
— 80's		
— 64's		
— 54's		
Grapes (English), per lb.:		
— Black Alicante	2 3	3 0
— Gros Colman ..	2 0	3 6
— (Belgian), Gros Colman, p. lb.	1 3	2 0
— Almeria, p. brl.	11 6	15 6
Per dozen lbs.	4 0	6 0
— (Cape) per case	4 0	5 0
— „ White...	5 0	6 0
— „ Red ...	5 0	7 0
Lemons:		
— (Naples), case	26 0	30 0
— Messina, per case	7 6	17 0
Limes, per case ...	4 0	—
Mangoes, per doz.	6 0	10 0
Melons (Cape) ...	0 10	1 6
Nuts, Almonds, per bag	52 6	—
— Brazils, new, per cwt ...	85 0	100 0
— Spanish, p. sack	40 0	42 0
— Barcelona, bag	35 6	36 6
Nuts, Chestnuts, per bag ...	3 6	19 0
— Cocoanuts, 100	18 0	23 0
— English Cobs per lb.... ...	0 3	—
— Walnuts (Naples) kiln dried, cwt. cases	54 0	—
Nuts, French Grenobles, per bag	6 6	7 0
— Boeris, per bag	6 0	7 0
Nectarines (Cape) per box ...	4 0	8 0
Oranges, Jamaica per case ...	9 0	10 0
— Californian ...	15 0	16 0
— Denia, case ...	16 0	34 0
— Valencia ...	10 0	12 0
— Jaffa, per case	9 6	—
— Blood, per case	8 0	9 0
— Mandarins, per box ...	0 6	3 6
— Bitter, per ½ chest	16 0	18 6
— Seville Sour ½ chest ...	15 0	18 0
Pears (Californian), per case ...	10 6	16 6
— Glou Morceau	11 6	12 6
— Easter Beurré	8 6	—
— Winter Nelis	12 6	13 6
— (American) per barrel, 180 lbs.	25 0	26 0
— cases	7 0	—
— (Cape)	4 0	5 0
Pineapples, St. Michael ...	2 6	5 0
Pines Cape), each	0 6	0 9
Plums (Cape), per case	4 0	6 0
— Apple, per box	6 0	8 0
Strawberries, p. lb.:		
— A quality ...	9 0	12 0
— B quality ...	3 0	6 0

Vegetables: Average Wholesale Prices.

	s.d.	s.d.
Artichokes (Globe), per dozen ...	3 0	4 0
— Jerusalem, per ½ bushel ...	1 0	—
Asparagus, Sprue.	0 10	1 0
— Lauris ...	3 0	4 6
— Paris Green ...	3 0	3 6
— (English), per bundle	3 6	4 6
Beans, Guernsey, Dwarf, per lb.	1 3	1 6
— French, per packet, lb. ...	1 6	1 9
Beetroot, p. bshl.:		
— Long	2 6	3 0
Broccoli, sprouting, per bag ...	2 0	3 0
Celeriac, per doz.	2 6	3 0
Cabbages (French) per dozen ...	2 6	3 0
— (English), per tally	6 0	10 0
— Cornish, per dozen	1 0	1 3
Cauliflowers, p. dz.	2 0	3 0
— (Italian), p. pad	2 0	3 0
— (Cornish), per crate	5 0	7 6
Celery, doz. bndls.	6 0	10 0
— (washed), per dozen bundles	10 0	18 0
Carrots (English), pr. doz. bun....	2 6	3 0
— per cwt. ...	3 6	4 6
— (washed) p. bag	4 0	5 0
Chicory, per lb. ..	0 4	—
Cucumbers, p. doz.	4 0	6 0
Endive, per dozen	2 0	—
Greens, per bag ...	2 6	3 6
Herbs (sweet), pkts., p. gross	7 0	—
Horseradish, 12 bundles ...	10 0	14 0
Leeks, per doz. ...	1 6	—
Lettuce (French), per doz. ...	0 9	1 3
Mint, per dozen bunches ...	4 0	5 0
Mushrooms, cultivated, p. lb. ...	0 8	0 10
Mustard and Cress, pr. dz. punnets	1 0	1 6
Onions (Dutch) per bag	7 0	8 6
— English ...	8 0	9 0
— (Spanish), per case	9 0	10 0
Parsley, ½ sieve ...	1 6	—
— per doz. bun.	2 6	3 0
Parsnips, per bag	4 6	5 0
Peas (French) p. pad	5 0	6 0
— (Guernsey), lb.	3 0	3 6
Radishes (English), per dozen ...	1 3	1 6
Rhubarb, forced, per 12 bundles	0 8	1 0
— Outdoor, per dozen	2 6	—
Savoys, per tally .	10 0	12 0
Spinach, pr. bshl.	3 0	4 0
Seakale, p. punnet	0 10	1 3
Tomatos (Canary Islands), per bundle... ...	12 0	15 0
Turnips (English), per dz. bunches	2 6	3 0
— bags (washed)	4 0	4 6
— (unwashed) ...	3 0	3 6
Turnip Tops, per bag	2 0	2 6
Watercress, p. dz. bunches ...	0 4	0 6

REMARKS.—It is expected that Gros Colman and Black Alicante Grapes (English) will be available until the end of the present month. Belgian Grapes remain a fairly good supply, the best samples being in demand. About 7,000 boxes of Cape Grapes have been received during the present week, consisting of the varieties Haanepoot, Hermitage, and Barbarossa; many of the samples arrived in a very good condition. There have also been received Pears, Plums, and Pineapples from the Cape, about 11,000 boxes; it is anticipated that these consignments will now gradually decrease from week to week. Three shipments of Australian Apples are due to arrive this week, amounting to about 40,000 boxes of dessert varieties. Supplies of Channel Islands produce are now commencing to show a considerable increase all round and prices are much easier. Imported vegetables, such as Asparagus and Spinach, are a heavier supply. English forced Strawberries are more plentiful, consequently their prices have fallen considerably. Nova Scotian consignments, per s.s. "Mount Temple," amounted to 6,845 barrels of Apples, consisting of Russets, Fallawaters, Ben Davis and Nonpareils. Good Apples are in demand. Trade in outdoor vegetables shows an improvement. Mushrooms have been a much heavier supply this week. Teneriffe Tomatos are arriving in a very satisfactory condition, and are meeting with a fairly good demand. *E. H. R., Covent Garden, March 20, 1912.*

Potatos.

	per cwt. s.d.	s.d.
Kents—		
Queen's	4 0	4 6
Up-to-Date ...	4 0	4 6
Lincolns—		
Up-to-Date ...	3 9	4 6
British Queen ...	3 9	4 3
King Edward ...	4 0	4 6
Northern Star ...	2 9	3 6
Evergoods ...	3 0	3 9
Lincolns—		
Maincrops ...	4 3	4 6
Blacklands ...	3 0	3 3
Bedfords—		
Up-to-Date ...	3 9	4 0
Dunbars—		
Up-to-Date ...	5 0	5 3
Maincrop ...	5 3	5 6

New Potatos.

Teneriffe ...	... 10 6	14 0	Algerian — ... 12 6	15 0

REMARKS.—Trade shows no improvement. Supplies are plentiful, with only a fair demand. Prices are about the same as last week. *Edward J. Newborn, Covent Garden and St. Pancras, March 21, 1912.*

Answers to Correspondents

*** *The Editors will be glad to receive, for consideration, large photographs of horticultural subjects, suitable for reproduction in this Journal.*

ADDRESS: *R. H.* The secretary of the United Horticultural Benefit and Provident Society is Mr. Wm. Collins, 9, Martindale Road, Balham, London.

AMERICAN ASSOCIATION OF PARK SUPERINTENDENTS: *Hortus.* The Secretary-Treasurer is Mr. F. L. Mulford, Landscape Gardener, Department of Agriculture, Washington, U.S.A.

CARNATION AND VIOLET: *J. M. S.* The plant of Souvenir de la Malmaison Carnation appears to have suffered from an attack of red spider or of aphis, but neither pest was to be found on the specimen when it reached this office. There are also indications of the presence of a fungus disease, probably Helminthosporium, but further specimens would be needed to make certain of this. The Violets may have been subjected to an excessive amount of moisture, either in the bed itself or in the atmosphere, accompanied by deficient ventilation. We do not know of any other reasons that would cause the flower-buds to fail as in your case. It is well recognised that Violets in frames do not like much artificial heat, but they require abundant ventilation at all times when the weather permits. The best thing you can do is to remove all foliage which appears unhealthy and the decaying flower-buds. Admit air more abundantly to the frame, taking care to avoid making the soil sodden by over-watering.

HYACINTH AND TULIPS DECAYING: *W. H. A.* The Hyacinth and Tulip bulbs are injured by Bacterium hyacinthi, which is indicated by yellow, shiny spots or streaks in the scales of the bulbs. No remedy is known. The bulbs should be burned, and the soil in which they were growing heated to destroy all traces of the disease.

LILACS AND MELONS: *R. O. F.* Lilacs for flowering in pots must be first-rate specimens. Cut your plants hard back to good, plump eyes, afterwards plunging them out-of-doors in a sunny spot, affording plenty of water during dry weather, with occasional applications of liquid manure. When growth has commenced, all weakly shoots should be pulled off, retaining only from six to twelve of the strongest growths, according to the size of the plants. These should set flower-buds if they are encouraged to grow freely. In the autumn, after the leaves have fallen, the plants may be lifted, and any roots outside the pots should then be cut off. The plants may then be forced into bloom at almost any time. Grafting is not necessary. The addition of well-rotted manure to the soil in which Melons are growing is necessary, but we should not advise incorporating leaf-mould unless the latter be thoroughly rotted, as when fresh it favours the spread of fungus diseases and eel-worms.

LIME TREE DECAYING: *J. M.* It is most probable that the tree is suffering from the effects of the prolonged drought of last summer. You should adopt the treatment recommended to *W. B. J., Bridlington*, under Wellingtonia on p. 178 in last week's issue.

MARKET GARDEN COMPENSATION: *Boston.* The improvements for which a tenant of a holding (in respect of which it was agreed in writing that the holding should be let or treated as a market garden) is entitled to compensation from his landlord apart from improvements of a permanent nature, such as erection of buildings, manuring, &c., are: (1) Planting of standard and other fruit trees permanently set out. (2) Planting of fruit bushes permanently set out. (3) Planting of Strawberry plants. (4) Planting of Asparagus, Rhubarb, and other vegetable crops which continue productive for two or more years. You would therefore only obtain compensation for crops that came within one of the above headings, and these would not include Cabbages.

NAMES OF PLANTS: *Hants.* 1, Pinus insignis; 2, apparently Cupressus sempervirens (specimen sent separately); 3, Thuya dolabrata variegata; 4, Abies nobilis; 5, Cupressus macrocarpa; 6, Spiræa Thunbergii.—*W. J. F.* Dendrobium chrysotoxum.—*R. D.* 1, Eria clausa; 2, E. stricta; 3, Dendrobium crumenatum.—*Foreman.* 1, Oncidium flexuosum; 2, Odontoglossum blandum; 3, Oncidium sphacelatum; 4, Eria amica.—*H. P.* Epidendrum oncidioides.—*W. C.* A variety of Acer japonicum, Cerasus sinensis.

PEACHES AND NECTARINES UNHEALTHY: *E. J. D.* The shoots are affected with die-back, caused by a fungus called Naemospora. The spores are exceedingly minute and ooze out of the branches in sticky threads, which are carried by insects or other agencies from one tree to another. Remove diseased shoots and spray the trees with Bordeaux mixture, made at half the usual strength, until the leaf-buds begin to open.

SAND TENNIS COURT: *A. S., St. Peter's.* The making of a sand tennis court is a difficult matter, and, unless you have had experience, any attempt is almost sure to be unsuccessful. We should advise you to consult a specialist on the subject. The editor of *Lawn Tennis and Badminton* has kindly sent us the names of the following firms, either of which would be willing to undertake the work for you: The British Hard Court Co., 14, Craven House, Kingsway, W.C., and the En-Tout-Cas Tennis Court Co., 30, Great St. Helens, E.C.

THE PLUMS OF NEW YORK: *S. M., Leatherhead.* This work is an official publication, and forms the Report of the New York Experiment Station for 1910. The publishers are J. B. Lyon Co., State Printers, Albany, U.S.A.

WEED IN POND: *T. S., Harbourne.* The plant you send is the Canadian Pond Weed (Elodea canadensis), which has become a pest in rivers and streams in this country. It propagates with great rapidity, as almost every portion of the plant is capable of growing and forming the centre of a fresh colony. The only way of keeping the pest within bounds is to rake it out of the water as much as possible each spring.

YOUNG VINES BREAKING IRREGULARLY: *E. C.* Young vines, especially the varieties you mention, are very impatient of much artificial heat till top growth and roots are active. You state that the roots are all in outside borders; this fact renders it doubly necessary to start the vines slowly. You do not say whether the borders are protected. If not, it is not surprising that the vines have broken irregularly. To force vines successfully which have all their roots outdoors, it is necessary to cover the border with a layer about 2 feet thick of fermenting materials; these materials in turn should be covered with a tarpaulin or something that will keep off rains and snow. We would advise you to do this now as there is still a danger from cold rains and snowstorms, which would chill the soil of the borders and cause a check to the flow of the sap in the vines. Next season close the vinery for two or three weeks before employing artificial heat, then employ fire-heat very gradually as growth advances.

Communications Received.—C. & Co.—B. F. C.—E. D.—Dr. J.—F. B., Sparkeswood—H. L. R.—H. P.—T. T.—A. H. F.—F. J.—A. P. R.—A. & B.—T. S.—W. P. P.—F. R.—E. H. J.—W. A. C.—W. F.—H. S. T.—W. A. X.—W. D.—J. T. B.—E. W. P.—J. G. F.—T. G. H.—C. T. D.—S. A.—H. S. H., New York—A. H. H., Jamaica—H. F. M.—C. G. G., Hale—Anxious—T. M., Denmark—R. J. W.—F. C. E.

ALPINE PINKS.

THE GARDENERS' CHRONICLE

ESTABLISHED 1841

No. 3718

No. 1,318.—Vol. LI. {THIRD SERIES.} SATURDAY, MARCH 30, 1912. {Registered as a Newspaper.} {PRICE 3d. POST-FREE, 3½d.

SUBSCRIPTION—Inland, 15/-; Foreign, 17/6 [22fr. 10c.] [$4 26c.] per annum. Entered at the New York Post Office as second-class matter.

Postal Address—41, Wellington Street, Covent Garden, W.C. Telegraphic Address—"Gardchron, London." Telephone—Gerrard, 1543.

☞ **For CONTENTS see page 195.**

NOTICE.

In consequence of the decreased Railway facilities caused by the Coal Strike, the distribution of the "Gardeners' Chronicle" may be delayed, although every effort will be made to prevent inconvenience.

WEBBS' NEW PERFECTION PINK ASTER.—A distinct new beautiful blush pink colour. 1s. and 2s. 6d. per packet, post free.

WEBBS' BEDDING ASTER.—Specially for Bedding. Rose, Dark Crimson, White, Purple, Pink, Light Blue, and mixed colours. Each, 6d. and 1s. per packet. Collection of 6 distinct colours, separate, 3s., post free.

WEBBS' NEW ADMIRATION STOCK.—Almond Blossom, White, Rosy Lilac, Violet, Flesh Colour, and mixed colours. Each, 1s. per packet, post free.

WEBBS' BEDDING STOCK.—Specially for Bedding. Scarlet, Canary Yellow, Purple, Light Blue, White, Rose, and mixed colours. Each, 6d. and 1s. per packet, post free. Collection of 6 distinct colours, separate, 3s., post free.—WEBB & SONS, The King's Seedsmen, Wordsley, Stourbridge.

ALPINES & HERBACEOUS PLANTS,—Himalayan and other rare Rhododendrons, rare Shrubs, Construction of Rockeries. Catalogues ready.
G. REUTHE, Keston, Kent.

New Phloxes.

GUNN & SONS were Awarded a Silver Cup at the Great Show at Olympia. New Lists now ready. Address: Olton, Warwickshire.

RITCHIE'S SWEET PEAS.—Universally acknowledged to be the best procurable; Exhibition collection, containing the best 12 Spencers, viz., Asta Ohn, Clara Curtis, Edna Unwin, Elsie Herbert, Gladys Burt, Jno. Ingman, Marj. Linzee, Maud Holmes, Mrs. Sykes, Mrs. Breadmore, Prince Asturias, Tennant Spencer, 30 seeds each, 2s. 6d., post free; Sweet Pea list free on request.—
A. S. RITCHIE & CO., Seedsmen, Belfast.

GARDEN PESTS.—Cross's "Clubicide" is the Gardeners' Insurance against damage by Eelworm, Wireworm, Slugs, Maggot, and all Disease Germs and Insect Pests. Kills all harmful Bacteria, reinvigorates the soil, stimulates plant life. In 1s. flasks and ½-gall. and 1 gall. drums. From all Seedsmen.
Sole Manufrs.: A. CROSS & SONS, Ltd., Glasgow.

OSMUNDA for Orchids.—Consignments arrive fortnightly. 2s. 6d. per bushel; per bag, 8s. 6d.
SANDER & SONS, St. Albans.

WALTERS & CO., Morland Rd., Croydon, Makers of Lath Roller Greenhouse Blinds; Trellis Screens and Fences, Arches, Arbours, Rose Pillars. Established over 20 years. Write for new 1912 Catalogue.

BUNYARD'S CATALOGUES, free on application.
BORDER CARNATIONS, 50 varieties.
ROSES AND OTHER CLIMBERS, in Pots.
HERBACEOUS AND AQUATIC PLANTS for present planting.

GEORGE BUNYARD & CO., LTD., Royal Nurseries, Maidstone. Established 1796.

SUTTON'S SUPERB BEDDING ASTERS. A splendid selection, specially adapted for producing masses of colour in beds. Scarlet, Delicate Rose, Bright Rose, [illegible]e, Lilac (Mauve), White. Each per packet, 1s. Collection of the six colours, separate, 5s.

SUTTON'S SUPERB BEDDING STOCKS. Selected with great care, expressly for bedding purposes. White, Yellow, Blush-rose, Peach-blossom, Pink, Terra Cotta, Carmine-pink, Scarlet, Mauve, Blue and Purple. Each per packet, 1s.

SUTTON & SONS, The King's Seedsmen, READING.

DOUGLAS'S CARNATIONS & PINKS, border and perpetual, are noted all over the world. 5 Gold Medals, R.H.S., 450 Medals and Cups. Newest and best varieties at most reasonable prices, all ready for planting or potting on. Finest hand fertilized seed only sold. Carnation and Picotee seed, all types, 1s. 6d. to 2s. 6d. packet. Auricula, Pink, Polyanthus, finest strain in existence, all 1911 fine crop, now ready for sowing. Send for catalogue, Edenside, Gt. Bookham.

GISHURST COMPOUND is harmless in use; its soluble Sulphur, &c., has for 40 years cured Blights and Fungus on Plants, and is good for washing unhealthy dogs. Gishurstine keeps boots dry in all weathers; they will polish. Good for Harness.
Wholesale from—
PRICE'S PATENT CANDLE CO. LTD., London.

WM. DUNCAN TUCKER & SONS, Ltd., 27, Cannon Street, London, E.C.; Works, Tottenham. Conservatories, Winter Gardens, Vineries, Peach-houses, Portable Buildings, etc. Catalogue gratis.

FIDLER'S GIANT-FLOWERED SWEET PEAS. Send at once for our collection (C) of 14 named varieties, all separate, containing in all 1,000 good plump new seeds. Post free with catalogue for 1s.
FIDLER & SONS, Royal Berkshire Seed Stores, Reading.

BARR'S VEGETABLE AND FLOWER SEEDS of finest selected strains and tested growth. Descriptive Catalogue free.

BARR'S HARDY PERENNIALS, ALPINES, AQUATICS, CLIMBERS, ETC., FOR SPRING PLANTING. Descriptive Catalogue, with Cultural Notes, free.

BARR'S BEAUTIFUL LILIES, Gladioli, Cannas, Montbretias, Tigridias, etc., for Spring Planting. Special Catalogue free on application.
BARR & SONS, 11, 12 & 13, King St., Covent Garden, London.

COOPS, COOPS, for the season. The Keeper's Coop. Best on the market, 5s. 6d. each; 60s. per dozen, carriage paid. Runs, 2s. 6d. each extra. Send for list, showing numerous other designs.
BOULTON & PAUL, Ltd., Rose Lane Works, Norwich.

Roses and Herbaceous Plants.

GUNN & SONS were awarded the 25 Guinea Challenge Cup in each collection at the Leamington Show. Up-to-date List for each now ready. Address: Olton, Warwickshire.

LISSADELL ALPINE & HERBACEOUS PLANTS.—Write for our new illustrated and enlarged List, containing many beautiful novelties at moderate prices. Also List of Seeds collected from above in 1911.
J. A. COOPER, Lissadell (No. 2), Sligo, Ireland.

GREENHOUSE PAINTING & GLAZING "Vitrolite" superior to White Lead Paint, 9/- per gall. "Plastine" supersedes Putty, 16/- per cwt. Full particulars from W. CARSON & SONS, Grove Works, Battersea. Agents throughout the country.

For Advertisement Charges see page iv.

KELWAY'S "Manual of Horticulture" is the best of all Garden Books, 2s., post free. From ——, Esq., Northwood, Middlesex, September 28th, 1911: "I find that I have never forwarded 2s. for your lovely Catalogue you sent me some weeks since. It would be cheap at five times the price, and I sincerely regret the oversight."—KELWAY & SON, Langport, Somerset.

THE MODERN HERBACEOUS BORDER.—Full particulars and prices of Kelway Borders packed, arranged for planting, to flower in tasteful schemes of colour, from—KELWAY & SON, The Royal Horticulturists, Langport, Somerset. From ——, Esq., Penmon, Beaumaris, Anglesey. "I shall probably want some more Herbaceous things, as those we got from you last year have done splendidly. I do not know whether it is the excellence of your plants or the season, but some of them have grown enormous."

NOW is the time to plant Kelway's Delphiniums—fine, bold upstanding plants with a wealth of bloom in all shades of blue and purple. They are from strong country-grown stocks, and flourish under almost all conditions. From ——, Morristown, N.J., U.S.A.: "We have had clumps of your Larkspurs, enduring frost down to 40° (below zero) F., for ten successive winters. It is true that they have had sometimes a covering of several feet of snow, and sometimes none at all." Choice named collections 15s., 24s., 34s., 56s. a dozen.—KELWAY & SON, The Royal Horticulturists, Langport, Somerset.

IRON & WIRE FENCING for GARDENS, Tree Guards, Gates, Arches, Espaliers, Rose Stakes, and Ornamental Garden Iron and Wire Work of every description. Send for Illustrated Catalogue, free.
BOULTON & PAUL, Ltd., Manufacturers, Norwich.

BATH'S SELECT SEEDS.—New Illustrated Catalogue of Choice Vegetable and Flower Seeds, with full cultural notes, is now ready, and will be sent post free on application.
(Dept. A), R. H. BATH, Ltd., The Floral Farms, Wisbech.

FRUITING VINES IN POTS.—Muscat of Alexandria, and leading Market varieties. We make Vines a speciality.
G. COLEMAN, The Vineries, Burgess Hill, Sussex.

DICKSONS Horticultural Manure & other high-class Fertilizers; also Dicksons Improved Mushroom Spawn. Priced Circulars free on application to DICKSONS, Royal Seed Warehouses & Nurseries, Chester

AUTO SHREDS FUMIGANT kills Leaf-mining maggot, insects in greenhouses, frames. For 1,000 cubic feet, 6d.; 10,000, 3s. 6d. No apparatus.
WM. DARLINGTON & SONS, Patentees, Hackney, N.E.

THE Popularity of "XL ALL" Specialities increases every year. All gardeners proclaim that nothing equals these celebrated preparations. "XL ALL" NICOTINE VAPORISING COMPOUND, the gardeners' favourite Fumigant, both Liquid and Cake. "XL ALL" NICOTINE INSECTICIDE WASH for Syringing, Dipping and Dressing Fruit Trees and Plants; Mealy Bug, Scale, etc., cannot exist where this is used. "XL ALL" INSECTICIDE WASH B (*sine* Nicotine), best non-poisonous Wash on the Market. No licence required to sell this. Other preparations of great renown, both poisonous and non-poisonous, are:—"XL ALL" WEED KILLER, "XL ALL" FERTILISER, "XL ALL" ROSE MANURE, "XL ALL" WINTER WASH for Fruit Trees. etc Don't forget to ask your Nurseryman, Seedsman or Florist for Richards' small pink list.—G. H. RICHARDS, Manufacturer, 234, Borough High Street, London, S.E.

THE BEST OF ALPINES, and new and old-fashioned Perennials, Rock Gardens, Borders, Water Gardens, and Wild Gardens designed and planted. Illustrated Catalogue (free).—THE GUILDFORD HARDY PLANT NURSERY, Guildford.

SALES BY AUCTION.

Monday and Wednesday next.

MONDAY NEXT, April 1st, at 12 o'Clock.—Japanese Liliums, Gladiolus, Montbretias, Begonias, Gloxinias, Lily of Valley, &c., Herbaceous Plants, Flowering and Decorative Shrubs, Spiræas, Iris, Pæonies, &c.

At 1.30 o'Clock.—1,500 ROSES, Standard, Dwarf, Climbing, &c., also Fruit Trees in variety.

WEDNESDAY NEXT, April 3rd, at 12 o'Clock.—Choice Herbaceous Plants, Perennials, and Rock Plants, Lily of Valley, Gladiolus, Begonias, Japanese Lilies and Iris, Carnations, Pinks, Pæonies, &c.

At 1.30 o'Clock.—4,000 ROSES, English and Continental, together with Standard, Pyramidal, and Dwarf-trained Fruit Trees. 30 choice Japanese Dwarf Trees in fancy porcelain pots.

At 5 o'Clock.—Azalea indica, Rhododendrons, Camellias, Aspidistras, Standard Bay, Ornamental, and Decorative Palms and Plants from Belgium.

MESSRS. PROTHEROE & MORRIS will SELL the above by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, E.C. On view mornings of Sale and Catalogues had.

TUESDAY NEXT, April 2nd, at 12 o'Clock.

THOUSANDS OF GLADIOLUS IN VARIETY.

Single and Double Begonias, Gloxinias, Spiræas, Cannas, Watsonias, Amaryllis hybrids, Hyacinthus Candicans, &c., Lilium giganteum.

7,000 TROPÆOLUM TUBEROSUM.

21,000 LILY OF VALLEY BERLIN CROWNS.

Phœnix rupicola and Latania borbonica Palm Seeds.

At 2.30 o'Clock.

150 CASES JAPANESE LILIUMS,

consisting of 10,220 Bulbs of

LILIUM AURATUM, L. A. PLATYPHYLLUM, L. A. MACRANTHUM, L. A. RUBRO-VITTATUM, L. TIGRINUM FORTUNEI, L. LONGIFLORUM, L. L. EXIMEUM, L. L. GIGANTEUM, L. SPECIOSUM ALBUM, RUBRUM and MELPOMENE, L. BROWNI, L. HANSONI, &c. Herbaceous and Tree Pæonies, Davallia bullata, Iris Kæmpferi, &c., and a large quantity of Japanese Liliums in lots to suit all buyers.

MESSRS. PROTHEROE & MORRIS will SELL the above by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, E.C. On view morning of Sale and Catalogues had.

ROSE TREES, FRUIT TREES, PERENNIALS, LILIUMS, etc.

Mr. J. C. STEVENS begs to announce that his

SALES by AUCTION

are held every **MONDAY** and **WEDNESDAY** at **12.30.**

Catalogues post free.

Lots purchased, packed, and forwarded to all parts.

STEVENS' AUCTION ROOMS

(ESTABLISHED 150 YEARS),

38, King St., Covent Garden, London, W.C.

ROSE TREES.—Sales every Tuesday, Wednesday, and Friday of Roses, Shrubs, Lilies, Gladioli, &c., at Moorgate Auction Rooms, 23, and 25, Moorfields, E.C. (near Moorgate Street Station). Catalogues post free.

BUSINESSES FOR SALE, &c.

re WILLIAM KERR. In Bankruptcy.

To Florists, Market Gardeners and Nurserymen.

THE Official Receiver in Bankruptcy for Cumberland is prepared to receive Offers for the sale by PRIVATE TREATY of a valuable Market Gardener's and Florist's business established 60 years The Gardens are situate close to the good Market Town of Penrith, which is a splendid residential centre with a good train service. The grounds are over 7 acres in extent and there are 5 very large well-constructed Glass-houses with modern boilers. The stock is up-to-date and in first-class condition. There is also a good dwelling-house and all necessary offices. The business includes a well-paying retail shop in the town, and an energetic man with a small capital might do well. The Gardens and Books can be seen at any time, and all information obtained from Messrs. R. Dalton and Son, Auctioneers, Carlisle; OFFERS to be made in writing to Kighley J. Hough, Esq., Official Receiver, 34, Fisher Street, Carlisle.

FRUIT and FLORIST BUSINESS.—Shop, two Stalls on front, Nursery close to; splendid chance for practical man; sure living.—For price apply, G. PALMER, 263, Aylestone Road, Leicester.

SUBURBAN JOBBING GARDEN BUSINESS; dwelling house, four greenhouses, stock; suit beginner; low price.—M. G., Box 23, 41, Wellington Street, Covent Garden, W.C.

TO BE SOLD, Owner going abroad, capital NURSERY BUSINESS, situate in riverside town and within easy reach of London markets; good local trade; five greenhouses, outbuildings; lights, &c.; dwelling house and shop on main road; rent £50; extra ground if desired, £22; price for stock and goodwill, £400.—Particulars of Messrs. PROTHEROE & MORRIS, 67, Cheapside, E.C.

HAMPTON, Middlesex.—Capital FREEHOLD NURSERY to be Sold as a going concern; total area 4½ acres; nine greenhouses and buildings; price £1,500, or would be sold in three lots, owner going abroad.—Full particulars of Messrs. PROTHEROE & MORRIS, 67, Cheapside, E.C.

WILLIAM AUBREY & CO., Nurserymen's Agents, 10, Duke Street, Charing Cross, London, offer excellent NURSERY, Middlesex, close to station, comprising 11½ acres land, 26,000 sq. ft. of glass (well heated), two cottages, packing sheds, office, stabling, &c.; held on lease at low rental; price, including three large glasshouses, frames, sheds, &c., £600.

WILLIAM AUBREY & CO. offer a splendid FRUITERERS' and FLORISTS' BUSINESS, Manchester; doing £2,000 yearly at best prices; price complete, including stock, £350; a grand investment.

TO be SOLD by Valuation on basis of going concern, the Stock, Fixtures, and Effects, of a MARKET GARDENER'S BUSINESS in the garden attached to Tidworth House, in the heart of the Salisbury military district, and doing a high-class trade; probable capital required £200-£250.—Apply, OFFICIAL RECEIVER, Salisbury.

FOR SALE, through illness, old-established NURSERY SEED and FLORISTS' BUSINESS; eight-roomed house; spacious shop; 10 houses (heated); three acres; long lease; in centre of good residential town, 20 miles from London; all well stocked and in thorough working order; would suit partners.—Particulars, G. N., Box 21, 41, Wellington Street, Covent Garden, W.C.

SIDCUP (Kent).—For SALE, with possession, FREEHOLD NURSERY; 12 greenhouses, 200 feet long, stables and sheds; four acres good loam; frontage on main road 420 ft., side road 360 ft.—Apply, SAMUEL CHILDS (Owner), Days Lane Nursery, or Messrs. BAXTER, PAYNE & LEPPER, Bromley.

PARTNERSHIPS.

GOOD opportunity for a Man who could invest £200 in Established Nursery in western suburb, Wholesale and Retail Nurseries, with view to PARTNERSHIP of half share.—Apply, "FLORISTS," 4, Convent Gardens, South Ealing, London, W.

WANTED, experienced GROWER with £250 to take sole Management of Nursery; suburbs of London.—Replies marked NURSERY, care of Hartung & Sons, Ltd., 65, Long Acre, W.C.

PLANTS, &c., WANTED.

QUOTATIONS on the following, with sizes and prices, will be appreciated:—1 Odontoglossum Bictonense, 2 Dendrobium macrophyllum giganteum, 1 Lælia Dayana, 1 Hibiscus schizopetalus, 25 Bambusa Fortunei var., 12 Libonia floribunda, 2 Platycerium æthiopicum, 20 P. grande, 1 Marcgravia paradoxa, 1, Xeroylon andicola, large, 1 Verschaffeltia splendida, large, 1 Stevensonia grandifolia, large, 1 Alocasia Thibautiana, 1 Encephalartos caffra, large, 1 E. pungens glauca, large, 1 E. horridus, large, 12 Nepenthes in three good vars., 12 Camellias, white and scarlet, 12 Camellias assorted, 6 Cattleya aurea, imported, 5-7 bulbs, 6 Gunnera scabra, any choice Palms, 1 Anthurium Pfitzerii, 12 Hibbertia dentata, 2 Polypodium irioides, 2 P. conjugatum, 1 Bomarea oligonta, 1 Bignonia cartageana, 1 Lodoicea seychellarum, large, 1 Schilia ainguis, Stevensonia grandifolia, large, 1 Attalea Cohune, large, 1 Carludovica rotundifolia, large, 6 Lælia cinnabarina, imported, 6 L. purpurata, imported, 25 Dendrobium Phalenopsis Schröderæ, imported, 6 Oncidium crispum, imported, 6 Sophronitis grandiflora, imported, 6 Cattleya guttata, 100 Primula Chinensis alba plena, 12 Genista tinctoria, 3 Reinwardtia tetragynum, 2 Aristolochia gigas, 2 Acacia pubescens, 20 Himalyan Rhododendrons in var., 1 Phœnix Senagelensis, 1 Cypripedium cordatum, 12 Scilla Maritima, 6 Francezia eximea, 6 F. latifolia, 1 Sonerila Hendersoni, 5 Nectarine, Early River, 5-6 yr. old, 5 Nectarine Cardinal, 5-6 yr. old, 2 Hoya carnosa variegata, 2 Adiantum Cardiochlæna, 2 Thunbergia Harrisii, large, 2 T. Harrisii, small, 12 Leucoephyton Brownii, 3 Grape vines, Black Hamburg, 3 ft. long, 6 Pyramid Plum trees, 6 Hesperis matronalis, double red, 6 H. m. fl. pl., double white, 7 Cattleya aurea, dormant, 2 Licuala horrida, 3 ft., 4 Rhapis humilis, 2 ft., 1 Carludovica humilis, 3 ft., 4 Chamædorea glaucifolia, 3 ft., 4 Baccharis major, 2½ ft., 5 Arenga saccharifera, 2½ ft., 2 Strelitzia Reginæ, 12 Chysis bractescens, 4 Cattleya Chrysotoxa, 1 Allamanda nobilis, 25 Cocos plumosa, 3-4 leaves, 8-10 ft. high, 60 Rose, Paul's Carmine Pillar, 1,000 seeds Kentia Belmoreana, 1,000 seeds K. Fosteriana, 1,000 seeds Phœnix reclinata, 1,000 seeds P. Roebelinii, 7 Figs, Brown Turkey, pot grown. Specimen plants of Orchids: Cymbidiums, Dendrobiums, Odontoglossum, Oncidiums, Vanda, Cypripediums, Miltonias, Brasso-Cattleyas, Brasso-Lælia, hybrid Cattleyas, hybrid Lælias, Epidendrums, Anguloa, Phaius, Renanthera, any kind.—T. S., Box 6, 41, Wellington Street, Covent Garden, W.C.

WANTED, large KENTIA PALMS, from 5 feet to 25 feet in height; large, well-coloured Dracænas and Crotons, also Aspidistras; for cash or exchange.—ROBERT GREEN (1911), LTD., 28, Crawford Street, London, W.

WANTED, 100 First-class exhibition Japanese Chrysanthemum plants; strong; from 60s if possible.—Particulars, SIMPSON'S NURSERY, Chelmsford.

WANTED, Cattleya gigas, a quantity; Brassavola Digbyana, Lælia tenebrosa, Odontoglossum seedlings, &c.—W. P., Box 18, 41, Wellington Street, Covent Garden, W.C.

PUBLISHERS' NOTICES.

ALPINE FLOWERS AND ROCK GARDENS. By Walter P. Wright. A practical book containing magnificent colour and half-tone plates of the flowers as they grow. The most beautiful book on the subject yet produced. 12s. 6d. net.
HEADLEY BROTHERS, Bishopsgate, London.

ROSES AND ROSE GARDENS. By Walter P. Wright. A companion volume to above. *The Sphere* says: "Buy the book this winter and you will have a fine rose garden next June and July." 12s. 6d. net. Write for illustrated booklet post free.
HEADLEY BROTHERS, Bishopsgate, London.

AMONG THE HILLS. By Reginald Farrer, being an account of the Author's wanderings in search of Alpine Flowers. Profusely illustrated in colour. "Mr. Farrer has won for himself a unique place among writers on Alpine Plants."—*The Gardeners' Chronicle.* 10s. 6d. net. Prospectus post free.
HEADLEY BROTHERS, Bishopsgate, London.

PLANTS, &c., FOR SALE.

PERPETUAL CARNATIONS.—Our 1912 Illustrated Catalogue free. Read our "Cultural Treatise," 1s.—YOUNG & CO., Carnation Specialists, Hatherley, Cheltenham.

CUTHBERT'S SPECIALITE MUSHROOM SPAWN.—NEW SPAWN NOW READY. We continue to receive the most gratifying testimonials as to the productiveness and good quality of our Spawn. Per bushel, 5s.—R. AND G. CUTHBERT, Seed and Bulb Merchants, Southgate, Middlesex.

PERPETUAL FLOWERING CARNATIONS; strong, established plants in pots, from 4s. per doz., carriage paid; 20s. per 100, carriage forward; illustrated catalogue, describing 75 leading varieties with cultural hints, post free.—C. F. A. VAN DER SLUYS, F.R.H.S., Ramee, Guernsey.

CUT FLOWERS AND FOLIAGE.—A. W. REDFORD, Wholesale Bulb Grower, Stevenage, offers choice Daffodils, Narcissus, and Tulips in variety daily; boxes free; price lists forwarded on application.

VERBENAS.—The best sorts are Miss Willmott (pink), Princess of Wales (deep blue), Queen of Whites, King of Scarlets, and Lovely Blue (light blue); clean, healthy, strong young plants; carriage paid; 10s. per 100, cash.—H. DUDDERIDGE, The Dorset Nurseries, Blandford.

SHALLOTS.—Giant Red Shallots, best to grow for Exhibition, 22s. 6d. per cwt.; sample 6 lb., post free, 2s.; also Scotch grown Potatos, Up-to-date, Factor, &c., 5s. per 112 lb.; catalogue free.—BRINKWORTH & SONS, Southampton.

CENTAUREA CANDIDISSIMA (ragusina).—Strong plants from stores for present potting 7s. 6d. per 100, carriage paid.—
J. J. MARRIOTT, Sutton Coldfield.

AQUILEGIA. — Mrs. Scott-Elliott's unrivalled strain of long-spurred hybrids (true) per doz., 3s.; Auricula Alpine, a high-class strain, in richest mixture, per doz. 3s.; Hollyhocks, Chater's superb strain, in 10 separate colours, per doz. 3s. 6d.; all strong-flowering plants.—J. J. MARRIOTT, Sutton Coldfield.

JAPANESE IRIS.—Imported Clumps, 24 all different choice varieties, named, 15s.; choice named Gladioli, six each America, Augusta, Baron Hulot, Hollandi, King of Yellows, Pink Beauty, Princeps, 9s.—ELLISON, 45, West Bromwich.

GERBERAS.—Adnet's Hybrids, all colours, Seed, 6d., 1s.; Plants, 10s., 15s. doz.; choice Flower and Vegetable Seeds all at reasonable prices. I give value in seeds, not in elaborate catalogues or large adverts.—ELLISON, 45, West Bromwich.

BEGONIAS.—Choice Liliums, named Achimenes, named Cannas, named Iris, named Montbretias, Arums, Gloxinias, Spiræas, Tritomas, Tigridias, Tuberoses, 1s. 6d., 2s. doz., 10s. 6d., 14s. 100. Catalogue free.—ELLISON, 45, West Bromwich.

PEAS, BEANS, ONIONS, LEEKS, CARROTS are dear this season; as long as my stock lasts I can offer the above at most reasonable prices; quality is absolutely reliable.—ELLISON, 45, West Bromwich. 24 Gold and Silver Medals. 1911.

BEDDING PLANTS.—Geraniums: Crampel, Pollock, Edward VII., Lady Chesterfield, 12s.; Denmarks, H. Jacoby (true), Parker, Golden Hieover, Constance Lawrence, Dandy, Ivy Raspail, Vesuvius, W. B. Gem, F. of Spring, Ivy Leaf, 7s.; Heliotrope Fuchsias, 4s.; S. Petunias, Alyssum, 3s.; Marguerites (white), 3s., (yellow), 4s.; Calceolaria Golden Gem, 2s.; Lobelias, Emp. William, 2s., Mrs. Clibran, 2s. 6d., K. Mallard (double), 3s.; all per 100; clean, strong, well-grown plants; packing free; cash with order; carriage paid on all orders of 20s. and upwards.—ENGLAND & FURNESS, Freelands Road Nurseries, Bromley, Kent.

THE

Gardeners' Chronicle

No. 1,318.—SATURDAY, March 30, 1912.

CONTENTS.

Aphyllanthes monspeliensis	208	Poisoning with Virginian creeper berries	204
Books, notices of—		Potato importations into Germany	204
The Profitable Culture of Vegetables	196	Pottery, visit to a	206
Cytisus Dallimorei	198	Rosary, the—	
Elms, British	199	Random thoughts on pruning	196
Flowers in season	204	Roses, Chinese	204
Flowers, the preservation of cut	205	Sarracenias out-of-doors	198
"Geo. Monro" concert	204	Scottish manse garden, in a	208
Helianti as a food for cattle	207	Seeds, longevity of	205
Hong Kong, the flora of	202	Societies—	
Hooker, Sir Joseph, estate of the late	204	Bournemouth Spring Flower Show	210
International Horticultural Exhibition	206	Brighton, Hove and Sussex Hort.	208
Ireland, notes from	205	Canterbury Rose	211
Larch saw-fly, the large	205	Horticultural Club	210
L.C.C. park employees	204	Linnean	210
London's open spaces	204	National Hardy Plant	210
Manchester, horticulture in	207	Perpetual-flowering Carnation	204, 209
Obituary—		Royal Horticultural (Scientific Committee)	208
Barry, William	208	Stocks, cultivated, the origin of	205
Dennison, Robert	208	Strawberries	208
Fenn, Robert	203	Trees, subjects to plant under	204
Thomson, William	208	Week's work, the—	
Orchid notes and gleanings—		Apiary, the	201
Odontoglossum crispum "Samuel Gratrix," 197; O. Jasper	197	Flower garden, the	201
Orchid show at Berlin	204	Fruits under glass	200
Parasitic fungi, the nature of	198	Hardy fruit garden	200
Pear tree, a prolific	199	Kitchen garden, the	200
Pinks, the four great alpine	195	Orchid houses, the	201
		Plants under glass	200
		Wheat crop, the	205
		Wye College, grants to	204

ILLUSTRATIONS.

Cytisus Dallimorei	198
International Horticultural Exhibition, cups to be offered at the	206
Odontoglossum crispum "Samuel Gratrix"	197
Odontoglossum Jasper	196
Orchids, epiphytic, at a Berlin show	203
Pear Souvenir du Congrès at Ruthin Castle Gardens	199
Tutcher, W. J., portrait of	202

THE FOUR GREAT ALPINE PINKS.

OF Pinks there are countless species, clear or obscure, for the rock garden; but many of these are tall-stemmed furnishing plants, while others, of more minute habit, are as yet too uncommon to be of any very conspicuous moment. Therefore I will leave aside, on the one hand, such valuable beauties as Dianthus sylvestris and D. caesius: and on the other such tiny and compact moraine treasures as D. Freynii, D. microlepis and D. Lereschei. The four great Alpine Pinks of the rock garden form a distinct group, far surpassing in character and distinctness the charm of their larger and their smaller kindred. Their habit is dwarf and neat, their blossoms of rich size and splendour, their colouring of a brilliant rose, which is all too rare in the rock garden. The four, of course, are D. neglectus, D. alpinus, D. glacialis, and D. callizonus. Not one of these, however, is in any way a rock plant by nature, for they are all species of the mountain turf between 5-7,500 feet, like Gentiana verna, though without G. verna's power of climbing to the high alpine levels.

Dianthus neglectus is perhaps the best known. It is a species of limited distribution, belonging entirely to the south-westerly ranges, right round the western wall of the Lombard Plain, from the Graian Alps, through the Mount Cenis and Dauphine, along all the Cottian uplands down to the Maritimes. Its chosen place is always in the sunny mountain turf, no matter though it be quite coarse and crowded. It ascends to about 7,500 feet, and at such a height develops a specially neat, stemless and compact habit: whereas among the lower grasses on the Mount Cenis, its great rosy flowers flourish freely on 6-inch stems among the violet stars of Aster alpinus. D. neglectus is a tap-rooted species, forming a single tuft of foliage, fine and green and narrow, exactly like a small neat grass. The flowers, which are very freely produced, are of a singularly dazzling carmine rose, with an eye of dusty blue. The reverse of the petals is washed with a soft nankeen yellow, which makes it impossible ever to mistake the species. The plant, however, is very variable, alike in size, shape and colour. Care should always be taken to get it in flower, so as to secure a neat-habited form, with solid, round flowers of a clear and brilliant pink. It is a very easy rock plant, in any firm, light loam, in full sun; it germinates well, and is easily multiplied by cuttings.

Even more beautiful, to my mind, is D. alpinus, when once you see it. For, to achieve the Alpine Pink, you must travel far away into the Eastern and Southern limestones of Austria. In the main Alpine chains there is no chance of getting it; but on its own hills it composes half the turf. The Styrian ranges, from 5-6,000 feet, are one sheeted blaze, in August, of D. alpinus, from amid whose yard-wide colonies spring the spouting blue fountains of Campanula alpina, while the floor of the hill is made of Primula minima, with the lucent rosetted masses of P. Clusiana lying among it like great star-fishes. Dianthus alpinus, like all the other three, blooms in its own home, in late July and August, when the Primulas and Campanula are going to seed. It ramifies freely through and through the fine mountain-grass, not growing from one tap-root, but in a vast and spreading mass. Its foliage hugs the ground—clumps of broad, blunt leaves, brilliantly green and brilliantly glossy (like D. glacialis: unlike D. neglectus): the flower-stems are usually from 2 to 3 inches high—hardly ever more than 5 inches. They are produced even more freely than those of D. neglectus, and are larger, very round and splendid, of a clear and freckled rosy-crimson, bearded at the throat, with a paler zone. The flowers, however, vary in splendour. There are dark-eyed forms, and forms with a ring of spots. On its own hills, when they are red for miles with D. alpinus, you could collect a hundred different beauties, each worthy of a name. There is also in cultivation an albino, which I must confess I consider arid and dirty in tone, pinched and mean in shape. But on my first acquaintance with the plant "at home," I had not stepped two yards aside from the footpath before I came on a new albino—a tuft a yard across, with very large, round flowers of pure pearly-white, that faded ultimately (or opened?) to a most exquisite, pale, shell-pink. D. alpinus takes to cultivation as a duck to water. In any sunny, limey loam or moraine it grows far and wide, and covers itself with splendour in due season. There is a plant at Ribston which can only be measured by yards, so freely does it ramify through the soil, forming a great, glossy turf, until the green is hidden by the flowers. Alone of the four species, D. alpinus is a limestone plant. The others either do, or do not, tolerate lime, but do not belong to it in nature. D. alpinus craves for lime and, with me, has always given freer and more lasting pleasure than D. neglectus. Its habit of spreading into carpets, instead of forming one single tuft, is a great advantage. It seeds well, but is more rapidly grown from cuttings, which strike very readily. With us, like all its kindred, it flowers in June-July.

D. glacialis has an august and promising name, which it does nothing to deserve, for it avoids glaciers quite as heartily as I do myself. It is a plant of the high moorland turf of the granitic Alps of the central ranges, glowing among Primula intermedia on the fells of the Engadine and in the roadside gutters above Heiligenblut, but falling short, so far as I remember, of the elevations favoured by Primula glutinosa. I do not rate D. glacialis very high: it is a single-tuft plant, with broad, blunt and glossy green leaves: the flowers that shoot out from the clump on 3-inch stems are round and rosy, but not big enough for the breadth of the foliage. Their calyx, too, is fat, and they have a tight, podgy look. In the old days of the rock-garden, when little prescriptions of soil were made up like medicines and poured into "pockets," many and minute were the directions given for growing D. glacialis. In point of fact, though a capricious and short-lived plant, it is by no means a difficult one—worth no fuss and demanding none. I have had it vigorous in a hot and sunny moraine, though cool peat is what it likes in nature. It seeds and germinates far more profusely than any of its three cousins.

To see the most beautiful of the race, you have to travel far, far East, past D. glacialis, past D. alpinus, out into the Transylvanian Mountains, where, among the Vampires, dwells D. callizonus. This wonderful plant (to which I have not yet made pilgrimage) is closer akin in glory and habit to D. alpinus than to the others. It is a loosely-ramifying species, with shoots of typical Dianthus foliage, grey and glaucous: the flower-stems are, perhaps, 3 inches high, and the flowers are very large and round indeed, rosy-crimson, with a broad central belt of crimson blots that give a quite especial beauty. Like all the others, it is variable. I cannot speak, however, with any confidence as to its culture. I have a

notion that it differs from the rest in preferring a cool aspect—at least, it was in a cool aspect that Kew possessed a great specimen of unexampled beauty. I suspect it of exacting loose, cool, peaty soil and very perfect drainage, for I have known it flag and fail in a wet loam in winter, and I cannot be certain as to whether it is a lime-lover or no. In moraine, like D. neglectus, it has failed here completely. I long for the day when I shall see it on its own hills and learn a little more of its character and likings. It does not seem free of seed, but grows readily enough from cuttings. Slugs, which dislike D. alpinus and D. neglectus, are rabid gluttons for D. callizonus. There is a plant in cultivation called D. calalpinus, which declares itself to be a hybrid of D. callizonus and D. alpinus. In my eyes, and as I have had it, D. calalpinus has all the characters of D. alpinus, and not one of D. callizonus, and seems, in fact (I do not know its history and authority), simply a good, well-freckled form among the countless good, well-freckled forms of pure D. alpinus which you can find in half-an-hour on the high limestones of Styria. *Reginald Farrer.*

NOTICES OF BOOKS.

Vegetable Culture for Profit.*

This book, originally designed chiefly for small-holders, has been expanded and improved until it constitutes a practical and excellent manual for all classes of growers.

The author is the manager of the French garden at Mayland, and the superintendent of the small holdings which Mr. Joseph Fels has created on the same Essex estate, all of which have been developed under his charge. At a meeting of the Royal Horticultural Society last year, Mr. Smith gave a review of the possibilities of small holdings under a judicious system of management, and at the same time stated the difficulties attending such enterprises. This should be read in conjunction with the book here dealt with, by all who are interested in the important subject of the sub-division of land in rural districts.

The preliminary chapters are devoted to a consideration of the soil and its treatment, manures and fertilisers, small holdings and market-gardens, methods of business, rotations and cropping, with cognate matters, all treated in a lucid and practical way. Six chapters are next appropriated to French gardening, which is dealt with exhaustively. The disadvantages and the possible losses are enumerated, as well as the gain, so that readers may gain a clear idea of the chances before launching out upon an expensive enterprise.

The cultural details concerning the different vegetables fill about 220 pages, and each crop is dealt with through the whole period of its development, from the sowing of the seed or the planting until the time of use, sale, or storing. To this is appended a section giving reminders of the work to be done month by month, a condensed form of calendar; and another portion is allotted to grading, packing, and marketing, which is useful, but might have been extended with advantage.

In a long chapter on "Miscellaneous Information," a store of facts has been accumulated that will be of substantial service for reference. One of the most interesting portions of this section is that giving the average amount of produce of each crop per acre, the cost of production, and the gross returns, from which may be deduced the probable profits. Thus, for early Potatos, the produce is estimated at four to six tons, the cost from £15 to £20, and the returns at £30 to £45 per acre, while of late Potatos the crop is reckoned eight to ten tons, the cost the same as the preceding, and the returns £25 to £35. *A Grower.*

* *The Profitable Culture of Vegetables*, by Thomas Smith. (Longmann, Green & Co.) 6s.

THE ROSARY.

RANDOM THOUGHTS ON PRUNING.

If the celebrated ass who first taught the Athenians to prune the vine, also, as is quite likely, tried his art upon the toothsome briar leaf, thereby giving a practical demonstration in Rose pruning as well as in viticulture, he truly has much to answer for.

Roses have been pruned from a time "when the memory of man runneth not to the contrary," and Roses are with us still, and more beautiful than ever. This in itself is some argument to show that the practice is not wholly deleterious to the plant, and perhaps all would admit nowadays the necessity of pruning to secure certain results, e.g., the perfect exhibition flower, or the decorative Roses on single sprays nearly a yard long as seen at the shows. Nevertheless, if, now and again, we come across a Rose bush that apparently has been but little pruned for years, perhaps a 5-foot bush of Fabvier or Papa Gontier, Roses generally seen as rather small plants, or a tangle of some climber just at the height of its flower season, we may well pause and wonder whether pruning for the decoration of the garden is really practised in the way likely to lead to the production of the best spectacular effects.

Some years ago M. H. Vilmorin enunciated the paradox that "Pruning weakens Roses; non-pruning weakens them also." He pointed out that if two Rose trees were taken of the same variety about the same size, and planted in the same soil, if one were pruned closely and the other left alone and allowed to grow, and both were dug up after three years growth, the pruned Rose would be found to weigh much less than the unpruned one, and he contrasted a climbing Noisette, Aimie Vibert, allowed to grow and cover the side of a house with a clump of Hybrid Perpetual Roses, which had been planted for 20 years and had received an annual pruning by expert rosarians. As a result the clump of Roses, after 20 years of close pruning, was slightly thinner than when first planted. On the other hand, he held that non-pruning would equally impoverish Roses because a Rose left to itself would cover itself with blossoms, thus weakening the branches "which end by dying from exhaustion," and he quotes Dr. Barnier that "it is always necessary to renew a Rose bush by cutting out the old branches of three or four years growth, which are used up, are not getting any bigger, and will die in a short time."

Now if we put on one side such pruning as may be rendered necessary by the position of the Rose in the garden, for instance, when it is grown in beds, or as an isolated bush, or in places where free expansion is restricted, in all of which cases the shape of the bush is the first consideration, I think we may take it that our chief object in pruning is the renovation of the plant by the production of fresh-flowering wood, for it is true of nearly all our garden Roses that flowers of first-class quality are only obtained on the outgrowths from vigorous wood of the previous year.

Following out the line of thought suggested by M. Vilmorin, I think there is evidence that Roses constantly pruned hard do not produce quite such strong growth as those of which the root system has been fed and developed by abundant foliage during the previous summer. I have noticed, for instance, that pegged-down plants of J. B. Clark, a rampant grower, have given me at the end of the season shoots 8 to 12 feet in length, while neighbouring plants of the same variety closely pruned each year have given young growths of one-half to two-thirds that length. Again, a visit to the garden of an exhibitor who, caring less for the garden effect than for beautiful flowers, grows his Roses in rows after the approved nursery-

Fig. 84.—Odontoglossum jasper.

Received R.H.S. Award of Merit on the 5th inst. (See p. 197.)

garden pattern, where the Roses are not only very closely pruned every spring, but where all superfluous growths are also stopped during the early summer, shows usually plants which, though healthy, are small in size compared with Roses less vigorously restricted, such as is generally the case in a garden where effective garden decoration is the chief consideration.

Messrs. Jamain and Forney long ago pointed out that the best flowers are, as a rule, obtained by pruning in such a way as to obtain two good shoots from the pruned stem and no more; and in pruning Roses, such as the Hybrid Perpetuals and many of the Hybrid Teas, to secure exhibition Roses this is doubtless a point to be borne in mind. If the stem is left longer than necessary it will, it is true, only give two good flowering branches, and therefore reasonable pruning should consist in finding the two first buds that are well placed on the stem. If the buds selected

FIG. 85.—ODONTOGLOSSUM CRISPUM "SAMUEL GRATRIX."

(Received R.H.S. First-class Certificate on the 19th inst.)

are too high up on the stem we shall either get a long and bare, woody stem, and the plant will be enfeebled and become unsightly, or we may have below the two main shoots some twiggy growths of little value for the production of good flowers. Besides this, the subsequent production of young wood from the base will be discouraged, and we shall have a difficulty in finding young ripened shoots to rely on in the following year.

By going to the other extreme and pruning too closely, the dormant buds at the base of the plant are excited too early, and we get gross shoots which do not produce the best flowers. Many have watched the development of the flowers on the top of the rank autumnal growths from the base of Roses like the Duke of Edinburgh, expecting a flower of unusual excellence, and found that the result has been a very poor bloom; even so will it be if the dormant buds at the base are forced by too close pruning to push out too early. Rational pruning for dwarf Roses for the production of perfect flowers lies between these extremes.

But exhibition Roses in our gardens are nowadays a comparatively restricted class, while our garden and bedding Roses, climbers, pillar and bush Roses belong to many different types. From the point of view of the pruner, they may be divided at once into two great classes: (1) Roses which, like the H.P.s, will flower well though cut hard back, and (2) Roses which if cut down to the ground in the spring would flower little or not at all during the ensuing season, though they would probably make strong and vigorous growth. The first group includes the H.P.s, H.T.s, most of the Teas, the Chinas, Rugosas, and dwarf Polyanthas. The second group includes climbing Roses, the Multifloras, Wichuraianas, Moschatas, Noisettes, Hybrid Chinas, the Dijon Teas, probably a few Hybrid Teas of very strong growth, and practically all the summer-flowering Roses.

The first group flower twice or oftener during the year and are called autumnals; the second group have only one true flowering period, though flowers are in some cases produced spasmodically till the frosts come. Both are alike in producing their flowers on growths of the current year proceeding from stems one or more years old, but if both classes were pruned in the same manner disaster would probably result.

In both cases we shall keep two definite objects in view—the prevention of overcrowding and the renewal of the plant by the production of young wood, and in both cases we may freely thin out wood more than one year old where there is ripe young wood to take its place; but whilst in the first group we may also encourage fresh growth either by bending down the long shoots, or shortening them in the second group, the latter plan is not open to us, because in shortening to any great extent, we should cut off nearly all the flowers. In the second group, then, the thinning out of old wood must be freely resorted to, and the young stems retained either their whole length or but slightly shortened. And here we may notice a further distinction among the Roses of the second group. In the Multiflora and Wichuraiana types the year-old growths will break readily all up their stems producing flowering laterals, even when tied to pillars or pergolas, while the Noisettes, Dijon Teas and strong-growing Hybrid Teas if tied up erect will flower chiefly at the top, and leave the base bare and flowerless. This will not be the case if the stems can be trained fanwise or bent right down; so some precaution of this kind must be taken, if it be only for a short time in the spring, until the buds towards the base of the long stems have started into growth, after which the stems may be trained upright again if desired. In the Roses of the first group pruning may be utilised in an interesting manner to secure a longer succession of flowers. If we take the Chinas for instance, a bush left entirely unpruned will flower 10 days to a fortnight earlier than one which has been cut to the ground, so with the Rugosa and many others. If, then, we have two groups of China Roses and prune one severely, leaving the other untouched, by the time the unpruned group is past its best the second group will be in flower, and a prolongation of the flowering obtained. With the H.P.s and some of the H.T.s, we may to some extent secure this on the same plant by pruning some stems severely and pegging down two of the longest stems. The stems pegged down usually flower first and may then be removed, allowing the others to develop.

Experiments in pruning are always interesting, and with many of the newer Roses very necessary, for we know little about them at present. Mme. Hector Lieulliot is an instance in point; most of us have treated it like an ordinary Hybrid Tea, and have been disposed to reject it for its want of freedom in flowering, but, doubtless by experiment, Mr. G. M. Taylor has succeeded in flowering it freely, and from the pictures of a group of this Rose in Sir Rufus Isaacs's garden, which recently appeared in this journal and seem conclusive as to its powers of flowering when properly treated, this Rose would seem to require management after the fashion of the Noisettes.

White Rose.

ORCHID NOTES AND GLEANINGS.

ODONTOGLOSSUM JASPER.

Our illustration (fig. 84) represents the hybrid Odontoglossum raised by crossing a spotted variety of O. crispum with O. amabile (crispum × crispo-Harryanum). It was shown by J. S. Moss, Esq., Wintershill, Bishop's Waltham (gr. Mr. Kench), at the Royal Horticultural Society's meeting on March 5 last. The hybrid was originally raised by Messrs. Charlesworth & Co., who succeeded in flowering a large number of plants which varied somewhat in tint, some resembling O. Fascinator (crispum × Adrianæ) and all having the equally distributed spotting characteristic of that hybrid. The variety now illustrated is one of the best forms yet seen, its attractive flowers being of good shape and of a delicate pink ground colour, evenly spotted with reddish brown; the front of the lip is white, and the crest dark-yellow.

ODONTOGLOSSUM CRISPUM "SAMUEL GRATRIX."

In fig. 85 we illustrate the handsome form of Odontoglossum crispum shown by Samuel Gratrix, Esq., West Point, Whalley Range, Manchester (gr. Mr. Brown), at the Royal Horticultural Society's meeting on March 19. The great interest shown in the plant plainly indicated that good and distinct forms of this Orchid are as popular as ever. The plant has

been in the collection of Mr. Gratrix for some years, but this is the first occasion he has shown it at a London exhibition. The flowers are of fine shape, and the ground clear white, with markings on the sepals and petals of light violet colour. The lip is broader than in most forms, white, and with reddish-purple markings in front of the yellow crest.

THE NATURE OF PARASITIC FUNGI.

THEIR INFLUENCE UPON THE HOST PLANT.

(Continued from p. 183.)

In the germination of the spores of the late blight Potato fungus, the contents of the conidia breaks up into a number of minute bodies, which are mobile and are able to move about in water. After a very short period, however, these swarm-spores become stationary, and their walls thicken, until they finally germinate by producing the typical infection tube.

There are numerous fungi which produce both summer and winter spores. The powdery mildew of Grapes, scab of Pears and Apples, all produce two forms of spores. The ascospores are nearly always winter spores. The teleutospores of rusts, the resting or egg spores of the Peronosporæ, which cause the downy mildews, are not ascospores, though typical winter spores. The summer spores serve the purpose of a rapid propagation of the fungus, while the winter spores are responsible for carrying diseases over the winter. Very rarely may summer spores be carried through the winter alive, owing to their feeble protection and short life. The winter spores are produced in conceptacles, which are exceedingly well protected. They adhere firmly to the substratum on which they have been produced, or they are imbedded therein. This is of great importance to the practical grower. By destroying all leaves, dead fruits, and other plant refuse, he is able to get rid of vast numbers of winter spores, and thus is able to safeguard his orchards in the best way possible. To illustrate this point, let us briefly consider the case of the common fruit scab fungus. For some considerable time the summer spores only of this fungus were known. It received at first the generic name Fusicladium, which is even now sometimes used, though erroneously. No winter spores were known until some ten years ago, when they were discovered in spring on the dead leaves and old fruits. When this stage was found the fungus received the name Venturia. The discovery of the winter stage is very important, as it gives us a valuable clue to the way in which the fungus may be attacked. The successful destruction of this most common orchard disease is now a very simple matter. Spraying in spring to kill the first crop of spores, and the destruction of old rubbish in autumn successfully prevents the appearance of this and many other diseases.

Those interested in the investigation of plant diseases have long recognised the immense importance of the careful study of the life history of disease-causing fungi. Though progress may be slow, I am of the opinion that the careful investigation of fungus diseases and insect pests is one of the most important features of the successful raising of fruit. Errors in the treatment of diseases, false methods of cultivation, the attempt to grow varieties unsuitable to the locality are points which are responsible for a large proportion of the losses in fruit-growing. But as it is, fruitgrowers are willing to pay such unnecessary taxes in the form of losses instead of combining their efforts to prevent disasters, and thus double and treble their fruit crops and increase their revenue. These remarks are not empty words. I do not believe in indulging in destructive criticism. We have evidence along these lines which will prove that freedom from disease in orchards has increased the harvest of good and perfect fruit considerably. Recently I visited an orchard of some 200 trees, which bore not a single sound fruit—they were one and all black with scab! Now this orchard is a menace to the locality. From it the disease is carried for miles all over the country. What is the use of spraying your orchards while your neighbour remains idle? Ten trees in an orchard affected with scab will suffice to keep you busy spraying; whereas going into that neighbour's orchard and pulling down his trees would be the best self-help, though I doubt whether, strictly speaking, it is quite legal. *H. T. Güssow, Dominion Botanist, Ottawa, Canada.*

(To be continued.)

SARRACENIAS OUT-OF-DOORS.

Deep in a little ravine on the hillside—sheltered from the wind, but open to the warm sun, and refreshed by the ceaseless trickle of a little mountain spring—this is the ideal position for the Sarracenia, and it is in just such a place as this that we have established, at Leonardslee, a splendid clump of this plant. The best time to see it is in May and June, when the effect of the well-developed "pitchers" and blossoms is very fine. Planting should be done at once, and a few hints on this subject may be useful.

When preparing the ground for the plants, the top spit should be taken off, and laid in, grass downwards. Over the upturned sods lay a mixture in equal quantities of peat and Sphagnum-moss; the plants should then be put in, and the ground round them made firm with a further supply of the peat and moss mixture. They may be slightly shaded, until growth begins, with some branches of evergreen.

The ideal position for these plants has been described above, but they succeed in any damp but sunny place—such as a bog or marsh. Droseras also do well, if planted among the Sarracenias; so does the Cotton Grass (Eriophorum angustifolium), which presents an extremely effective contrast with the fine crimson blossoms of the "insect-trap."

The process by which the Sarracenias allure and capture thousands of unwilling prisoners is a most interesting one. A kind of sweet moisture nearly resembling honey is constantly exuded from the glands found on the blade, and covers the parts round the aperture of the cup. Insects are first attracted to the flower by its brilliant colouring, and soon find a further inducement to remain, in the honey, on which they feed. They proceed from the rim of the cup to the inside, and penetrate to the bottom. Here, however, they remain; for the inside of the cup is covered by innumerable short hairs, all pointing downwards, so that although the insects find it perfectly easy to enter, to depart is impossible. The final fate of the insects varies in the different varieties of Sarracenia. In some cases, the bottom of the cup is filled with water—sometimes as much as two or three inches—and the insect is drowned. In other cases, it is simply starved to death, or suffocated beneath the other victims. Some of the flowers catch an astounding number and variety of insects. It is interesting to take a "pitcher" which has been developed for some time, pluck off the head, and count and sort the victims contained in the cup. In one case, a mass of insects was found, three inches deep, composed of butterflies, woodlice, beetles, cockroaches, earwigs, countless numbers of flies, both large and small, and even several wasps!

For a long time after the insectivorous habits of the plants were observed, it was not known what advantages were derived from it; but it is a fact that the plant obtains nourishment from the decomposed bodies of the victims, and that, though it would be possible, by artificial means, to prevent ingress of the insects, the plant would probably suffer. Naturally, from our point of view, the habit is an objectionable one, as the smell of the decomposing insects is most unpleasant. *W. A. Cook, Leonardslee Gardens, Horsham.*

[Photograph by C. P. Raffill.

Fig. 86.—Cytisus Dallimorei (C. scoparius var. Andreanus × C. albus): flowers rose-coloured.

CYTISUS DALLIMOREI.

In fig. 86 is reproduced a bed of the pretty rose-coloured Broom raised from Cytisus scoparius variety Andrianus crossed with C. alba, the white Broom. It was raised by Mr. Dallimore when in charge of the Arboretum at Kew, with another of the same cross having bright-yellow flowers like the common Broom. C. Dallimorei was exhibited at the Temple Show, 1910, and received an Award of Merit from the Floral Committee. A full description of the plant was given by Mr. R. A. Rolfe in *Gardeners' Chronicle*, July 18, 1910, p. 397, in an article entitled "Cytisus Dallimorei and Heredity."

BRITISH ELMS.

In 1808, Sir J. E. Smith expressed the opinion that the amount of confusion in the genus Ulmus was a reproach to botanists. The confusion is as great to-day as it was a century ago. This unfortunate state of affairs is due largely to the neglect by modern workers of the work done on Elms by the early English botanists, particularly by Goodyer and Miller. Another contributory cause is the non-recognition, by systematic botanists of the old school, of the numerous forms of Elm—forms so numerous as almost to suggest that Ulmus is among trees what Rubus and Rosa are among shrubs and Hieracium among herbs, and forms only reduced to the following species, varieties and hybrids by a process of aggregation unknown among students of such genera. Gerard, in his *Herball*, of 1597, recognised two species of Elm in England; and there are botanists among us who apparently still believe in this simplicity of the genus.

It will tend to a better understanding of the remarks which follow if I tabulate at the outset the Elms that are discussed in the present article:—

1. Ulmus campestris L. *Sp. Pl.*, 225 (1753) partim; *Fl. Angl.*, (1754). The English Elm (= U. procera Salisbury *Prodr.*, 391, 1796).

2. U. sativa Miller *Gard. Dict.*, ed. 8, no. 3 (1768). The Small-leaved Elm (= U. suberosa Ehrhart, non auct. pl. = U. Plotii Druce*).

3. U. nitens Mœnch *Meth. Pl.*, 333 (1794). The Smooth-leaved Elm (= U. glabra Miller, non Hudson)

4. U. glabra Hudson *Fl. Angl.*, 95 (1762). The Wych Elm (= U. scabra Miller = U. montana Stokes)

5. U. glabra Hudson × nitens Mœnch—(a) × U. hollandica. The Dutch Elm (= U. hollandica Miller *Gard. Dict.*, ed. 8, no. 5, 1768 = U. major Smith *Engl. Bot.*, t. 2542, 1814).

6. U. minor Miller *Gard. Dict.*, ed. 8, no. 6 (1768). Plot's Elm (but not U. Plotii Druce).

7. U. stricta Lindley *Synops.*, 227 (1829). The Cornish Elm.

8. U. stricta Lindl. var. sarniensis comb. nov. The Jersey Elm (= U. campestris var. sarniensis Loudon *Arboret.*, iii, 1376, 1838).

9. U. glabra Hudson × nitens Mœnch.—(b) × U. vegeta. The Huntingdon Elm (= U. glabra Mill. var. vegeta Loudon *Arboret.*, iii, 1404, 1838 = U. vegeta Ley in *Journ. Bot.*, xlviii, 68, 1910).

Of these nine Elms, the first four were founded by Goodyer, so far back as the year 1636, in the so-called "emaculate" edition of Gerard's *Herball*, really the second edition revised and enlarged by Johnson. The fifth was founded by Plukenet, the sixth by Plot, the seventh by Lindley, and the last two by Loudon.

Goodyer's Four Elms.

Goodyer's four Elms were accepted by all the early English botanists; and all except Parkinson (*Theatr. Bot.*, 1640) used Goodyer's names; but, although Parkinson used names which were not adopted by the botanists of his day, there is no doubt that his four Elms are precisely those of Goodyer, for his descriptions are obvious paraphrases of Goodyer's and his figures the same. Ray accepted Goodyer's Elms and names in his *Synopsis*, and one of Ray's (and therefore Goodyer's) Elms was carefully singled out by Linnæus as being his Ulmus campestris. Hudson (*Fl. Angl.*, 1762) accepted Goodyer's four Elms, and gave binomials (U. campestris L. and U. glabra Huds.) to two of them. Miller accepted Goodyer's four Elms, and gave binomials to each of them. Unfortunately, however, Miller ignored the binomials of Hudson, with the result that some of his own, being later than Hudson's, cannot stand. Miller also gave binomials to Plukenet's Elm and to Plot's Elm, the fifth and sixth Elms respectively in the summary given above. It is obvious, therefore, that the importance of determining Goodyer's and Miller's Elms cannot be over-estimated, for on their identification turns the question of the binomials which botanists must give to them, assuming they are of specific rank. Hence no account of the genus Ulmus is either adequate or satisfactory, which fails to account for each one of Goodyer's and Miller's Elms.

It is often said that pre-Linnæan names of plants are very uncertain and very obscure. Into this general question I do not at present propose to enter; but I must emphasise my opinion that, whatever view be taken of pre-Linnæan names in general, those given by Goodyer to his four Elms can be determined without much difficulty. This is because they were adopted by the early writers, such as Ray, Hudson and Miller, and by the early collectors, such as Banister, Buddle, Petiver, Plukenet and Sloane, whose specimens, with Goodyer's names attached, are preserved in the herbarium of the British Museum.† These specimens establish the point that Goodyer's names were used, and used definitely, consistently and continuously, from his own time to that of Miller's. The botanical names of Elms which are adopted in this article are based on this historical continuity of Goodyer's names, a continuity found, as above stated, both in literature and on herbarium sheets. Only if this continuity is proved to be non-existent can the specific names used in this article be overthrown by those botanists who accept the limitations of species here adopted.

The English Elm (U. campestris L.)

Goodyer named his first Elm "Ulmus vulgatissima folio lato scabro." In the vernacular of his day, it is "the common Elme." Goodyer supplies a crude figure of this and his other Elms. Of his first, he states that "this Elme is a very great high tree," that "the bark of the young trees and boughes. . . . is smooth and very tough," and that "the leaves, of a dark green colour. . . . are two inches broad and three inches long." The description and the tolerable figure leave no doubt that Goodyer is writing of our English Elm, the tallest and most stately member of the genus, the one which casts the deepest shade and holds its leaves longest in autumn, and the one which is the commonest in the hedgerows and parklands of the western and south-western counties of England, especially Somerset, Oxfordshire and Worcestershire.

Parkinson (*Theatr. Bot.*, p. 1403, 1640) named this Elm U. vulgaris; but it is the same Elm. Other pre-Linnæan botanists stuck to Goodyer's clumsier but earlier name; and it is this which appears in the various works of John Ray. Now one of Ray's works, the third edition of his *Synopsis* (1724) has a value possessed by no other pre-Linnæan British work; for Linnæus in his *Flora Anglica* (1754) takes this edition, and, so far as he found it possible, applied his binomials to the cumbersome pre-Linnæan names therein used.

It is well known and universally admitted that it is impossible to obtain any clue to the type of the Ulmus campestris L., *Sp. Pl.*, 225 (1753; but in his *Fl. Angl.* (1754), Linnæus singles out Goodyer's Ulmus vulgatissima folio lato scabro as being precisely his U. campestris, Goodyer's other three Elms being quite ignored. Hence we are justified in restricting the name U. campestris, just as Linnæus himself did, to Goodyer's first Elm, that is, to the common or English Elm. Further, Hudson (*Fl. Angl.*, 1762) and Miller (*Gard. Dict.*, 1768) both used the name U. campestris for the English Elm, and thus provide additional reasons, if such were needed, for using the name U. campestris in this sense, and in this sense alone. *C. E. Moss, D.Sc.*

(To be continued.)

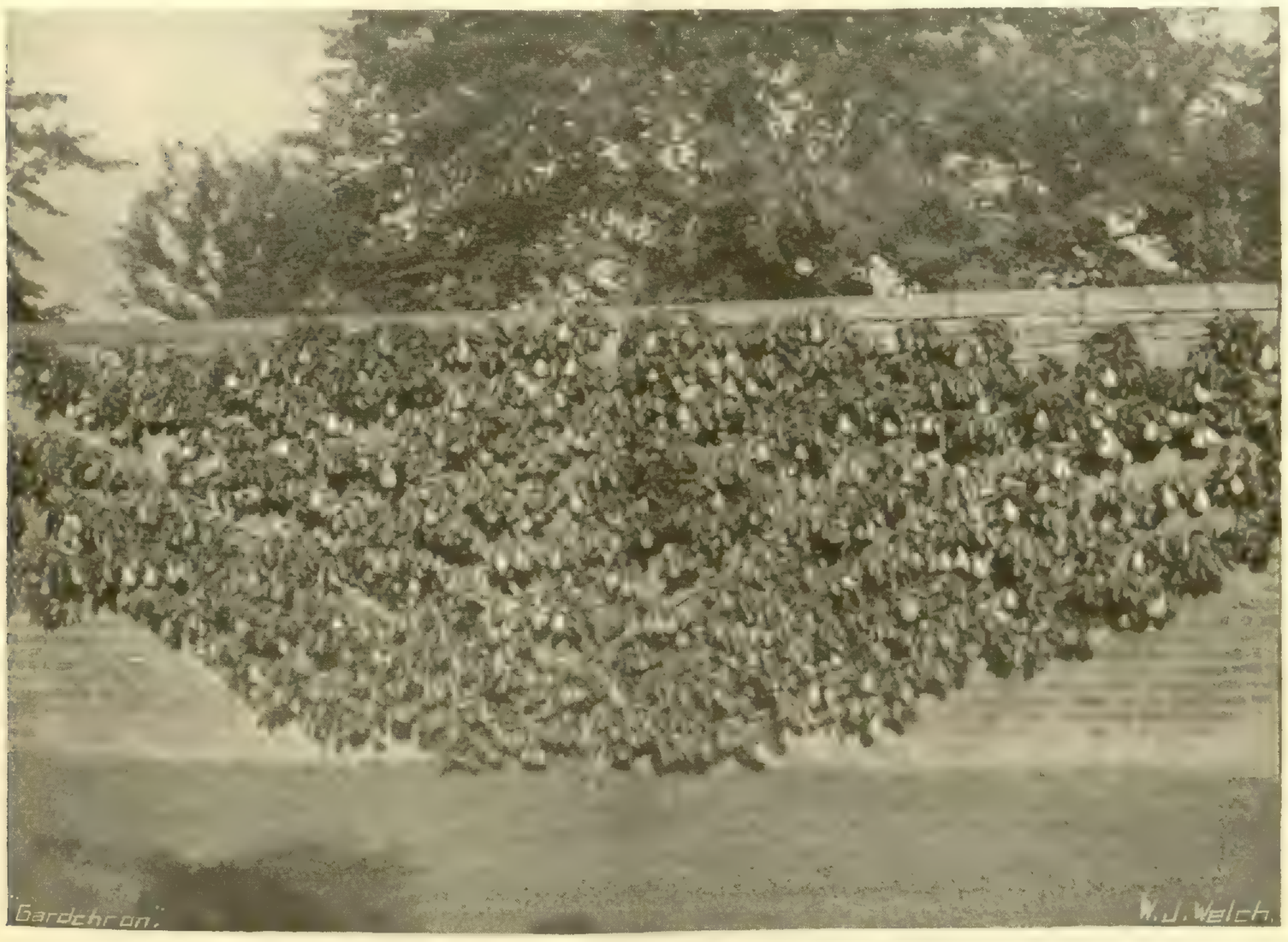


Fig. 87.—Pear Souvenir du Congrès at Ruthin Castle Gardens.

A PROLIFIC PEAR TREE.

In fig. 87 is illustrated a very fine Pear tree in Ruthin Castle Gardens. Mr. H. Forder, the gardener, informs us that it is growing on a south wall, and has been planted about 18 years. The illustration shows the beautiful crop of fruits borne last season. The variety is Souvenir du Congrès, one of the finest Pears in season at the end of August and the beginning of September, being characterised by a juicy, yellowish-white flesh and rich flavour.

* In *Journ. Northamptonshire Nat. Hist. Soc.*, xxi, 88 (Nov., 1911). See also *Gard. Chron.*, l, 408 (1911).

† In the Sloane collection, of which Mr. J. Britten is preparing a catalogue.

The Week's Work.

THE KITCHEN GARDEN.

By Edwin Beckett, Gardener to the Hon. Vicary Gibbs, Aldenham House, Hertfordshire.

The Weather. — The weather conditions during the present month have been decidedly unfavourable for operations in the kitchen garden, the continuous rains having made the work of seed-sowing, particularly on heavy soils, almost an impossibility. No opportunities should be lost to complete arrears of sowing, planting, and other ground operations.

Asparagus.—As soon as the weather permits, the permanent beds of Asparagus should be put in order for the season. Rake off the rougher material from the beds into the alleys, fork it in, and give the beds a dressing of salt. The space between the beds may be utilized for catch crops of early Cauliflowers, Lettuce, and similar plants. Seedlings raised from seeds sown last April in 3-inch pots which have been plunged in ashes during the winter months should now be placed out-of-doors prior to planting them next month. This is the best method known to me of raising plants for planting new beds. Take care to obtain seeds of a good variety.

Kohl Rabi. — Seeds of this vegetable may now be sown in a box of finely-prepared soil and placed in a gentle heat. Transplant the seedlings as soon as they are large enough into cooler quarters, and let them grow sturdily until towards the end of April, when they may be planted in their permanent quarters.

Carrots.—The main crop of Carrots may be sown at the first opportunity. Select ground that has been thoroughly well worked during the winter months, but not liberally manured; it will be better if the soil is entirely free from manure added recently. Give a good dressing of soot and wood ashes, and break down the clods with a fork, making a level surface with a wooden rake. Mark the positions of the drills with sticks placed at either end. Draw shallow drills in straight lines at about 12 inches apart. Sow the seeds thinly, but regularly, and then make the surface level and tidy with an iron rake.

Carrots in Frames.—The earliest crops of Carrots in warm pits should be syringed twice daily to encourage a good growth; whenever possible, admit plenty of fresh air to the plants. The thinning of the roots must not be neglected; they will soon grow large enough for consumption, and the largest may be pulled here and there, giving additional room to those that remain. As soon as the seedlings of later sowings have formed their second leaves they will need a partial thinning.

Carrots for Exhibition. — Where extra-fine Carrots are needed, and the natural soil is unsuitable, excellent results may be obtained by boring holes 3 feet deep, in well-worked ground, and filling them with a light, sandy compost: old potting soil finely sifted is excellent for the purpose. Make sure that the hole is filled right to the bottom, by working the fine soil down with a thin stick. The holes should be made 12 inches apart and 15 between the rows. Sow a pinch of seed at each station and finally thin to one plant.

Globe Artichokes. — This crop should be planted in ground that has been well tilled and liberally manured. Any protecting material that was afforded established plants should be removed, and a dressing of well-decayed manure forked into the ground. A few suckers should be potted each autumn and wintered in cold frames to renovate a portion of the bed as it is not advisable to retain the plants longer than three years. The best varieties are Large Green and Purple Globe.

Broad Beans. — Another sowing of Broad Beans may be made in boxes or raised in a cold frame for successional supplies. Plants of the earliest sowing intended for planting out early in April must be thoroughly hardened. A sowing may now be made on a south border. Early plants in pots are in flower, and should occupy a light position in a cool Peach house or a similar structure, where they may receive fresh air whenever possible.

THE HARDY FRUIT GARDEN.

By F. Jordan, Gardener to Lady Nunburnholme, Warter Priory, Yorkshire.

Pruning Young Trees. — A great difference of opinion exists among growers as to the best time for cutting back recently-planted fruit trees. Trees that were properly planted in the autumn should have made new roots by Christmas, and are now in a condition to support the expanding shoots as they appear. Delay in heading back such trees as soon as the sap commences to rise means a loss of energy. No hard-and-fast rule can be laid down as to when or how to prune, for much depends upon the condition of the trees, and whether they have been grown and pruned carefully in the nursery. Generally speaking, about one-third or one-half the lengths of the shoots should be cut off, bearing in mind that the first object of the pruner should be to build up a tree of good shape, that will develop and be capable of bearing plenty of fruits in years to come. First remove any shoots that cross each other, and cut back others, if necessary, to secure an open centre to the tree. Encourage the leading shoots to grow by pinching the side growths during the growing season, pruning always to a bud pointing in the direction in which the shoot is desired to grow. By this means each branch becomes, as it were, a single cordon. Very little, if anything, is gained by pruning trees that are planted in March; it is rare for such trees to develop a vigorous root action the same season as planted, and they make very little top growth. A mulch of manure is of great assistance to the trees, but too often no water is afforded beyond the one solitary occasion directly after planting, or until the trees show signs of suffering from drought. Several good waterings should be given if the weather is dry in the spring, as the roots are not very active then, and the sap stored up in the wood is soon exhausted.

Standard Fruit Trees.—Standard trees that have been carefully pruned in the nursery for, say, three years, should have the shoots cut back to about one-third their lengths, leaving six or seven of the best-placed branches as leaders. Endeavour to keep the centre of the tree open to allow the sunshine to reach the shoots and ripen them. Examine recently-planted trees to see that they are firmly staked; this may seem a small matter, but it is of great importance, for the winds may disturb the roots by causing the branches to sway, and this is very harmful to new roots.

Figs. — The protective materials should be removed from Fig trees when more genial weather sets in, to allow the tree to receive the benefits of light and air. It is harmful to the embryo fruits to leave the material on too long, as they become drawn and tender. Do any necessary pruning, and tie in the growths thinly as recommended in the Calendar for March 1.

Protecting Fruit-Blossoms.—Unceasing attention must now be paid to the protection of Apricot, Cherry and Pear trees as they burst into bloom. All fruit trees promise well for a good crop of fruit, and it will well repay for a little extra care and attention now in protecting the bloom. Endeavour to prevent the blossoms from getting wet towards the evening, as when wet a slight frost will destroy the embryo fruits, whereas slight frosts have no bad effects on them if they are dry.

FRUITS UNDER GLASS.

By E. Harriss, Fruit Foreman, The Royal Gardens, Windsor.

The Orchard House. — Peach, Nectarine, Apricot, and Plum trees growing in pots should have the fruits thinned for the first time as soon as the latter are set, but in the cases of Apples and Pears the work should be deferred for a little longer, as large numbers of the fruits will drop naturally. The first thinning should consist chiefly in removing the small fruits and those which are badly placed, leaving those only which are fully exposed to the light. All surplus shoots may now be removed. At the same time cut back fruitless wood to a healthy growth near to the base. The remaining shoots may be pinched at the fourth or fifth leaf. It will not be safe to attempt to force the trees very hard at this stage, especially Apples and Pears, which should be placed in the coolest part of the house. Fresh air must be admitted freely through both the top and bottom ventilators, but cold draughts must be avoided. The trees should be syringed vigorously on fine days, and the floors in the house damped frequently. As a safeguard against insect pests the foliage may be syringed occasionally with an insecticide: should the leaves become infested with aphis, the house must be fumigated with a nicotine preparation.

Tomatos.—The earliest Tomato plants which are growing in pots may be stopped when they have set three or four trusses of fruit. This will hasten the development of the fruits. The plants may be placed in a house having a minimum temperature of 65°, in a position where they will be fully exposed to the light. All side shoots should be removed, and, if the foliage is obstructing the light from the fruits, some of the leaves may be shortened. Top-dress the roots with a mixture of loam and well-decayed horse manure, and afford stimulants in the form of liquid manure and some suitable fertilizer two or three times each week. Later plants must be assisted to set their fruits by lightly tapping the trellis to disperse the pollen. Admit plenty of fresh air during favourable weather and keep the atmosphere dry. Afford larger receptacles to later plants before the roots become pot-bound, and keep the plants growing in a position near to the light. The potting soil for the later or mid-season batches of Tomatos should be of a more substantial nature, and should consist chiefly of rich, fibrous loam, lime-rubble, and crushed bones. The potting also must be done more firmly than hitherto.

The Season. — Although the weather of March has been unusually mild, there has been a notable shortage of sunshine. The mild weather has partially compensated for the lack of sunshine, as the temperatures in the forcing houses have been maintained without an excessive use of fire heat. But the absence of sunshine has made the growth of all fruit crops under glass soft, and much care and attention will be necessary during the next few weeks to avoid scorching of the foliage. Such growth is also very susceptible to attacks of mildew: trees which are subject to this disease should have the foliage lightly dusted with flowers of sulphur. The hot-water pipes also should be occasionally sprinkled with this material. Constant attention must be paid to the ventilation of the house during changeable weather to avoid sudden fluctuations in the temperatures. During very cold nights such houses that can be conveniently covered with mats or other protective materials should be protected in this manner. The rainfall has been unusually heavy during the present month, and, where the subsoil is of a heavy and retentive nature, coverings placed over the borders of early vines, etc., have proved a great advantage.

PLANTS UNDER GLASS.

By Thomas Stevenson, Gardener to E. Mocatta, Esq., Woburn Place, Addlestone, Surrey.

Liliums. — In many establishments Liliums are grown practically the whole year round. Until retarded bulbs were available, growers had to practise hard forcing in the cases of Lilium Harrissii and L. longiflorum to obtain plants in bloom early; but, with retarded bulbs, hard forcing is not necessary. Allow the new bulbs a long time to root in the pots, so as to develop them gently, relying on the retarded bulbs for very early blooming. By this time early potted plants of the varieties named should be in a suitable condition for introducing into a little heat, and, by bringing these forward a few at a time according to the number required, a succession of bloom may be maintained. Retarded bulbs may be potted towards the end of the summer for flowering in winter and early spring. Practically all this season bulbs should be potted and put in frames by now, but should there be a shortage it is not too late to secure fairly good samples of such species as L. speciosum (lancifolium) in variety; L. auratum, and L. tigrinum, which provides a pleasing change from the others.

Sweet Peas. - Sweet Peas in pots are growing apace, but unfortunately, through a lack of sunshine, the growth is on the soft side. Arrange the plants in the house where they are to bloom at a suitable distance apart, and place stakes to support the shoots. Some use ordinary

Hazel sticks such as are employed for Peas out-of-doors, but these rob the plants of a considerable amount of light. For this reason, I prefer to place three or four long bamboo rods in each pot, and these are neater in appearance. The bamboo canes may be tied together at the top either to a wire or Hazel hoop about 1 foot in diameter. All that is necessary afterwards is to place strands of matting around the stakes as growth progresses. Keep the plants growing as steadily as possible, by affording fresh air on all favourable occasions, leaving the ventilators open until late in the afternoon. It will shortly be necessary to feed the plants by giving liquid manure, but, as a rule, stimulants should be withheld until the first blooms are showing colour. After this stage, the roots may be fed liberally.

Begonia.—Plants of Begonia Gloire de Lorraine and others of the winter-flowering section which have been rested in a cool house, may be introduced again into heat to furnish suitable shoots for cuttings. Select for cuttings growths that develop at the base of the plant, as these are likely to be stronger, and are less prone to develop flowers than those on the upper parts of the plant. If it is necessary to obtain the cuttings from the upper portions, the flower-buds should be removed as soon as they appear.

Carnations.—Plants of Souvenir de la Malmaison Carnations are commencing to throw up their flower stems and to send out side growths. This will necessitate giving the plants increased space. Staking should be done at once; one support is sufficient for young plants, but older specimens may require several. In the case of specimen plants, the staking needs to be done carefully, so as to afford sufficient space between each shoot to allow the flowers to develop properly. Do not tie the matting too tightly, as the flower-stems are brittle and liable to break if enveloped in a tight ligature. Older plants may, as advised in a previous Calendar, be assisted with manure, these being as a rule in a forward condition and ready to make use of food; young plants that are well rooted may be given a little soot water, or some equally mild fertilizer. The perpetual-flowering varieties are again developing strong growths, and with brighter weather fine flowers. Keep the plants fed with suitable stimulants if a succession of blooms is desired. Carnations do best in a dry atmosphere, but syringings are necessary occasionally to keep down red spider and maintain the plants in good health. If this pest is detected, place a little sulphur in the water that is used for syringing. Aphis is often troublesome at this season of the year, and occasional fumigation must be given to keep them in check. Some of the flowers, notably those of rose-pink shades, lose their colour if exposed to too brilliant sunlight, therefore, in bright weather, the plants should be shaded a little during the middle of the day.

THE ORCHID HOUSES.

By J. Collier, Gardener to Sir Jeremiah Colman, Bart., Gatton Park, Surrey.

Dendrobium.—Dendrobiums of the deciduous kinds, both species and hybrids, commence to make new growth as they pass out of flower, and should be potted or top-dressed as soon as roots begin to push forth from the base of the young shoots. It is better to grow them in pots than in pans or baskets. Specimens that require repotting should have the old compost shaken from the roots and old or useless pseudo-bulbs cut away. The pot, which should be just large enough to hold the plant comfortably, should be filled to one-quarter of its depth with clean crocks and with portions of Fern rhizomes cut rather short over the top of the sherds to complete the drainage. Over these place a layer of Sphagnum-moss. The following mixture is a suitable rooting medium:—One part A1 fibre or good fibrous peat with all the small particles removed, and one part Sphagnum-moss, both ingredients cut up rather short, adding a good sprinkling of crushed crocks and coarse silver sand before incorporating the whole together. I do not advocate the use of Oak leaves for Dendrobiums, as I find they have a tendency to promote spot in the leaves. Pot the plants rather firmly but not hard. When finished, the base of the plant should be a little below the rim of the pot, being careful during the operation to work the compost well between the roots: the surface may either be covered at once with chopped Sphagnum-moss or, when the young roots have got well into the new compost, the latter being the better plan. After the potting is finished and until they are well rooted great discretion must be exercised in watering the plants, for there is danger of both the young roots and growth damping off if too much moisture is applied. But when the plants are in full growth water should be afforded freely. Newly potted plants should be shaded for a few hours during the middle of the day. Healthy specimens that have ample pot room and compost in a good condition should have a little of the material removed from between the roots and replaced with new. All Dendrobiums of this section require a hot, moist atmosphere during their growing season, and are benefited by exposure to the early morning and late afternoon sun. The old pseudo-bulbs that have been removed from the plants may be utilised for purposes of propagation if an increase of stock is desired. They should be labelled and placed on a stage in a warm house for a few weeks to dry. When making the cuttings, the pseudo-bulbs should be cut up to a single eye to a point that has not produced a flower. Cut rather close to the eye at the top end of the stem, leaving rather more of the stem at the bottom end to insert in the compost to keep the cutting upright without covering the dormant eye: it will also help to sustain the young shoot. The cuttings should be placed in 4-inch pots, half-filled with clean crocks for drainage, and with a layer of Sphagnum-moss over the top of the crocks, finally employing a compost consisting of two parts silver sand and one part Sphagnum-moss chopped finely. Press the cuttings into the compost at a sufficient depth to hold them firm without covering the buds. They may be rooted in a hot, moist frame. The frame should be kept closed by day and opened a little each night. The material in the pots should be kept on the dry side, but the cuttings should be sprayed lightly on bright days. When the young growth has developed about an inch in length, the plants should be potted in small pots, in a mixture similar to that recommended for established plants.

THE FLOWER GARDEN.

By J. G. Weston, Gardener to Lady Northcote, Eastwell Park, Kent.

Calceolaria amplexicaulis. — Where plants of this Calceolaria were propagated in boxes or in cold frames, the potting-up should not be further delayed. Put them into 5-inch pots, and place them in a cold frame, which should be kept a trifle close for a few days. If tall plants are required, stake and tie the shoots as they lengthen. When established, and the pots full of roots, they must on no account be allowed to suffer from want of water, or they will be starved and become of a bad colour, not recovering readily when planted out.

Marguerites.—If Marguerites were propagated in the same way, they should now be potted or boxed. Boxes are quite suitable, and usually more convenient for handling. The mild weather has caused the plants to be ususually soft and sappy, and therefore they should now be grown as hardily as possible.

Early-flowering Chrysanthemums. — The present is the best time to propagate early-flowering Chrysanthemums, whether intended for the decoration of the flower garden or furnishing a supply of cut blooms in the reserve quarters. Though the plants are reputedly hardy (in mild winters certain varieties are unharmed), nothing is gained by leaving them in the beds or borders all through the year. To grow them to the best advantage they need to be divided annually, and afterwards planted in ground that has been well prepared by trenching and manuring. In the autumn, after the flowers are over, it is customary to lift a portion of the clumps and either place them in boxes in cold frames or plunge the roots in ashes in a sheltered position, where they may be protected during severe weather. Plants wintered thus have made plenty of robust and sturdy growths, suitable for cuttings. Dibbled into pans or boxes, the shoots root very readily at this season, and, when rooted, should be hardened off and planted out by the end of April. The simpler method of division is recommended where plants are plentiful. In this case, shake off all the soil from the roots and carefully pull the plant to pieces. It will be found that most of the young shoots are already rooted; do not divide the clumps too severely, but retain several shoots in each portion. These will eventually make fine specimens for planting in borders. The growths having been made under cool conditions, the shoots are not tender, and the plants may be set out now with every prospect of success. The ground, having been prepared previously, should be forked over and raked fine, making the surface firm and even before planting. There is a wealth of suitable varieties, some of the finer being Horace Martin, Goacher's Pink, Goacher's Crimson, Mme. Desgrange and its yellow sport Mme. Marie Massie, Crimson Massie, Carrie, Harvest Home, La Parisienne, Market Pink, Roi des Blancs, Nina Blick, Queen of the Earlies, Fée Japonaise, Ryecroft Crimson, and Ryecroft Glory.

Gladioli. — The corms should be planted whenever the ground is in a suitable condition. Clumps of showy Gladioli are very pleasing in the mixed border, whilst the scarlet G. Brenchleyensis may be planted in quantity to create a brilliant effect in the shrubbery border or in the natural garden. Gladioli of the early-flowering section, of which the best known is G. Colvillii alba or The Bride, have become very popular of late years. These are invaluable for growing in quantity for supplying cut blooms, and thrive best on a warm, sheltered border. Do not plant them in a prominent position, because, when the flowers are over, the foliage quickly becomes untidy. A rich, open soil is required for Gladioli; if the staple is of a heavy, retentive nature, some spent manure from an old Mushroom-bed, leaf-soil, or old potting-soil should be incorporated to lighten it. Salmon Queen, Delicatissimus, Fairy Queen, Peach Blossom, Emperor William, Queen of Holland, Fire King and Ne Plus Ultra are desirable varieties. Those of the Gandavensis section and the Childsii and Nanceianus hybrids are all valuable to succeed the early-flowering varieties. The corms should be planted not later than April. If a delay occurs in their planting, pot the corms and start them into growth under glass. This plan is to be recommended in districts that are cold, where crops are late.

THE APIARY.

By Chloris.

Beekeepers and Wasps.—Some time since a beekeeper informed me that Cotoneaster Simonsii attracts queen wasps in the spring when she is searching for material to construct her nest. My informant killed nearly 400 on one plant in less than a week. The shrub may be purchased from almost any nurseryman, and is worth planting for trial in this respect. It is a pity that school children are not encouraged by horticultural societies in rural districts to destroy queen wasps. This could be done very easily by offering prizes for the greatest numbers. In one district where the plan is adopted the first prize was given for nearly 700 queen wasps, and three children killed nearly 1,500 queens.

Feeding.—Many beekeepers are over-anxious to commence stimulative feeding, but it is a great mistake even to manipulate the hive now. When the weather permits, colonies that are short of food should be given a cake of candy, disturbing them as little as possible. There is plenty of work to be done in the apiary. Hives may be made and painted, while others may be repaired, and frames fitted with full sheets of foundation. If supers are fitted up now the work is generally better done than later in the season, because there is more time; the wax is cut truer, and the sections fit more tightly in the racks because they are put in more carefully, and wedged up closely; a double gain for there will be less propolis to scrape off in the autumn.

Artificial Pollen.—As soon as the weather is suitable artificial pollen may be supplied with advantage. A very good mixture may be made by using equal quantities of Wheat and Pea flour, which should be lightly sprinkled on shavings placed in an upturned skep, lying in a sheltered, sunny corner of the garden.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, *as well as specimens of plants for naming, should be addressed to the* **EDITORS, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Special Notice to Correspondents.—*The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.*

Editors and Publisher.—*Our Correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the* PUBLISHER; *and that all communications intended for publication, or referring to the Literary department, and all plants to be named, should be directed to the* EDITORS. *The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.*

Local News.—*Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Illustrations.—*The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c., but they cannot be responsible for loss or injury.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.*

APPOINTMENTS FOR APRIL.

TUESDAY, APRIL 2—
Royal Hort. Soc. Coms. meet. (Lecture at 3 p.m. by Mr. R. Irwin Lynch on "Tender Plants for a Warm Corner.") Scottish Hort. Assoc. meet. Nursery and Seed Trade Assoc. Ann. Meet. at 4.30 p.m.

THURSDAY, APRIL 4—Manchester Orchid Soc. meet.

FRIDAY, APRIL 5—*Good Friday.*

SATURDAY, APRIL 6—
Soc. Française d'Hort. de Londres meet.

MONDAY, APRIL 8—Bank Holiday.

WEDNESDAY, APRIL 10—
Kingsbridge Daffodil and Spring Fl. Soc. Exh., Royal Caledonian Hort. Soc. Spring Sh. (2 days).

THURSDAY, APRIL 11—
Cornwall Daffodil and Spring Fl. Sh. at Truro (2 days).

TUESDAY, APRIL 16—
Royal Hort. Soc. and Daffodil Sh. (2 days). (Lecture by Prof. Henslow on "Darwin as Ecologist.") Shrewsbury Spring Fl. Sh.

WEDNESDAY, APRIL 17—
Royal Hort. Soc. Exam. of School Teachers. Devon Daffodil and Spring Fl. Sh. at Plymouth (2 days). Royal Hort. Soc. of Ireland Spring Sh. (2 days). Royal Meteorological Soc. meet.

THURSDAY, APRIL 18—
Ipswich Daffodil and Spring Fl. Sh. Linnean Soc. meet. Manchester Orchid Soc. meet. Devon Daffodil and Spring Fl. Sh. (2 days).

TUESDAY, APRIL 23—Breconshire Daffodil Sh.

WEDNESDAY, APRIL 24—
Royal Botanic Soc. meet. North of England Hort. Soc. meet at Leeds.

THURSDAY, APRIL 25—
Midland Daffodil Soc. Sh. at Birmingham Botanical Gardens (2 days). Norwich Spring Sh.

TUESDAY, APRIL 30—
Royal Hort. Soc. Coms. meet. and National Auricula and Primula Soc. Sh. (Lecture at 3 p.m. by Dr. Redcliffe Salaman on "Potatos.")

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—43·8°.

ACTUAL TEMPERATURES:—

LONDON.—*Wednesday, March 27* (6 P.M.): Max. 47°; Min. 35°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—*Thursday, March 28* (10 A.M.): Bar. 29·8°; Temp. 53°; *Weather*—Dull.

PROVINCES.—*Wednesday, March 27:* Max. 45° Ireland S.W.; Min. 34° Scotland, N.

SALES FOR THE ENSUING WEEK.

MONDAY—
Herbaceous and Border Plants, Perennials, Hardy Bulbs, &c., at 12; Roses and Fruit Trees, at 1.30; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

MONDAY AND WEDNESDAY—
Rose Trees, Fruit Trees, Perennials, Liliums, Trained Bay Trees, Palms, &c., at 12.30, at Stevens's Auction Rooms, 38, King Street, Covent Garden, London.

TUESDAY—
Trade Sale of Miscellaneous Bulbs and Plants, at 12; 150 cases Japanese Liliums, at 2.30; at Protheroe & Morris's rooms.

WEDNESDAY—
Perennials, Herbaceous and other Plants, Hardy Bulbs, &c., at 12; Roses and Fruit Trees, at 1.30; Palms and Plants, at 5; at Protheroe & Morris's rooms.

The Flora of Hong Kong.

A short time ago our readers were informed of the fact that Mr. H. J. Elwes had embarked on a visit to Formosa, in order to make a study of the remarkable trees indigenous to that island. On the outward voyage he called at Hong Kong, where he visited the Botanic Gardens. The following notes upon some of the more important plants that came under his observation will be read with interest.

We reached Hong Kong, writes Mr. Elwes, at the end of January, during a spell of cold, dull weather, which was all the more felt as, until our steamer arrived within a few hours of the port, we were in a tropical temperature. During the four days of my stay we hardly saw the sun, and were glad of our warmest winter clothes and overcoats, though no rain fell.

In all my travels I have never seen a harbour with more beautiful natural surroundings, for though the hills which environ it, and rise steeply on one side to

MR. W. J. TUTCHER
(Superintendent of the Botanical Forestry Department, Hong Kong).

1,800 feet, are not clothed with luxuriant vegetation, and in many places remind one more of the West Highlands or even of a Norwegian fjord than of the tropics, yet to go ashore and enter the gardens is to realise at once that during the greater part of the year the climate is truly tropical. From April to October, during the south-west monsoon, periods of warm torrential rains, amounting to about 70 inches, alternate with hot sun, and the climate is so damp that on the higher levels, where most of the richer residents have their bungalows, drying rooms are necessary to keep clothes, books and linen from mould. Open fireplaces with coal fires are agreeable, if not necessary, during the three or four winter months, which are normally dry and sunny. Above 1,000 feet slight night frosts occur, albeit rarely: there was one 20 years ago. The violent winds which occasionally prevail prevent trees from attaining any great height, even in the ravines, where alone any depth of good soil is found. The granitic soil seems to be poor and dry, unfavourable to most trees, and only near the shore, where soil has accumulated, can Rice, Sugar and other tropical crops be grown in small patches, so that the large population of the island depends on imported food.

On entering the town you find a Chinese Liverpool all along the wharves, crowded with junks, boats and large steamers. Higher up, we might be in a more tropical Mentone. On the peak and higher slopes, covered with brushwood and grass among the rocks, we find at this season only dried-up and withered herbaceous plants mixed with Melastomas and many sub-tropical and tropical shrubs and small trees.

The vegetation of the island is, however, remarkably rich and varied, and has been so admirably described and catalogued in the *Flora of Kwangtung and Hong Kong*, just published by Messrs. Dunn and Tutcher, the late and present superintendents of the Botanical and Forestry Department*, that there is need only to mention a few of the most striking plants which were shown us by Mr. Tutcher.

The Botanic Gardens, founded about 1860 by the Government, are situated on the hillside just above Government House, and though rather crowded by buildings round them, are large enough to contain a great many interesting native trees and shrubs, as well as many Palms and other introduced species. They are characterised by the same neatness, order and good cultivation which distinguishes Kew and all its children, and though the superintendent has to attend to the planting of trees, mostly Pinus Massoniana, on a large scale over the whole island, as well as on the new territory of Kowloon, the work of the gardens and herbarium are carried on in an admirable way.

Mention need be made only of a few of the most interesting objects to give an idea of the character of the gardens. At this season few were in flower, but we were fortunate in seeing a large shrub of Rhodoleia Championii, peculiar to the island, and Yunnan, and perhaps the handsomest of all the Order Hamamelideæ, to which it belongs (*Bot. Mag.*, t. 4509). Mr. Tutcher guided us to a spot in the Little Hong Kong woods, where it grows wild in a grove of Evergreens at about 800 feet, exposed to the sun and wind. A tree about 30 feet high by 2 feet in girth was covered at the ends of the branches with its large crimson inflorescences, and there is no apparent reason why it should not prove hardy in some of the more sheltered spots of Cornwall or County Kerry. Anyhow, it is worth trying.

In the same woods we saw trees of two species of Oak, namely, Quercus cornea and Q. thalassica; and of Ash (Fraxinus sinensis) mixed with such trees as Schima Noronhae, Machilus Thunbergii, Gleditschia australis, Lagerstroemia subcostata with a fine trunk covered

* *Kew Bulletin of Miscellaneous Information.* Additional series. London. 1911.

with smooth, grey bark scaling like that of a Plane, and attaining 40 feet by 5 feet, and Caesalpinia vernalis, with large, bean-like seeds, which I have sent to Kew.

Camellia hongkongensis and Gordonia anomala were next to Rhodoleia, the two most beautiful shrubs in these woods, and the Gordonia is well worth trying in Cornwall. In the shade of these trees and many others grew two species of Pandanus, two or three Rattan Palms, Melodinus monogynus, a climber with large, Orange-like fruit; Raphiolepis indica, Ilex pubescens, Camellia salicifolia, Alpinia nutans, one of the most beautiful and common plants on the island; at least three species of Ardisia, also Zanthoxylum and Avicennia, Henslowia frutescens, Reevesia thyrsoidea, Eurya japonica, and many other species strange to me, but familiar to Mr. Tutcher. Many Terrestial Orchids, including the beautiful Habenaria Susannæ and H. rhodocheila, are found here in the rainy season, though mostly rare and local; but I saw no epiphytic Orchids of horticultural importance. Pancratium verecundum and Lycoris aurea seem to be the best of the native bulbous plants, and I was surprised to find the latter plant in full leaf during the dry, cold season, though completely dormant during the rainy season, at the end of which (in October) it produces its flowers. This may be the reason why it fails to bloom in cultivation, and I shall try to imitate the conditions in England when I return.

Mr. Wallace, of Amoy, showed me in his garden what he believes to be a natural hybrid between Lycoris aurea and L. radiata, which flourishes under similar conditions. On some of the grassy slopes near the Peak of Hong Kong there grows in small numbers a variety of Lilium Brownii, which I sought in vain, but which Mr. Tutcher will try to procure for me.

To return to the Botanic Gardens, I noted the following plants:—A very large bush of Magnolia fuscata, with small, purplish-brown flowers that scented the air far and wide; this species should be grown more generally in our plant-houses; Tutcheria spectabilis, a very fine species; closely resembling a white Camellia reticulata, unknown as yet in Europe, I believe, though seeds have been sent to Kew; Liquidambar chinensis, a large though ill-shaped tree, whose flowers were in bud, and old capsules still remained, and Ficus retusa, the Chinese Banyan tree, the largest indigenous tree in the island, and very common in the streets.

Eucalyptus tereticornis is the largest introduced tree that I saw in the gardens, but as a rule Eucalpti do not thrive here.

Taxodium distichum grows to a good size, but has quite lost its proper habit, and does not produce fruit here; on its branches Loranthus chinensis, the native Mistleto, was growing. Among the Palms, of which many species attain a large size, I specially noted Washingtonia filifera, which, 15 years after planting, has attained to over 40 feet in height in a climate remarkably unlike that of its native country—the arid region of Southern California and New Mexico. Araucaria Bidwillii, A. excelsa and A. Cookii grow to a height of 50 feet to 70 feet, but none of them seemed to be as happy, or to show their natural habit, so well as in the gardens of Portugal.

In the shady ravine on the west side of the gardens I saw many specimens of a fine tree Fern, Alsophila tomentosa, over 30 feet in height; a splendid specimen of Cycas, with fronds 8 feet to 9 feet long; a tree of Michelia Champaca, which, till its top was blown off by a storm, must have been over 90 feet high,

Fig. 89.—EPIPHYTIC ORCHIDS AT A BERLIN SHOW.

(See p. 204).

with a clean, smooth trunk 8 feet or 9 feet in girth; Ficus variegata, a tree about 70 feet by 6 feet, which bears its fruit in small clusters all down the trunk on the old wood; Celtis sinensis, a large tree; Quercus bambusæfolia, with acorns just ripe; Rhododendron Championæ, which Mr. Tutcher considers the finest native species; Musa coccinea, with ornamental red inflorescence, which might be grown with good effect in our conservatories; Spathodea Cauda-felina, Fordia cauliflora, Symplocos decora, and many other rare and curious plants, whose names would probably be unknown to most readers.

Mr. Tutcher was also good enough to guide us to the only place on the mainland, in British territory, where he has found the rare Taxodium heterophyllum (Glyptostrobus heterophyllus), known in Chinese as "Water Pine," a tree grown in the neighbourhood of Canton, but which, I believe, has never been seen wild by any botanist. It is very interesting on account of its close resemblance in leaves and fruit to Taxodium distichum, with which it has been sometimes confused in Europe. The only two trees I saw grew close to the railway, on the outside of a village between Taipo and Fanling. The largest was only about 40 feet by 5 feet, though apparently very old and beginning to decay. The trunk was buttressed, like that of Taxodium, with thin, smooth bark The flower-buds were just showing, but though my companion, Mr. Price, climbed the tree, he could find no mature fruit of last year, and the leaves were attacked by a fungoid disease. I tried in vain to procure specimens of the timber, but the tree is so rare that I did not like to cut a specimen. From what I could gather, it appears to grow best on alluvial or marshy soil, but does not attain anything like the size of its American relative.

In conclusion, I wish to record my thanks to Mr. Tutcher for his most valuable guidance and assistance, and to congratulate both him and Mr. Dunn on the admirable work they have accomplished alike in garden, herbarium and forest.

Orchid Show at Berlin (see fig. 89).—Twice a year, writes Dr. Udo Dammer, Orchid shows are held in the house of the Prussian Parliament in Berlin: one in November, the other in May. The last show was a remarkable success. Beside the members of the German Horticultural Society, who have free entrance, more than 7,000 people paid for admission to the show during three days. The exhibitors included amateurs and professionals. Amongst the amateurs the most successful were the president of the Orchid Committee, Dr. Alfred Berliner, Prof. Dr. Otto N. Witt, and Mr. Kuthe. A very fine show was also that of Mr. C. F. von Siemens. The professional growers were represented by Messrs. Beyrodt, Marienfelde; Karthaus, Potsdam; Hennis, Hildesheim; and Gaveau, Lichtenrade. The show was accommodated in six large rooms, but the exhibits were so numerous that there was not space enough to display the plants to their best effect. Two of the collections, shown by Mr. Karthaus and Mr. Beyrodt respectively, were of outstanding merit. Mr. Karthaus is a successful hybridist. I noticed in his collection Lælio-Cattleya Whiteleggei in very fine form, the large flowers being of fine substance; also L.-C. Lily with very dark and large lip, Brasso-Cattleya Wotan, B.-C. Maronæ, a fine plant with three large flowers; Lælio-Cattleya callistoglossa, Cattleya Fabia alba, C. labiata alba; a good batch of C. Dowiana aurea, several good specimens of the beautiful C. Pittiæ and Minucia; the new C. Walküre (C. Greavesiæ × C. gigas), and large masses of Dendrobium superbiens and the beautiful D. Goldiei. Mr. Beyrodt has his plants arranged more systematically. The most prominent features included a group of Vanda cœrulea and its varieties, including a plant of V. c. magnifica with 24 flowers, each 4 inches in diameter; Dendrobium Phalænopsis Schröderæ and its varieties, amongst which were fine examples of D. P. hololeucum and D. P. Rothschildianum. Very interesting also were his two large groups of Cattleya, the one containing only natural forms and varieties, the other hybrids. One of the most interesting plants was a specimen of Epidendrum floribundum, with a very large inflorescence. But the most striking group was the large "primeval forest" (see fig. 89). It contained besides many tropical plants 325 flowering Orchids arranged as in their natural habitats. The plants were natives of different parts of the world. These Orchid shows are always instructive, and designed to advance the knowledge of Orchids amongst amateurs. Specimens of exhibited Orchids of the principal genera were arranged each on a separate table, in order that visitors might learn something about the classification of Orchids. To each of these plants was affixed a large label containing notes on the number of the species in the genus, the geographical distribution, &c. It is intended to extend this arrangement at future shows.

The Perpetual-flowering Carnation Society.—This society has arranged to hold a banquet at the Holborn Restaurant on Thursday, May 23, in order to entertain American and Continental Carnation growers visiting the Royal International Horticultural Exhibition.

Flowers in Season.—Messrs. Ed. Webb & Sons, Wordsley, Stourbridge, have forwarded a box of flowers of their fine strain of Cineraria, known as Webb's Superb.

"Geo. Monro Ltd." Concert Committee.—This committee has been enabled, as the result of the concert held on February 15, to contribute the following sums to gardening and other institutions:—Gardeners' Royal Benevolent Institutions, £15 15s.; Royal Gardeners' Orphan Fund, £2 2s.; Wholesale Fruit and Potato Trade Benevolent Society, £8 8s.; Surgical Aid Society, £5 5s.; Charing Cross Hospital, £5 5s.; Royal Ophthalmic Hospital, £2 2s.; "Geo. Monro Ltd." Pension Fund, £3 3s.; and "Geo. Monro Ltd." Outing Fund, £3 3s.

Sir Joseph Hooker's Estate.—Sir Joseph Dalton Hooker, who died on December 10, age 94, left estate of the gross value of £36,861, of which £32,390 is net personalty. The testator left £100 each to the Linnean Society of London and the Scientific Relief Fund of the Royal Society of London.

Poisoning with Virginian Creeper Berries.—According to *The Pharmaceutical Journal and Pharmacist*, a case is recorded in which a child was fatally poisoned by eating the berries of the Virginian creeper (Parthenocissus quinquefolia) better known as Ampelopsis quinquefolia. So far as published records show, the only toxic substance present is calcium oxalate or oxalic acid: no glucoside, alkaloid, or other toxic substance has as yet been isolated from this plant.

Grants to Wye College.—The Board of Agriculture has again made an increased grant of £1,300 to the South Eastern Agricultural College, Wye, and has promised a grant of £262 (for six months) for the cost of investigations on Hops, on the life history of the parasitic stomach worms (Strongyli) of sheep, and the disease of "Struck" of sheep, whilst the institution of a fresh grant of £1,000 towards the expense of an advisory staff in entomology and mycology—more particularly for fruit-growers—has also been officially intimated to the College authorities.

London's Open Spaces.—Excellent progress is being made with the proposal to utilise a site at Shadwell as a park in memory of King Edward. At a recent meeting of the Memorial Committee, Sir Vezey Strong said that at present they had about £67,000 for the Shadwell scheme after deducting £20,000 for the West End memorial. In addition he had received a letter from a lady, who desired to remain anonymous, offering to subscribe £25,000 on condition that a sum not less than this amount was obtained by appeal to the public through the Mansion House, and on condition that the Shadwell site was suitably laid out as a public park, including the construction of a quay front or embankment to the river. On the proposition of the Lord Mayor the offer was gratefully accepted, and the whole matter was referred to the Executive Committee. The Local Government Board has issued an order approving the London County Council's scheme for clearing the Tabard Street insanitary area in Southwark. A feature of the scheme is that a portion of the site, which is not to be less than five acres, is to be laid out as a public open space.

L.C.C. Park Employees.—Reference has on various occasions been made in these pages to the London County Council's new scheme of selecting boy labourers in the parks service. In November last the County Council authorised the Education Committee to nominate not fewer than four boys each year for appointment as boy labourers in the parks service. Twenty candidates applied, and the Education Committee have nominated four. If the appointments are confirmed by the Parks and Open Spaces Committee, the boys will be required to commence work next month at a rate of pay of 10s. a week.

Potato Importations into Germany.—The Board of Agriculture and Fisheries have received information that the German Imperial Government have decided to postpone until the 30th prox. the application of the import duty on Potatos of last year's crop which is usually levied on February 15 every year.

Chinese Roses.—No. 23 of *Notes* from the Royal Botanic Garden, Edinburgh, contains an enumeration and description of Species of Roses by Dr. W. O. Focke, based on the plants discovered and collected by Mr. George Forrest during his first exploration of Yunnan and Thibet (1904-6).

What to Plant Under Trees.—Mr. P. Hanschitz (in a note in *Die Gartenwelt*, March 2, 1912) on the subject of plants suitable for growing under trees, recommends the following:—Iris fœtidissima, which is evergreen, grows to a height of about 2 feet, and bears blue to lilac flowers and bright scarlet seeds; Helleborus fœtidus; H. lividus and H. viridis; species of Geranium, such as G. phæum (flowers dark velvety-red); G. pratense (with purple-red flowers); G. album; G. ibericum (flowers bright blue); G. malvæflorum (with rose flowers and evergreen and agreeably-scented leaves); and the shrub Hypericum calycinum.

THE WHEAT CROP.—The Board of Agriculture and Fisheries have received the following telegram from the International Agricultural Institute:—The area sown with winter wheat is in British India 29,444,000 acres, and in the following countries 94 million acres, or 2.2 per cent. above the area sown in the autumn of 1910.—Belgium, Denmark, Spain, France, Great Britain, Hungary (including Croatia and Slavonia), Luxemburg, Roumania, Switzerland, Canada, the United States, British India, Japan, and Tunis. The area of winter wheat in these countries was 40 per cent. of the total area in 1911. The condition of winter cereal crops is good. A preliminary statement of the production of Rice and cleaned cotton in British India gives Rice 521,992,000 cwts., and cleaned cotton 11,196,000 cwts.

PRESERVATION OF CUT FLOWERS.—According to *La Tribune Horticole*, cut flowers may be indefinitely preserved by means of a process of metallisation, although the colours of the blooms are destroyed. The flower to be preserved is soaked in an alcoholic solution of nitrate of silver until the alcohol is evaporated It is then placed in a flask, at the bottom of which is a little sulphohydrate of ammonia (or it may, instead, be dipped in a solution of sodium sulphurate). The silver penetrates into the tissues of the flower and becomes transformed into a salt of silver, which is capable of conducting electricity; it only remains, therefore, to plunge the subject thus treated into a galvanoplastic bath of sulphate of copper to obtain an "everlasting" of a fine bronze colour.

LONGEVITY OF SEEDS.*—An interesting instance of prolonged vitality in the case of the seeds of a Leguminous species is recorded in a letter addressed to Kew by Sir WILLIAM HERSCHEL, Bart. Sir WILLIAM writes, under date January 22, 1912:—"Albizzia lophantha.—An interesting case of germination and flowering of A. lophantha after the seeds had been lying dormant 68 years induces me to write to you. The seeds were part of a packet received by Sir JOHN HERSCHEL from the Cape of Good Hope in 1843, and preserved, since his death in 1871, in his cabinet. Seven plants have been successfully reared in 1910 and 1911, of which one, two years old, is now some 10 or 11 feet high, and has flowered abundantly (not seeded) this autumn. From several letters that have passed between Professor VINES and myself, I have gathered much interesting information about the provenance of these seeds, and from Sir JOHN's correspondence it is clear that so far back as 1834-5 he was studying them in Africa. I find also now a letter from (Sir) JOSEPH HOOKER, acknowledging (to a Mrs. L. WILSON) the receipt at Kew, March 16 or 26, 1844, of what he describes as 'interesting seeds . . . gathered in Australia' passed on to him as from Lady HERSCHEL. I have little doubt they formed part of the 1843 packet." In the same letter, Sir WILLIAM was so good as to offer to send to Kew the flowering example of A. lophantha referred to above; at the same time, he asked whether the letter from Sir JOSEPH HOOKER could be verified. In the collection of correspondence at Kew no reference has been found to this matter, but in one of the Record books there is the following entry in March, 1844:—"Received from Lady HERSCHEL 48 papers of seeds from S. . . ." The curious fact that the entry has been left incomplete in itself seems sufficient evidence that it refers to the same consignment as that to which the packet of seeds in Sir JOHN HERSCHEL's cabinet, some of which have germinated after an interval of 68 years, belongs. The letter from Mrs. L. WILSON transmitting the seeds on behalf of Lady HERSCHEL has not indeed been preserved, but that this letter said "S. Australia" is almost certain, because in a subsequent communication, under date January 27, 1912, Sir WILLIAM HERSCHEL says that the acknowledgment sent by Sir JOSEPH HOOKER has the words "S. Australia" and these words "are in HOOKER's own hand." That the seeds did actually come from Australia in the first instance is almost certainly correct. But it was apparently known at Kew that these seeds had been sent to Sir JOHN HERSCHEL from South Africa, as explained in Sir WILLIAM HERSCHEL's letter; the writer of the entry in our Record book, undecided as to whether the word "Africa" or "Australia" should, under the circumstances, more properly follow the "S.," left his entry incomplete for the moment, and never subsequently had his difficulty satisfactorily cleared up. The main interest of the correspondence lies, however, as Sir WILLIAM HERSCHEL points out, in its affording what appears to be an authentic record of "a flowering two-year-old plant after 68 years dormancy" of its seed. Sir WILLIAM's promise has been fulfilled, and this interesting plant has now been added to the collection at Kew.

* Extract from the Kew *Bulletin*, No. 2, 1912.

THE ORIGIN OF CULTIVATED STOCKS.—The origin of those old favourites of gardeners, the Stocks (Matthiola) appears to be less a matter of uncertainty than is the case with most cultivated plants. According to Herr SPRINGER (*Die Gartenwelt*, xvi., 9, 1912) Matthiola incana, the main progenitor of our garden races of Stocks, is widely, though intermittently, distributed throughout the Mediterranean region. Among its most noteworthy varieties are M. incana græca, with smooth leaves and lac-red flowers, and M. incana fenestralis, a Cretan form, a semi-dwarf perennial with short leaves and the ancestor of our winter-flowering Stocks. It is particularly interesting to observe that M. incana occurs wild in a wide range of colour-forms—dark blue, violet-rose, carmine, cramoisie and white. The horticulturist has apparently had little to do with the development of colour varieties, he having been anticipated in the case of the Stock by nature herself. He has not, however, been content with nature's handiwork, but has crossed varieties and perhaps species with the object of moulding the form as well as of fixing the colours of the plant. Our summer-blooming Stocks, derived from M. incana and its varieties, occur wild in Greece, and may also be found in profusion on the rocky shores of Corfu in the neighbourhood of Ipso. In addition to M. incana and its natural varieties, M. sinuata, a red—rarely blue—species has been used for cross-breeding purposes. It has lobed, deeply-cut leaves, is commoner in Greece than is M. incana, and is specially fine in Crete.

THE LARGE LARCH SAW-FLY.—A paper on the Economics of the large Larch saw-fly (Nematus ericksoni), contributed to the Royal Society of Edinburgh, by Dr. R. STEWART MACDOUGALL, contains the proof of the interesting fact that the female saw-fly is capable of reproducing itself parthenogenetically. In the course of breeding experiments Dr. MACDOUGALL obtained from cocoons collected in the spring 165 females and one male. Previous records by Dr. HEWITT had shown a similar disproportion between the sexes. In order to test the hypothesis of parthenogenesis, females known to be newly issued were placed on Larch growing in pots, and covered to prevent the access of other insects. In spite of these precautions the saw-flies laid eggs, which developed normally into caterpillars. The caterpillars produced cocoons, from which, in the following spring, adult insects issued—all of which proved to be female. Hence it is to be concluded that the female Nematus is capable of producing fertile eggs without having been fertilised by a male. Another point of interest, which may prove of economic importance is the fact that the large Larch saw-fly is subject to the attack of numerous parasites, from among which it may prove possible to find one deadly enough to act as a destroyer of the saw-fly on a scale large enough to keep down the spread of that pest.

IRELAND.

SEASIDE SHRUBS.

THE note dealing with this subject (p. 157) is of special interest. There are several subjects which have proved to be very satisfactory here in the face of the keenest winds. Two trees are Pinus austriaca and Ulmus montana. The Austrian Pine has proved to be much hardier than the Monterey Pine, P. insignis. The latter species is very hardy, but we find here that the late autumnal growths are affected by the south-west gales, even under partial shelter. I would add as subjects for planting in most exposed positions: Buxus in variety, Juniperus Sabina, Butcher's Broom, Gaultherias, Salix Caprea, Common Ash, Lycium chinense (barbarum), Colutea arborescens, Ulex europæus, the common Honeysuckle, Elders (common and variegated), Ivy (growing here on face of cliffs in full exposure), Erica cinerea, Rubus in variety, and Blackthorn. I am inclined to think that the Sea Buckthorn is much overrated as a seaside shrub, and Tamarisk, however well it may flourish in some places, should not be planted in all soils and situations. Judging from correspondence received from time to time seaside arboriculture is a matter of interest to many, and I have been asked to give names of subjects for exposed positions. The plants I have mentioned are of special value for this purpose.

THE VEGETABLE CROPS.

A BREADTH of Late Queen Broccoli, planted just above high water mark, looks very promising. A portion of this bed had a dressing of seaweed only, whilst the rest was manured with farm-yard dung and seaweed in about equal proportions. The latter dressing has proved more effectual, the plants being stronger. The difference was noticeable during the growing season, although the land on which the seaweed was used was in more fertile condition originally. Kales of various kinds are all good, whilst Celery and Leeks furnished excellent crops. Brussels Sprouts were not so satisfactory. Savoys were good, but their season here is a short one (even the late varieties come into use early), and are soon unfit for the table. White Sprouting Broccoli is a most excellent crop. I have never had such good results with this vegetable on any previous occasion. The variety is Improved Sprouting. Red Globe Turnip has been in use throughout the winter, the roots being pulled for consumption direct from the land on which they were sown. Rhubarb and Seakale both seem to delight in our salt-laden atmosphere. The Rhubarb has not been manured for several seasons; last year a heavy crop was pulled, and the crowns promise to furnish an equally good return this year. *Colin Ruse, Lambay Island, Rush, Co. Dublin.*

MAGNOLIAS.

MAGNOLIAS are not so extensively grown in Ireland as their merits deserve. As wall plants, they have few equals. M. grandiflora flowered earlier this year than for some seasons past. M. stellata is generally the first species to bloom, and makes a conspicuous object. Both M. stellata and M. conspicua may be grown in a bed in a shady place, where they may receive protection from severe cold. The best method of propagation is by layering. M. Watsonii and M. parviflora are very good this year, probably owing to the exceptionally mild winter. Magnolias frequently die when transplanted. *W. A. M., Coolfin, Banagher, King's County.*

ROYAL INTERNATIONAL HORTICULTURAL EXHIBITION.

THE ORCHIDS.

As the time for holding this great exhibition draws near, it becomes possible to get some idea of the exhibits that will be displayed in the

FIG. 90.—ROYAL INTERNATIONAL HORTICULTURAL EXHIBITION.
(The "Corporation of Glasgow" Cup.)

different sections. The scope of the schedule is so wide that provision is made for no fewer than 428 classes; many of them of a character to test the capacity of the most redoubtable exhibitor. The Orchid classes alone number 32, and the entries show that there will be competition in most of them.

There are two entries in the amateurs' class for the best and most varied group of Orchids, arranged in a space not exceeding 500 square feet, and there are two valuable cups to be awarded to the competitors. In the nurserymen's class for similar groups there are four entries for Sir George Holford's cup.

Those who profess to despise hybrid Orchids in favour of the natural species and their varieties will be interested in Class 68, in which nurserymen will compete for the best and most varied group of species, and varieties of species, arranged in spaces not exceeding 200 square feet. Liberal provision, however, is made for the showy hybrids, which are due to patient and skilful cross-breeding, carried out in British and foreign hothouses, Baron Bruno Schröder's presentation cup being offered for the best group of hybrids occupying a space of 200 square feet.

There is one entry in an open class for a group of the resplendent Lælias, Cattleyas, and Brassavolas—varieties and hybrids—in a space of 100 square feet; this exhibit will be amongst the most showy. More numerous entries are forthcoming in a class for the same type of plants where the specimens are limited to 25, and again where the number must not exceed 12. The effect of the scarlet Cochlioda Noezliana is manifest in the more brightly-coloured hybrids of Odontoglossum, and it is hoped that the exhibit will clearly show what genera and species have been crossed with this gay little gem. Such information is valuable, not merely to specialists, but to all gardeners.

Then there are classes for specimen Orchids in collections of 100 specimens, and others in which the specimens are limited to 50, 12, and 6. There will be keen competition for the silver cup offered for the best specimen Orchid in the show. One exhibitor will contribute a group of Orchids in which the interest is botanical rather than decorative. The visitor will here be able to see the wonderful forms and devices exhibited by the different flowers, illustrating the numerous ways by which the important process of fertilisation is facilitated.

We have as yet referred only to competitive Orchids, but these will not exhaust the exhibits, for some of the more able amateurs and nurserymen will confine their efforts to exhibiting honorary collections. For instance, Sir George Holford, K.C.V.O., C.I.E., is expected to exhibit the largest group of Orchids an amateur has ever shown in this or any other country, and the excellent quality of the plants may be judged by previous exhibits from the Westonbirt collection.

It is a notable fact that in the Orchid section the number of entries from foreign Orchidists is very nearly one-half the number received from Britain. The exhibitors of Orchids are as follow:—

Armstrong & Brown, Tunbridge Wells, Kent.
Birchenhall, J., Alderley Edge.
Charlesworth & Co., Messrs., Haywards Heath.
Colman, Sir Jeremiah, Gatton Park, Reigate.
Cypher, J. & Sons, Cheltenham.
Dixon, Harry, Spencer Park Nursery, Wandsworth Common.
Evans, J., Manor House, Key Green, Congleton.
Fowler, J. Gurney, South Woodford.
Hassall & Co., Southgate, N.
Holford, Lt.-Col. Sir G. L., Tetbury, Glos.
James, Mrs. Willie, West Dean.
Cowans, Ltd., Gateacre, Liverpool.
Low, Stuart, & Co., Enfield.
Low, E. V., Haywards Heath.
MacCartney, J., Bolton.
Mansell & Hatcher, Rawdon, Leeds.
Ogilvie, F. Menteith, Oxford.
Ralli, P., Epsom.

FIG. 91.—ROYAL INTERNATIONAL HORTICULTURAL EXHIBITION.
(Cup presented by Herefordshire and Monmouthshire.)

Raphael, C. F., Shenley.
Roberts, J., Rotherham.
Robson, J., Altrincham.
Rothschild, Leopold de, Acton, W.
Rutherford, Col. J., Blackburn.
Sander & Sons, St. Albans.
Wellesley, F., Woking.

FOREIGN EXHIBITORS.

Arends, Mons. G., Nurseryman, Ronsdorf, Barmen.

FIG. 92.—ROYAL INTERNATIONAL HORTICULTURAL EXHIBITION.
(Cup presented by the Horticultural Club.)

Dietrich, E., Château du Val Duchesse, Bruxelles.
Graire, Mons., 5, Rue St. Fuscien, Amiens.
Jules, C. Hye de Crom, 8, Conpure, Gand.
Lambeau, F., Bruxelles.
Manda, W. A., South Orange, New York.
Maron et Fils, Brunoy, France.
Müller, Abeken G. H., Scheseningen.
Peeters, A. A. et Fils, Ancienne Chaussée de Meysse, Laeken, Bruxelles.
Regel, Dr. E., Botanic Garden, St. Petersburg.
Vincke, A. H. & L., Scheepsdaele, Bruges.
Vuylsteke, Ch., Loochristi, Gand.

INVITATIONS TO JURORS.

Invitations have just been issued to upwards of 350 specialists in every branch of horticulture to officiate as jurors at this great show. In awarding the prizes, British judges in every group will have the assistance of one or more foreign colleagues. *R. Hooper Pearson, Hon. Press Secretary.*

A VISIT TO A POTTERY.

THE pottery of Messrs. Richard Sankey & Son is situated at Bulwell, on the outskirts of Nottingham, in the centre of a mining district. The firm was established 60 years ago at Bulwell by the late Mr. Richard Sankey, whose father had a small pottery near Nuneaton, where, a century ago, he commenced to make garden pots. The weekly output of the firm in flower-pots alone is now 500,000, in addition to pans, earthenware baskets, boxes, bowls, and other ceramic ware used in gardens. It was our pleasure recently to visit this famous pottery and see the interesting processes of converting the crude clay into the finished articles. The clay from which the pots are manufactured lies beneath a thin layer of top soil, and forms a deep, argillaceous deposit. At 1, 2, and sometimes 4 feet deep, the best clay is found, from which the finest pots are made. Next is unearthed a more granular soil, which is known as dice clay, and this may extend to a depth of 15 or 16 feet. The clay runs in seams, with limestone in places, and is dug with the narrow spade known as a grafting tool. This implement

enables the diggers to avoid the limestone and other foreign matter, which would cause the pots to crack. The clay is then washed to remove any small stones that may be present and exposed afterwards for several months to the influences of the weather. At that stage it is brought to the pottery mills on a portable tramway and watered until of the consistency of putty, being then ready for the milling. It is first passed through two pairs of heavy rollers and ground thoroughly. It is next passed through three pug mills and churned with knives until it issues as potter's clay, to be fashioned on the potter's wheel. Exquisite in its simplicity, the potter's wheel, like the Teazle comb of the weaver, has no rival for its purpose. Its origin is lost in antiquity, yet the inventive mind of man has produced nothing better for the shaping of ceramic ware. Centrifugal force, aided by a little pressure with the finger and thumb, causes the receptacle to assume whatever shape the operator pleases. True, there have been plenty of attempts to fashion pots more cheaply and expeditiously by special machinery, principally by stamping them in a matrix, but such pots are inferior to those made on the wheel. We were shown machines of German origin which are capable of turning out pots with great rapidity; but these machine-made pots crack and break very easily, as the process spoils the texture. Messrs. Sankey, however, have a machine, the invention of the late Mr. C. Leonard Sankey, for the making of Fern and bulb bowls and pots, which it produces very rapidly and at a small cost. These bowls are made in red, unglazed clay, such as is used for earthenware window-boxes and hanging baskets. They are used in large quantities by market-growers for the growing of bulbs and Ferns.

The shaping of the pots on the steam-driven wheel is a most interesting process; the plastic clay is placed in the centre of the revolving disc, and the workman dexterously fashions the receptacles with the hand, moistening the fingers frequently with water. Some of the larger pieces of pottery, such as Rhubarb and the largest pots are made in two portions, which are united at a final operation. The largest pots weigh nearly 1 cwt. each, and to facilitate repotting they are made with a false bottom placed over a drainage hole several inches in diameter. When it is required to turn the plant out of the pot, the latter is lifted on to a narrow cylinder such as a drain-pipe, and the pot is easily slipped down, leaving the ball of earth and roots with the plant standing on the disc at the top of the column. By this simple device plants may be easily shifted out of large pots without any danger of breaking the receptacles or damaging the plant.

After the pots are fashioned they are steam dried preparatory to baking them in kilns. The drying sheds are heated with steam pipes, the larger pots being stood on steel gratings through which the dry air circulates. This process usually occupies about 48 hours, but the time varies according to the size of the pot and the weather. After they are dried the pots are baked in the kilns, huge furnaces measuring 20 feet by 20 feet inside. The kilns are bound top and bottom with eight or nine bands of flat steel rope, and in the middle with steel bands for the purpose of keeping the structure together when the intense heat causes expansion of the brickwork. They are fitted with cupboards, formed of loose, large fire slabs, each cupboard being 18 inches square. The pots are stood in these, and a kiln holds 50,000 4½-inch pots. When a kiln is charged ready for firing the entrances are blocked with fire clay, and 10 large fires are lighted around the outside. A chimney at the bottom of the kiln connects with two tall shafts, the draught of air causing the coal to burn intensely, until the temperature of the kiln is raised to 950°C., so that the pots and all inside the kiln become a light-yellow heat. The baking of the pots occupies 72 hours, during which time 12½ tons of coal are consumed. The kiln is then allowed to cool gradually, after which the pots are ready for the market. The 11 kilns in the Bulwell potteries are capable of baking over half a million pots at one time. There is a private railway siding in the pottery, and the pots are dispatched either loosely in trucks or in crates. They are packed in straw, which is better for the purpose than either bracken Fern or Heather, 30 tons of straw being used each week. As showing the extent of the business the sum of £12,000 was paid last year for carriage by Messrs. Sankey, who hold a Royal warrant from the King. Pots are shipped from Hull, London, Liverpool, and Southampton to such distant places as the Cape, Natal, New Zealand, Australia, Jamaica, and British Columbia The warehouses contain several million pots in 30 different sizes besides Fern bowls, window boxes, hanging baskets, pedestals, and other garden pottery. We were informed that quite recently an order was received by telephone for 180,000 pots of a special size. Fifty employees were at once set to work and the pots were made, steam-dried, baked, and delivered within 10 days, a record in rapid production. Some of the specialities of the firm are a 6-inch, flat-rimmed pot for Strawberry forcing, a 4-inch (48) pot, which holds almost as much soil as an ordinary 48-pot but occupies half-an-inch less room on the staging, a special market pot, rimless and deeper than usual, but of very smart appearance, and special pots for vines, Chrysanthemums, Roses, Clematis, Sweet Peas, Tomatos, and fruit trees. It is interesting to learn in these days of labour unrest that Messrs. Sankey have had neither strike nor disagreement with their employes during the 60 years of their establishment, whilst of the large staff of workmen there are very few who have not been at the Bulwell Potteries all their working lives.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

Helianti (see vol. xlvi., p. 347). — My employer wished to try the new fodder plant "Helianti" two years ago. I planted tubers in good ground, in the same way as Jerusalem Artichokes. They made growths 6 feet high the first year, and in habit they were very similar to the Artichokes. The stems were offered to cattle at various times, but were left untouched. Some of the tubers were dug up in autumn and offered to cattle and pigs. Cows would not touch them, and only an occasional pig was found to try them. I believe that highly-fed cattle are not likely to take to "Helianti." either tubers or tops, though I am prepared to believe that store cattle and cattle on poor pasturage would welcome it. If that is found to be so, "Helianti" should prove a valuable crop. For fodder the tubers may be left in the ground two or more years, when, naturally, the plants would grow less strong and tall in the stem, and so be more valuable as fodder than first-year, strong, woody stems. The plants develop an enormous crop of tubers, not so large as the Jerusalem Artichoke, but, in my opinion, of better flavour as a cooked table vegetable than the Artichoke. I think the small-holder is the man who will find it most valuable, for pigs especially, but maybe for cows where pasturage is scarce. For myself I have discarded it as of no use for cattle with good pasturage and high feeding. *John T. Blencowe, The Gardens, Wilminster Park, Remenham.*

"Wake Up" Manchester.—Your article on the condition of horticulture in Manchester will, I hope, be productive of good results; at all events it should bring together all those in Manchester who are interested in horticulture to confer as to the possibility of doing more to promote both horticultural practice and education. In a public lecture, which I delivered at the University this winter, I drew attention to the absence at the present time of a good botanical garden in Manchester, and advocated, as does Mr. Bernard Hall in his letter, the help of the municipal authorities to remedy this deficiency. In Glasgow, the Corporation own and maintain an excellent botanic garden, and we in Manchester acknowledge with gratitude the beginning made in that direction by the Parks Committee in providing excellent accommodation for, and keeping open to the public, the unrivalled collection of Cacti and other succulent plants bequeathed by the late Mr. Charles Darrah. Undoubtedly this collection alone is worth a visit to Manchester, and the range of Cactus houses in the Alexandra Park has proved a great attraction to all interested in botanical studies. Without doubt this praiseworthy development of one of the parks might be continued, either in the same or some other of our public gardens. A suitable house for Water Lilies and other aquatic plants, and a good fernery, might be made the special features of one or other of our parks, and hardy examples of both classes of plants might be grown in the open in proximity to the greenhouses. I feel sure that the Parks Committee would be quite prepared thus to render the parks even more attractive and instructive, provided the necessary funds were forthcoming. Could not a joint conference be arranged between the authorities of the Old Trafford Gardens and the Parks Committee with the addition of other citizens interested in horticulture to formulate some scheme by which Manchester might again come into possession of a good botanical garden? As regards the educational aspect of the subject, Mr. Bernard Hall's suggestion of a special establishment for horticultural training and research is well worth consideration. But in this connection existing facilities and institutions will have to be considered. The Cheshire College of Agriculture and Horticulture, at Holmes Chapel, is already doing good work in this direction, and the Manchester University also has grounds and greenhouses for experimental work in plant-breeding and for investigation on plant diseases. This does not cover all that might be done, and there is room for a more comprehensive scheme. Most willingly would I assist in helping forward such an undertaking. *F. E. Weiss, The University, Manchester.*

———Every lover of horticulture will welcome the leader in your issue of the 16th inst., and the correspondence last week in reference to this subject. If, as one would judge from some of your correspondents, there is such good material in and around Manchester for the foundation of a strong and vigorous horticultural society, how is it that the Botanical Society has been allowed to go down? A society that possessed an extensive, well-equipped, and well-stocked garden, with all the advantages that an established position gives, all the glory of great traditions and worthy achievements to give it prestige, why has it failed? Different people assign different causes. In a general way it is usually considered to be due to one of two reasons —mismanagement or a failure to adapt itself to altered conditions, though either of these reasons more or less involves the other. No one can deny that gardening has changed very considerably since the palmy days of the great shows that were held at Old Trafford. Where do we find to-day the magnificent specimens of stove and greenhouse plants, particularly the hard-wooded section of the latter, that less than 20 years ago were the glory of our shows? They are gone. Any nurseryman will tell you that private gardens where collections of these plants are maintained are very few. The great development of gardening during the past two decades has been not on ancestral estates, but with those who occupy a lowlier sphere: in other words, gardening has been and is still being popularised. One of your correspondents mentions that several large seed and nursery firms have headquarters in Manchester, and do an extensive business. No doubt this is quite true; of one thing I am certain, if they were asked they would admit at once that their business was not maintained by a few large accounts, but by a large volume of small ones. This goes to prove what I have already said concerning the recent development of gardening. Botanic gardens as such do not now in these days of hurry and bustle appeal to people as they formerly did: there are too many other competing attractions designed to catch the public patronage. Apart from State maintenance or large grants from scholastic institutions, they cannot now exist unless they cater for popular entertainment, a purpose quite apart from that for which they were originally founded. Neither, in my opinion, would the suggestion of your correspondent, the Rev. Bernard Hall, of a "Northern Wisley," be a success. It would be an expensive scheme, and at the same time would

duplicate what is already being done in several places elsewhere. That it would not appeal to the popular mind I feel certain; probably Mr. Hall is of the same opinion. I also question if it would appeal to the Manchester University. Bearing on this point, and particularly on Mr. Hall's suggestion as to the training of students, there is a very general impression, and I am bound to admit there are good grounds for it, that the "student" trained gardeners, or "graduates" as they are sometimes termed, are not a success. It would be folly at the present time to institute and face the heavy expense that a garden would entail, just as in the same way it would be unwise to try to reproduce in Manchester a hall and offices such as the R.H.S. possess in London. A horticultural society in Manchester could only do good work and be successful if run on lines that appealed not only to the wealthy garden owner, but to the professional gardener, and the great number of amateurs whose gardens are of strictly limited size. A society that, through its meetings, exhibitions, and publications would diffuse knowledge of gardening and make its members feel that the society had a real interest in helping them to get the best out of their gardens, would do much for horticulture in the North. It is a great pity that the promoters of the North of England Horticultural Society did not enter into some arrangement with the Manchester Botanical Society before establishing a new organisation. There is not room or support in the North for two large horticultural societies. Their dual existence would mean heavy expense, clashing of interests, and ineffective results. An amalgamation would give strength, economise expense, facilitate working, and be beneficial in every way. Rumour—always busy—says that the Botanical Society intend to realise on their property at Old Trafford. If this is so, what do they intend to do with the funds obtained? A pronouncement in your columns by the Botanical Society stating their intentions would be very welcome, and probably clear away some misconceptions. In the meantime, our great commercial metropolis is without a representative horticultural show. How long is this to continue? *Palatine.*

———Your leading article of March 16 should inspire the Manchester Botanical Society in making an effort to re-establish the glorious shows once held in their gardens at Old Trafford. The financial position of the society looks encouraging, and there does not seem to be any good reason why shows should not be held in the gardens as formerly; but to ensure success they would have to be run on rather different lines than for a good many years past. The man to organize a new undertaking of the kind should be a thoroughly practical horticulturist of long and varied experience. He should not only be able to gauge the sentiments of the many Manchester people who have a great love for flowers, but also those in the surrounding districts. The reasons are obvious why it would be futile to attempt establishing a garden on the Wisley lines anywhere near Manchester. If the society wished to hold monthly meetings, combined with small exhibits, plenty of suitable accommodation could be found in the city. An arrangement of this sort could easily be carried on with, or without, the aid of any other society. The Manchester Orchid Society may have some peculiar notions, but they spell success. *Pinus.*

POT STRAWBERRIES.—We grow about 1,300 plants of Royal Sovereign Strawberry each season for forcing. This year most of the plants promise to be a total failure. The runners were selected from young, healthy stock plants, and the final potting was completed by the end of July. The plants were stood in an open position on an ash bottom, fully exposed to the light and air, and they were watered with care, the growth being restricted to a single crown. They built up splendid crowns, and everything pointed to success, the pots being well filled with healthy roots. Plants of the first batch were started gently in the ordinary way in an early vinery, but the majority of plants failed to make either strong foliage or vigorous flower-spikes. The whole growth seems stunted, as though the crowns were too hard and over-ripened. I should be pleased to hear the experience of other growers, and if they can attribute a cause for the failure. *F. West, Hackwood Park Gardens, Basingstoke.*

APHYLLANTHES MONSPELIENSIS (see pp. 134, 173).—It may interest your readers to know that when a child I collected this plant near Mentone, and also found it growing plentifully near St. Jeanet, between Nice and Grasse, and also in other localities, which at this distance of time I cannot recall, and have not got my notes by me, but always on dry limestone in full sun. I grew it in my garden at Didlington, Norfolk, from 1882 for a few years until a severe winter killed it. Some 10 years ago I tried to grow it in the warmer climate of Dorsetshire, but without success, although placed among stones in full sun and given lime. I fear it is too tender for most gardens. *Alicia M. Cecil, Weycombe, Haslemere, Surrey.*

IN A SCOTTISH MANSE GARDEN.—Some of the finest vernal flowers have come somewhat late in south-western Scotland this year, notably the Snowdrop, the first of which, Galanthus Melvillei, did not open before the end of January, while, on the other hand, the Crocus and Daffodil were earlier than usual, the Scottish Narcissus appearing at the beginning of March. The beautiful Persian Plum, Prunus Pissardii, was already in full flower on the 15th inst., which is the earliest advent of its exquisite blossoms hitherto recorded—in my garden at least. Two years ago it made a heroic attempt to set its fruit, and it succeeded so far that the embryonic Plums were distinctly formed and beginning to grow, but the cold, frosty winds of early April made them rapidly disappear. In the autumn of the same year I had the unexpected gratification of receiving several of its fruits from a Highland chieftain, Brodie of Brodie Castle, in the county of Elgin. Prunus Pissardii has occasionally fruited, to a limited extent, at Lochinch Castle, the Wigtownshire residence of the Earl of Stair, also at the gardens of St. Mary's Isle, in Kirkcudbrightshire. Owing to the ripening of the flowering wood during last summer and autumn, there is quite an unusual promise of blossom on fruit trees of every description this year. The Plums and Cherries are crowded with flower-buds, such varieties as Denniston's Superb Green Gage, Early Rivers, Victoria and Czar Plums, and May Duke, Morello, and Black Eagle Cherries being specially prolific. Such Oriental Lilies as Liliums Henryi, auratum, chalcedonicum, pardalinum, Hansonii, excelsum, and Humboldtii are growing with great rapidity. A few days ago Iris reticulata, the earliest and loveliest of all the Irises, unfolded its first fair flowers in my garden, a veritable revelation of violet and gold. *David R. Williamson.*

Obituary.

ROBERT FENN.—The death of Mr. Robert Fenn, V.M.H., occurred on the 20th inst. at Sulhampstead, Berkshire, at the ripe age of 96 years. Mr. Fenn was gardener for many years to the Rev. G. St. John, at Woodstock Rectory, Oxfordshire. His employer died in 1876, and Mr. Fenn removed to Sulhampstead, near Reading, becoming, as we should describe him nowadays, a smallholder. He carried out a number of experiments in the cross-breeding of plants, but his most successful work was with Potatos, and it was his efforts in this direction that gained for him a place amongst the original 60 horticulturists who were awarded the Victoria Medal of Honour in 1897.

WILLIAM BARRY.—The *Weekly Florists' Review* announces the death of Mr. William Barry, one of the best known horticulturists in California, on February 25. Mr. Barry was a native of Ireland, but has resided in California for more than 50 years. Deceased, who was 80 years of age, had been horticultural inspector of Alameda County for about 20 years.

ROBERT DENNISON.—Mr. Robert Dennison, Florist, a native of Belfast, died at Bala, Philadelphia, U.S.A., on the 1st inst. He settled in America nearly a quarter of a century ago, and, with his brothers Alexander and John, carried on an important nursery and florists' business at Bala.

WILLIAM THOMSON.—We regret to record the death of Mr. William Thomson, head of the firm of Messrs. Wm. Thomson & Co., Seedsmen, Melbourne Place, Edinburgh, on the 25th inst., aged 76.

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

MARCH 19.—*Present:* Mr. E. A. Bowles, M.A., F.L.S. (in the Chair); Canon Fowler, Rev. G. H. Engleheart, Messrs. J. O'Brien, W. Hales, C. T. Druery, J. T. Bennett-Poë, C. E. Shea, E. M. Holmes, R. Hooper Pearson, F. J. Chittenden (hon. sec.), and Rev. J. Jacob (visitor).

Hybrids with Narcissus Calathinus.—Rev. G. ENGLEHEART made some remarks regarding the apparently very restricted distribution of this beautiful form of Narcissus triandrus. It is not apparently found outside a small area on an island in S. Europe, about 1½ degrees out of the latitude in which the type occurs on the mainland of Spain and Portugal. He also showed a beautiful and vigorous white hybrid between this and a variety of N. Leedsii, which might be likened to a hardy Eucharis. Several of these white and vigorous seedlings had now been raised. The Committee unanimously recommended a Certificate of Appreciation to Mr. ENGLEHEART for his work with these hybrids.

Osyris alba.—Mr. E. M. HOLMES showed roots of vines attached to which were the suckers of the parasite Osyris alba, a plant belonging to the family Santalaceæ. This parasite attaches itself to the roots of a large number of plants, over 60 hosts being known, but up to now it has not been recorded as attacking the vine. The specimen came from Montpellier.

Camellia Tuckiana.—Mr. BENNETT-POË showed flowers of a seedling Camellia, which he had raised from seed ripened in S. France, now flowering for the first time in a cold greenhouse. The flowers were single, about 3 inches in diameter, of a delicate pink, with numerous yellow stamens. It had been identified as Camellia Tuckiana.

Beetles in Beans.—Canon FOWLER showed French Beans attacked by the beetle Bruchus lentis. This and other species of Bruchus are well-known pests of various species of Bean and Pea, boring holes into the cotyledons, but they appear rarely to interfere with germination.

Athyrium with bulbiferous sori.—Mr. C. T. DRUERY showed portions of the fronds of Athyrium Filix-fœmina plumosum with large numbers of small plants arising from the sori, each sorus producing several bulbils.

Snowdrops.—Mr. E. A. BOWLES showed specimens and drawings of a double green Snowdrop, in which both stamens and ovary were aborted and replaced by rather narrow, foliose segments. He also exhibited the double yellow form of Galanthus nivalis, and drawings of the white form of G. Elwesii recently shown by him to demonstrate that there were a few small green lines on the inner perianth pieces of that flower.

Malformed Orchids.—Mrs. TAYLOR, of Bowerdens, Henley-on-Thames, sent two abnormal flowers from a newly-imported plant of Dendrobium Wardianum giganteum. In one of them two stamens of the outer whorl had developed and become petaloid and bore pollen sacs on their inner edges near the base. In the other, the column bore at its apex three stamens, the usual one fully, the other two partially developed, and three lips, one inside the other (but the two inner and progressively smaller ones arising slightly to the right and left respectively of the normal one). Mr. J. GURNEY FOWLER sent an Odontoglossum with four symmetrically disposed outer perianth pieces, six inner perianth pieces, including two lips, and two normal columns, side by side. The ovary also was double, but fused into one.

BRIGHTON, HOVE, AND SUSSEX HORTICULTURAL.

MARCH 21.—At the meeting of this society held on the above date, 250 members and friends were present to hear Mr. Joseph Cheal, of Lowfield Nurseries, Crawley, speak on his travels in Gibraltar, Morocco, Teneriffe, and Madeira, illustrated by special slides taken from photographs from Mr. Cheal's collection.

The secretary (Mr. A. J. Gaston) read a list of 42 nominations of new members. The results of the monthly competitions were announced.

PERPETUAL-FLOWERING CARNATION.

March 21, 22.—The twelfth exhibition of this society was held on these dates in the Royal Horticultural Hall, Vincent Square, Westminster, being much the finest show held by this society. Large trade groups formed a special feature. The weather was wet on both days, but there was a large attendance of visitors.

Open Classes.

Mr. W. E. Wallace, Eaton Bray, was awarded a gold medal for a collection of Carnation blooms in not fewer than 12 varieties staged on a table space and judged in regard to quality, variety, and decorative effect, having splendid examples of Gloriosa, May Day, Winsor, R. F. Felton, White Perfection, Lady Audley Neild, and Bonfire. Col. W. F. C. Rideout, Langley, was awarded the 2nd prize, a silver-gilt medal, and Messrs. Allwood Bros., Wivelsfield Green, were placed 3rd, having a splendid vase of the fine yellow variety, La Rayonnante.

Mr. C. Engelmann, Saffron Walden, secured the Brunton Challenge Cup offered for British raised seedlings with the varieties Lady Northcliffe, Triumph, and Carola.

A Challenge Cup presented by the American Carnation Society for the best three vases of American-raised novelties distributed since January 1, 1910, was won by Mr. W. E. Wallace with well-finished blooms of Mrs. C. W. Ward, Dorothy Gordon, and White Wonder. The same exhibitor also secured the Covent Garden Challenge Cup, which he won outright, for two varieties of Market Carnations, with the varieties Gloriosa and Winsor. Other competitors in this class were Col. Rideout and Messrs. Allwood Bros.

The special prize offered by Mr. F. C. Harwood, for six vases of Carnations, distinct, 12 blooms in each vase, no wires, rings, or artificial supports being permitted, a split calyx to disqualify, was also secured by Mr. W. E. Wallace, who showed good blooms of Delight, Scarlet Glow, Winsor, White Perfection, May Day, and Rose-Pink Enchantress.

Mr. E. Guile, Newport Carnation Nurseries, Essex, won the 1st prize for 25 blooms of a light pink variety, with Lady Meyer, followed by Mr. W. E. Wallace with Enchantress. In a similar class Mr. C. Engelmann secured the 1st prize with Lady Northcliffe, salmon-pink; 2nd, Mr. Wallace, with Delight.

For 25 blooms of Rose-pink variety, Col. Rideout secured the 1st prize with Winsor, and Mr. Wallace was placed 2nd with Rose Pink Enchantress. In a similar class for varieties of a deep-rose colour, Mr. Wallace excelled with Mrs. C. W. Ward, Mrs. D. M. Collins, Swanley, being placed 2nd with Mrs. T. W. Lawson.

For 25 blooms of a white variety Mr. Wallace again won the 1st prize with White Perfection, and he also excelled in the class for 25 blooms of a scarlet variety with Scarlet Glow, Sir Randolf Baker, Ranston, Blandford (gr. Mr. A. E. Usher), being placed 2nd with the same variety.

In the crimson class Mr. C. Engelmann led with splendid blooms of Carola, followed by Mr. Wallace and Mrs. Collins.

Col. Rideout was placed 1st for 25 blooms of any self-coloured variety not included in the above classes, with Rose Doré, Mrs. D. M. Collins being 2nd with the same variety.

Mr. C. Engelmann secured 1st prize in the fancy class, and in the class for 12 blooms of any registered variety not in commerce. The same exhibitor took 1st with Lady Northcliffe, followed by Mr. W. E. Wallace with Una. The silver-gilt medal of the society, offered for the best vase of Carnations shown in the above classes, was secured by Mr. Wallace for White Perfection.

In the decorative class for a vase of 36 blooms, wired for effect, the special prize offered by Messrs. Felton & Sons, was won by Mr. Wallace, with a handsome vase of the variety Delight.

In the decorative classes Messrs. R. F. Felton & Co. arranged the best basket of Carnations, whilst Mrs. Hammond, 116B, King's Road, Chelsea, was 1st in the classes for (a) a bouquet, (b) three sprays, (c) buttonholes. Mrs. Bide, Guildford Road, Farnham, arranged the best dinner table decoration.

Gentlemen's Gardeners and Amateurs Classes.

There was only one exhibit in the class for a group of perpetual-flowering Carnation plants, for which the President's prize, a silver-gilt vase, was offered. The exhibitor was Mrs. Bischoffscheim, The Warren House, Stanmore (grower, Mr. J. H. Bruce), and the group was much admired.

There was a new class, for a circular table suitable for a sitting room, decorated with cut Carnations. Mrs. A. F. Robinson, Park Hill, Carshalton, won the 1st prize for a beautifully-arranged table.

The "Bush Hill" Cup, offered by Messrs. Stuart Low & Co., for four distinct novelties sent out by the firm, was won by Sir Randolf Baker, who also won the "Burnett" Cup, offered for 12 blooms of varieties raised by Mr. H. Burnett.

In the class for six blooms of Mr. Burnett's novelties, Capt. Wiener, Ewell Castle, Surrey (gr. Mr. H. Lloyd), secured the 1st prize.

Sir Randolf L. Baker won the "Wells" Silver-gilt Medal with the variety White House, and he was also 1st in the class for 25 blooms arranged in a decorative vase, the prizes being given by Mr. G. H. Lawrence, Godstone, Surrey.

The prize-winners in the colour classes in this section were Sir Randolf Baker; Lord Hillingdon, Hillingdon Court, Uxbridge (gr. A. R. Allan); Lord Burnham, Hall Barn, Beaconsfield (gr. G. Johnson); and S. F. Jackson, Esq., Danehurst, Epsom (gr. G. Boyd), who was awarded the special prize offered for the best vase of Carnations in this section, showing the variety Carola.

Amateurs not Employing a Gardener Regularly.

Mr. Fred Elgar, Harnham, Salisbury, secured the leading honours in this section, winning the silver challenge cup presented by Mrs. J. E. Peters, Windlesham, the special prize of an "Abol" syringe, and also the silver medal offered by Mr. E. A. Watts for the greatest aggregate number of points.

Non-competitive Awards.

Large Gold Medal.—To Mr. C. Engelmann, for a collection of Carnations occupying the whole width of the hall.

Gold Medal.—To Mr. H. Burnett, Guernsey.

Silver-gilt Medals.—To Messrs. Stuart Low & Co., Bush Hill Park, who showed the new variety named Cinnabar; Messrs. Young & Co., Cheltenham; and Messrs. Wm. Cutbush & Son, Highgate.

Silver Medals were awarded to the Newport Carnation Nurseries for an excellent exhibit of Lady Meyer variety, and to Mr. C. F. Waters, Deanland Nursery, Balcombe.

Award of Merit.

Carnation Lady Northcliffe, a variety of salmon pink colour, shown by the raiser, Mr. C. Engelmann, Saffron Walden.

THE CONFERENCE.

During the afternoon of the first day a conference on Carnations was held in the Lecture Hall, Mr. J. S. Brunton presiding. Papers were read by Mr. F. Fitch, The Gardens, Balls Park, Hertford, on "The Cultivation of Carnations for Amateurs," and by the Secretary, Mr. E. F. Hawes, on "Carnations as Bedding Plants." Extracts of the papers are given below.

CULTIVATION OF PERPETUAL-FLOWERING CARNATIONS FOR AMATEURS.

Mr. Fitch said that the perpetual-flowering Carnation is essentially a flower for the amateur, for besides its many other qualities, it is easy to cultivate and it will flower the whole year round, whilst the blooms last longer when cut, and travel better than most other flowers. During the past two months I have sent one or two hundred blooms every week to the South of France by parcels post, and they have arrived in a perfect condition. I know of no other flower that is so remunerative to grow, for one can always go to the Carnation house and be sure of finding some flowers fit to cut during almost any week in the year.

If the amateur can devote a house to the culture of the perpetual-flowering Carnation, I would advise him to do so, as the dry, buoyant atmosphere essential to their well-being is more difficult to maintain if the house contains other plants requiring different treatment. The house should be placed so as to obtain all the sun possible during the dull days of winter. Ventilators should be arranged along the roof and at the sides of the house. The house should be provided with pipes sufficient to maintain a temperature of 50° whilst the top ventilators are open.

Propagation should take place between December and March; plants rooted in January make the best specimens. Selecting shoots halfway up the stem, they should be taken off when about 3 inches long, with a gentle pull.

Cuttings root well in a temperature of 50° to 55° and a bottom heat of about 60°. American cultivators and market growers in this country make a bed of soft bricks placed over a pit with hot-water pipes enclosed about 2 feet below them. On the bricks is then placed some sharp sand, about 3 inches deep, which is made firm, and watered with a fine rose. The cuttings are inserted in rows about 2 inches apart, and 1 inch from cutting to cutting, the whole being covered with a glass case.

The soft brick bottom absorbs the moisture from the sand, and returns it again when the sand becomes dry, so that the bottom of the cutting is always kept at a uniform moisture.

A good plan for the amateur is to place a case, a box with a sheet of glass over the top, or a handlight in a corner of the house, where it will get the requisite amount of bottom heat. It should have Cocoa-nut fibre or some such material placed in it. Seed-pans or Strawberry saucers should be filled with sand, moistened with water from a fine rose, and the cuttings inserted. Place the pans in the case, where they will require very little water until they are rooted, which should be from three to four weeks, but on no account should the sand be allowed to dry through. This mode is better for the amateur in several ways than pricking them out in the bed, for it not only produces the effect of the soft bricks as nearly as possible, but as some varieties are longer rooting than others, and the amateur is not able to obtain all his cuttings at the same time, he can remove each pan from the case as they became rooted, leaving the others to enjoy the closer atmosphere. Care should be taken that the cuttings do not lie about or get dry, but are inserted as soon as possible after being taken off the plants. After they are placed in the frame, put on the glass, shade from bright sun, and admit air for an hour or so each day, wiping the glass free from any moisture. If these directions are followed, the cuttings will be sturdy and strong, and no larger than when inserted. It is a great mistake to allow the cutting to begin growth until rooted.

When only a few plants are required, procure a 10-inch or 12-inch pot, place material for drainage in the bottom, and fill up to within 5 or 6 inches of the top with sand. Insert the cuttings, and place a piece of glass upon the top of the pot, which should be stood on the top of a hot-water pipe and treated in the same manner as if in the propagating case.

When the cuttings become rooted, gradually harden them off and pot them into 2-inch pots, using a compost of equal parts of loam, leaf-soil, and sand, with a few wood ashes added. Stand them in a light position in a temperature of 50° to 55°. Shade the cuttings from bright sunshine for a few days until they are established, and water them carefully. A slight spraying overhead may be given with advantage on bright days, but this should always be done in the early morning, so that the foliage may become dry before night. A word of caution may be given as to the manner of removing the cuttings from the sand. Keep the plants growing actively, and as soon as the roots show round the sides of the pots pot them on into 3½-inch or 4-inch pots. Use a compost of three-parts of good loam that has been stacked for some time, one of flaky leaf-soil, and one of old mortar rubble, or screenings from a clay or smother fire, and sand with a good sprinkling of wood ashes. Pass the whole through a ¼-inch sieve. Take care at each potting that the stem of the plant is not buried lower than previously, or stem-rot will be likely to ensue.

Continue to grow the plants on in a light position in a house provided with a heat of 48° to 55°, and in a few weeks they will require another shift, this time in their flowering pots: putting the larger plants into 7-inch and the smaller in 6-inch pots. Use the same kind of potting soil as before, but coarser, and add a 6-inch pot of bone-meal to every barrow full of soil.

Stopping is an important item in the culture of the Perpetual-flowering Carnation, and is performed to insure a compact, bushy habit, and also to increase the size of the plant. The first stopping should take place just after the young plants have received their second potting (i.e., into 3½ or 4-inch pots), when they are about 6 inches high and have perhaps six or eight fully-developed leaves. The points of the plants should be pinched out so as to leave about four joints. The stopping of most of the varieties should be discontinued at the beginning of July. At the beginning of April the plants may be removed to cold frames and gradually hardened as the season advances. About a month later they may be stood outdoors on an ash bed, but they must be protected from rains. It is a good plan to plunge the pots in ashes, so that the soil will not dry quickly.

About the middle of August the plants should be removed into the plant house. At the end of September or early in October, according to the weather, fire-heat will be needed, but do not raise the temperature above 50° at night, and, if the mornings are warm and bright, stop the fires early, so as to prevent a too sudden rise in the temperature.

During the winter months afford water very carefully and maintain a buoyant atmosphere in the house. Give air on all favourable occasions; the ventilators should never be closed entirely. Do not splash water about, especially during dull days, but take advantage of bright mornings to syringe the plants about once a fortnight with salt water (1 ounce to 1 gallon) to keep down red spider, syringing the plants again with clear water two days afterwards. Continue to keep the growths tied, and pick off all dead leaves and weeds, pricking up the soil occasionally, when the opportunity may be taken of sprinkling the surface with some approved manure. Manures, however, should be very carefully applied during the winter months, or the plants will produce a sappy, soft growth and poor flowers.

From March to June, when the pots are filled with roots, the plants may be fed. In April, May and June farmyard or sheep manure placed in a bag and soaked in a tub of water will provide useful manure water.

If the plants are affected with rust, pick off and burn the affected leaves. Keep the plants a little drier, maintain a cool, dry atmosphere, and spray with sulphide of potassium (1 ounce to the gallon) or methylated spirit at a strength of one part to 100 parts of water.

PERPETUAL CARNATIONS AS BEDDING PLANTS.

Mr. E. F. Hawes, who read a paper on this subject, stated that plants of Britannia were planted in May, 1909, on a border sheltered slightly from the north-east and facing due west. The subsoil was London clay, which is always very damp and cold during the winter and early spring months. After blooming throughout the entire summer, about 36 plants were left in the open ground during the winter, in order to ascertain their degree of hardiness. The lowest temperature recorded during the winter of 1909-10 was 15° Fahr, or 17° of frost. The last blooms opened in a minimum temperature of 22.5° Fahr., and the plants became dormant. The great majority of these plants passed through the winter unharmed by cold, and commenced blooming again the following May, continuing until December. The cold winds experienced in April, 1910, killed the softer shoots of a few plants, but, on being cut back, new growths developed and flowered freely through the summer and autumn, not a single plant being killed. Plants of several varieties have grown in the open garden during the past winter, when the temperature fell below zero, and they have suffered no apparent injury, and in some cases the flower-buds are even now showing colour.

Two types of the Perpetual-flowering Carnation may be used for bedding: (1) those plants well established and having several flower-buds well developed, which, on planting, will flower at once and continue to give a display of bloom until the plants become dormant owing to the low temperature usually experienced in December; (2) young plants well established in small pots, having from three to five strong shoots, which commence to bloom within a month or six weeks after planting. In either case they should be planted out in May, in an open position, either in a bed or border, where the soil has been well prepared for their reception by thorough digging and liberal manuring.

NATIONAL HARDY PLANT.

March 21.—A meeting of the council of this society was held on this date at the Hotel Windsor. The principal business was to report progress in the arrangements for the society's first exhibition to be held in the Royal Horticultural Hall on June 19.

A preliminary schedule of classes has been distributed among members and hardy plant cultitors generally. As promises of exhibits in these classes have been received from many of the leading trade growers and amateurs, it was decided to finally adopt this classification, and to offer medal awards in all classes rather than money prizes.

A discussion arose as to the advisability of the society publishing a quarterly journal for free distribution amongst the members, the matter being referred to the publications committee for consideration, to be reported upon at next council meeting.

Plants of Anemone pulsatilla rosea, Mrs. Van der Elst, were submitted to the council, the exhibitor being Mr. Van der Elst, Tottenham Nurseries, Dedemsvart, Holland. An Award of Merit was unanimously accorded the variety.

HORTICULTURAL CLUB.

LECTURE ON "WEEDS."

March 19.—On this date, after the usual monthly dinner of the club, at which Mr. W. A. Bilney presided, Mr. Harold C. Long, B.Sc. (of the Board of Agriculture), gave an interesting lecture on "Weeds" illustrated by lantern slides. Starting with the definition of a "Weed" as a "plant in the wrong place," he dealt with a considerable number of the most common weeds found in gardens. Weeds, he pointed out, varied greatly in habit, and it is necessary to take advantage of their individual peculiarities in attempting to eradicate them. One great difficulty in getting rid of weeds is the prevalence everywhere of uncultivated ground on which they are permitted to grow unchecked. This results in wonderful supplies of fresh seed, and as most of the seeds are provided with means of wide dissemination by wind and other agents, the most careful gardener is constantly handicapped by the immigration of fresh material. Some of the slides showed how the nursing grounds are allowed even on public places where the authorities take no steps to remedy the evil by any sort of suppression.

Weeds belong to three categories: annuals, biennials, and perennials. The first and second are the easiest to deal with, since their seedlings can be destroyed by hoeing and general surface cultivation, but the perennials, particularly those which produce underground creeping stolons or deep tap roots, such as Couch Grass, some of the Convolvuli, Dandelions, and many others, if once allowed to become common require the most drastic trenching to keep under, as the smallest portion of such rootstocks is capable in a very short time of re-establishing the plant. For the continued existence of such plants, however, it is essential, even in the most persistent of them, that they should be able to produce foliage on the surface, and the more severely this is suppressed the weaker and weaker grow the roots. The general moral of this is that the hoe is the most effective instrument, since it can be used not merely to destroy the seedlings of the annuals and biennials and thus prevent them seeding, but also by constant cutting down of the creeping perennial foliage of destroying these weeds also, but such treatment must be persistent to succeed. Spraying is also available in some cases, and a slide was shown where a field absolutely invaded by Dandelions scarcely showed a specimen on a part where spraying had been practised. Many of the slides showed the forms of the various weed seedlings and also their root systems, and some very interesting data were given regarding the damage resulting to the growth of desirable flowering plants and crops generally by the robbing of soil nutriment and light by weed growth. Weeds, too, are often intermediate hosts of fungous and other pests inimical to the proper tenants of gardens. After the lecture an animated discussion ensued in which members and visitors participated, and it was pointed out that some cultivated plants, such as Harpaliums, Anemone japonica, and Michaelmas Daisies often prove so wide-spreading as to cause almost as much damage as weeds.

Three new members were elected at this meeting, namely, Messrs. Gilbert Beale, Harold Beale, and W. H. Dunnett.

LINNEAN SOCIETY.

March 21.—A general meeting of the above society was held on this date; The President, Dr. D. H. Scott, occupied the chair.

Mr. H. N. Dixon showed a series of plants from South Portugal, stating that the plants shown were collected on a botanical visit to Algarve in company with Mr. W. E. Nicholson in May, 1911. The trip was mainly taken with a view to bryophytic study, and the phanerogams were only incidentally collected.

Several of the plants shown are endemic to Portugal, and others to the Spanish Peninsula.

The next general meeting will be held on Thursday, April 18. The exhibitions and papers include:—

1. Dr. D. H. Scott.—On Botrychioxylon paradoxum, a Palæozoic Fern with secondary wood.

2. Dr. E. A. Newell Arber.—On Psygmophyllum majus, sp. nova, from the Lower Carboniferous rocks of Newfoundland, together with a revision of the genus, and remarks on its affinities.

3. Mrs. Henshaw.—The Alpine Flora of the Canadian Rocky Mountains, with lantern-slides.

BOURNEMOUTH SPRING FLOWER SHOW.

March 26, 27.—The fifth annual exhibition of spring-flowering plants was held at Bournemouth in the Pavilion Winter Gardens on these dates, and was an improvement upon any previous show. The decorated tables, groups of plants, Hyacinths, Azaleas, and many non-competitive exhibits were arranged in the body of the Pavilion. Lady Randolf Baker opened the show in the presence of a numerous company.

The 1st prize for a group of miscellaneous plants arranged for effect in a space of 12 feet by 8 feet was awarded to Mr. T. K. Ingram, Parkstone Nurseries, Bournemouth, the principal subjects being Clematis, Wistaria sinensis, Staphylea colchica, Narcissi and Stocks, with Ferns and Selaginillas for greenery; 2nd, The Park Nurseries, Bournemouth (manager Mr. F. W. Welch), for a formal group. Rose Tausendschon, in 6 feet high pillars, was very effective in this exhibit. 3rd, P. J. Fenwick, Esq., Crag Head, Bournemouth (gr. Mr. W. J. Evans).

Hyacinths were fairly well shown. Mr. T. K. Ingram was placed 1st for 12 distinct varieties, having good spikes of King of the Blues, Baron van Tuyll, Enchantress and Lady Derby. 2nd, Mr. Garner, Delamere Lodge, St. Mary's Road, Bournemouth, with smaller spikes.

Tulips in pots made a bright display. For 12 distinct varieties Mrs. Ormond (gr. Mr. C. Pearce) was easily first with well-grown examples of Prosperine, Vermilion Brilliant and Keiser Kroon.

Exhibits of Lily-of-the-Valley were excellent. Mr. Bealing, Bassett Nurseries, Southampton, won easily with plants having very large flower-spikes and huge bells.

Cyclamens were much better shown than is usually the case at this show. J. J. Norton, Esq., Ashton Court (gr. Mr. C. Nippard), had plants carrying four dozen blooms in extremely small pots, and was awarded the 1st prize. The Rev. C. H. Burrows, Summerfield (gr. Mr. W. G. Barge), was placed 2nd.

Narcissi in pots were strongly represented. Mr. T. K. Ingram easily secured the leading award with handsome specimens of Mme. de Graaff, Victoria, Mme. Plemp, C. J. Backhouse, and Glory of Leiden.

Mr. Ingram also secured the leading award in the class for six pots of Polyanthus Narcissi with grandly-flowered plants of Aspasia, Irene, Klondyke, Elvira, Ideal and Triumph. Mr. Garner won the 1st prize in the class for three pots of Narcissi. Rhododendron (Azalea) mollis and R. indicum were well shown by Mr. T. K. Ingram in the two classes for these plants. G. G. Russell, Esq., had the finest Astilbes (Spiræas). Mr. Norton showed the best plants of Deutzia gracilis and Cinerarias.

Cut blooms of Narcissi were shown numerously. For 18 varieties, five blooms of each, Sir Randolf Baker, M.P., Ranston (gr. Mr. A. E. Usher), was easily 1st with clear, handsome flowers, including Lucifer, Mme. de Graaff, Gloire de Leiden, Vanilla and Maximus. 2nd, Mr. T. K. Ingram. Sir R. Baker also won the 1st prize for fine blooms of a Magni-coronati variety with good specimens of Glory of Leiden, and he excelled in the similar class for a Parvi-coronati variety with Cassandra.

Two classes were allotted for table decorations. In the open class the schedule required Narcissi arranged with any foliage on a table measuring 5 feet by 4 feet. Eight competed, but not one was of a superior character.

In the amateurs' class, Miss Mabel Galbraith, Christchurch, was placed 1st for Narcissus rugilobus and Asparagus plumosa lightly arranged.

Non-competitive Exhibits.

Many traders staged non-competitive exhibits, and gold medals were awarded to Messrs. J. Cypher & Sons, Cheltenham, for Orchids; Messrs. J. Charlesworth & Co., Haywards Heath, for Orchids; Messrs. Sutton & Sons, Reading, for Cyclamens, Cinerarias, and other flowers; Mr. Maurice Prichard, Christchurch, Hampshire, for Alpine plants; and Mr. D. Stewart for miscellaneous flowering plants.

CANTERBURY ROSE.

The annual meeting of the Canterbury and Kent Rose Society was held recently; the Mayor (Councillor Godden) presided. The accounts presented by the Hon. Secretary, Mr. C. C. Williamson, showed that the receipts had amounted to £85 17s. 6d., and the expenses to £94 7s. The Nurserymen's Challenge Cup, a former asset valued at £9 9s., had been won outright by Messrs. Cant & Co., but several gentlemen had promised to contribute towards the purchase of another cup. The annual show was fixed for Friday, June 28. General regret was expressed at the absence through illness of the Rev. H. B. Biron, of Lympne, to whose enthusiastic interest for 33 years the society's success has been largely due.

GARDENING APPOINTMENTS.

Mr. H. Crawley, for 2 years Gardener to H. M. Hartigan, Esq., Calcot Park, Reading, and Mile Bush, Leighton Buzzard; previously at Woodbury, Farley Hill, near Reading, and Kippington Grange, Sevenoaks, as Gardener to Sir Arthur P. Heywood, Bart., Dove-Leys, near Rocester, Staffordshire.

Mr. H. Whitbread, for the past 11 years Gardener to the late Miss E. Knowles, Worple Lodge, Epsom, Surrey, as Gardener to Sir Lewis and Lady Molesworth, Trewarthenick, Grampound Road, Cornwall.

Mr. W. C. Yeoman, for the past 10 years Gardener at Heirs House, Colne, Lancashire, as Gardener and Superintendent of Marsden Hall Park, under the Nelson Corporation, Lancashire.

Mr. James Webb, for the past 6 years Gardener to H. O'Brien, Esq., Oakleigh, Chislehurst, Kent, and formerly in the gardens at Kings Ride, Ascot, Berkshire, as Gardener at Highgate Cemetery, Highgate, London. (Thanks for 2s. 6d. for the R.G.O.F. box.—Eds.)

Mr. C. Suggitt, for the past 3 years Gardener to G. B. Dodwell, Esq., Coniston, Watford, as Gardener to H. M. Hartigan, Esq., Mile Bush Hill, Leighton Buzzard.

Mr. John T. Baines, for the past 2½ years Gardener to the Hon. P. C. Evans Freke, Bisbrocke Hall, Uppingham, as Gardener to Hugh Hole, Esq., Caunton Manor, Newark. (Thanks for donation of 2s. 6d. for the R.G.O.F. box.—Eds.)

Mr. A. H. Potter, for 16 months Foreman at Kiplin Hall, Northallerton, Yorks., as Gardener to J. Scott, Esq., Southover House, Tolpuddle, Dorchester, Dorset.

THE WEATHER.

The Following Summary Record of the weather throughout the British Islands, for the week ending March 23, is furnished from the Meteorological Office:—

GENERAL OBSERVATIONS.

The *weather*.—The general condition was again extremely unsettled. Over a large portion of England and Ireland precipitation occurred every day, generally in the form of rain, but sometimes in that of sleet, snow, or hail. Thunder was experienced in a few isolated places on the 18th and 19th, and on the 21st thunderstorms, with hail, accompanied the passage of a line squall from the Scilly Isles to the coast of East Anglia.

The *temperature* differed little from the normal as a whole, but was a little below it in most districts. The highest of the maxima occurred on rather variable dates, as a rule either on the 17th or 21st; the values ranged from 57° in Ireland S., 55° in England E. and the Midland Counties to 51° in England N.E. The lowest of the minima, which were recorded during the latter half of the week, varied from 23° in Scotland E. to 31° in Ireland and in England S.E., and to 35° in the English Channel. The lowest grass readings reported were 19° at Rauceby and Newton Rigg, 20° at Worksop, and 21° at Buxton, Durham, and Burnley. In all parts of the Kingdom the temperature of the earth both at 1 foot and 4 feet below the surface was above the average; between 2° and 3° in most localities.

The *rainfall* exceeded the normal except in Scotland N. and W., the excess being large in most parts of England. On the 19th 1.06 inch (mainly of sleet) fell at Markree Castle, and 1·02 inch at Stonyhurst.

The *bright sunshine* just equalled the average in Scotland N., and exceeded it in Ireland S., but over the kingdom generally there was a considerable deficiency. The mean daily duration ranged from 4·5 hours in Ireland S. to 2·2 hours in the Midland Counties. In the former district the percentage of the possible duration was 38, and in the latter 18.

THE WEATHER IN WEST HERTS.

Week ending March 27.

The seventh warm week in succession.—Still another unseasonably warm week, and the seventh in succession, since the breaking up of the February frost. There occurred but one cold day, and only one cold night. On the warmest day the temperature in the thermometer screen rose to 61°—the highest reading as yet recorded this year. On the one cold night the exposed thermometer registered 8° of frost—the lowest temperature as yet this month, but only a moderately low one for the time of year. On the warmest night the same thermometer only fell to 48°, which is, with one exception, the highest minimum temperature I have yet recorded here in March on the surface of the lawn. The ground is at the present time 4° warmer at 2 feet deep, and 5° warmer at 1 foot deep, than is seasonable. Rain fell on each of the first four days of the week, and to the total depth of 1¼ inch. Rain fell on each of the 10 days ending the 23rd, the total measurement being 2 inches, or rather more than the average quantity for the whole month. The percolation through the soil gauges has been rapidly declining during the past three days, but taking the week as a whole, 5 gallons have come through the bare soil gauge, and also through that on which short grass is growing. The sun shone on an average for 2⅔ hours a day, which is 1½ hour a day short of the mean duration for the same period in March. The winds have been, as a rule, moderately high, and in the windiest hour the average velocity was 18 miles—direction W.N.W. The mean amount of moisture in the air at 3 p.m. exceeded a seasonable quantity for that hour by 6 per cent. The Wood Anemone came first into flower on the 20th inst., which is 17 days earlier than its average date of first flowering in the same spot for the previous 20 years, and earlier than in any of those years. *E. M., Berkhamsted, March 27, 1912.*

DEBATING SOCIETIES.

READING GARDENERS'.—The fortnightly meeting of the members of this association was held on Monday, the 18th inst., when there was a good attendance, the president occupying the chair. The lecture for the evening was delivered by Mr. H. Wilson, the Gardens, Lower Redlands, one of the association's oldest members, the subject being "How to Maintain a Supply of Vegetables Throughout the Year."

BATH GARDENERS'.—A meeting of this society was held on the 25th inst., when Mr. T. Parrott presided over a good attendance. Mr. Scadding, a member of the Midsomer Norton Horticultural Society, gave a lecture entitled "The Plant: A Living Organism." The lecturer dealt with the different functions of plant life, and a good discussion followed. The chairman thanked members for making the room so attractive with exhibits.

CROYDON AND DISTRICT HORTICULTURAL MUTUAL IMPROVEMENT.—On Tuesday, the 19th inst., a meeting of this society was held at the Sunflower Temperance Hotel, George Street. The lecturer was Mr. J. Gregory, Croydon, his subject being "Life in Ponds and Ditches." Mr. Gregory had an excellent series of lantern slides, some of them made by himself many years ago, and with their aid he was able to show minute organisms highly magnified.

WARGRAVE AND DISTRICT GARDENERS'.—On Wednesday evening, March 20, a paper on "Peach and Nectarine Culture" was given by Mr. R. Doe, gardener to Sir Chas. S. Henry, Bart., M.P., Parkwood, Henley-on-Thames. He first described the kind of glasshouse which he considered the most suitable and the formation of the border. The general culture of the trees was next described under the following heads:—Forcing, disbudding, thinning the fruit, pot-culture, best varieties and common diseases.

MARKETS.

COVENT GARDEN, March 27.

[It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—Eds.]

Cut Flowers, &c.: Average Wholesale Prices.

	s.d.	s.d.
Arums (Richardias)	3 0	4 0
Azalea, doz. bnchs.	3 6	4 0
— mollis, p. bnch.	1 6	1 9
Camellias, per box of 18's and 24's	1 6	2 0
Carnations, p. doz. blooms, best American var.	1 6	1 9
— smaller, per doz. bunches	10 0	15 0
— Carola, crimson, extra large	6 0	—
Eucharis, per doz.	2 6	3 0
Freesia refracta alba, p.dz.bun.	1 3	1 6
Gardenias, per box of 15 & 18 blms.	2 6	3 6
Iris (Spanish), per doz. bunches:		
— white	15 0	18 0
— mauve, yellow and blue ..	18 0	21 0
Lilac, per bunch white	2 6	3 0
— mauve	3 0	3 6
Lilium auratum per bunch ...	4 0	5 0
— longiflorum, long, per doz.	3 0	3 6
— short, per doz.	3 0	—
— lancifolium alba, long ...	2 0	—
— — short ...	1 6	2 0
— speciosum rubrum, dz. blooms:		
— long	1 9	2 0
— short	0 9	1 0
Lily of the Valley, p. dz.bunches:		
— extra special ...	15 0	18 0
— special... ...	10 0	12 0
— ordinary ...	8 0	—
Marguerite, per doz. bunches:		
— Yellow... ...	2 0	2 6
Myosotis (Forget-me-not), p. dz. bunches ...	3 0	4 0
Narcissus, per doz. bunches:		
— Double Van Sion	1 0	1 6
— Emperor ...	2 0	2 6
— Empress ...	1 6	2 0
— Golden Spur...	1 0	1 6
— Obvallaris ...	0 9	1 0
— Campanella (Odorus) ...	0 9	1 0
Narcissus, per doz. bunches:		
— Poeticus ...	1 0	1 6
— Princeps ...	1 0	1 3
— Sir Watkin ...	1 6	2 0
— Victoria ...	2 0	2 6
— Barrii	1 6	2 0
Orchids, Cattleya, per doz. ...	12 0	—
— Odontoglossum crispum ...	3 0	4 0
Pelargoniums, p. dz. bunches:		
— Double Scarlet	8 0	12 0
Primroses, per doz. bunches ...	1 3	1 6
Roses, 12 blooms,		
— Bridesmaid,	2 6	3 0
— C. Mermet ...	2 6	3 0
— General Jacqueminot ...	1 0	1 6
— Liberty ...	2 0	4 0
— Madame A. Chateney ...	2 0	4 0
— Niphetos ...	1 6	2 6
— Richmond ...	2 0	3 6
— Sunrise ...	1 0	1 6
— Lady Roberts	2 0	2 6
— Lady Hillingdon	2 0	2 6
— Franz Deegan	3 0	3 6
— Kaiserine ...	1 6	3 0
Spiræa (Astilbe) japonica, per. doz. bunches	4 0	6 0
Sweet Peas (white), pr. doz. bnchs.	2 0	2 6
Tulips, per bunch:		
— double pink ...	0 8	1 3
— — yellow ...	1 0	1 6
— — scarlet ...	1 3	1 6
— p. dz. bunches:		
— white	7 0	8 0
— yellow	6 0	7 0
— scarlet ...	6 0	8 0
— bronze... ...	8 0	9 0
— pink	6 0	8 0
— Darwin, p. bch.:		
— pink	1 0	1 3
— mauve	1 3	1 6
— red	1 3	1 6
Violets, p. dz. bchs.	1 3	2 0
— Princess of Wales, per doz. bunches ...	3 0	4 0
— Parma	2 0	—
Wallflowers, per dozen bunches	2 0	2 6

Cut Foliage, &c.: Average Wholesale Prices.

	s.d.	s.d.
Adiantum Fern (Maidenhair), best, dz. bnchs.	7 0	8 0
Agrostis (Fairy Grass), per dz. bunches ...	2 0	4 0
Asparagus plumosus, long trails, pr. ½ doz.	1 6	2 0
— medium, doz. bunches ...	12 0	18 0
— Sprengeri ...	10 0	12 0
Carnation foliage, doz. bunches...	4 0	—
Croton foliage, various, per dozen bunches ...	12 0	15 0
Cycas leaves, artificial, per doz.	3 0	12 0
Eulalia japonica, per bunch ...	1 0	1 6
Moss, per gross ...	6 0	—
Myrtle, dz. bchs. (English), small-leaved...	6 0	—
— French ...	1 0	—
Smilax, per bunch of 6 trails ...	1 6	—

Plants in Pots, &c.: Average Wholesale Prices.

	s.d.	s.d.
Acacia lineata, 48's, per dozen ...	18 0	21 0
Aralia Sieboldii, p. dozen	6 0	7 0
Araucaria excelsa, per dozen ...	18 0	21 0
Asparagus plumosus nanus, p.dz.	10 0	12 0
— Sprengeri ...	8 0	9 0
Aspidistra, p. dz., green	21 0	30 0
— variegated ...	30 0	60 0
Azaleas, per doz.	36 0	42 0
Boronia Megastigma, 48's, p. dz.	21 0	24 0
Cinerarias, pr. dz.	8 0	9 0
Cocos Weddeliana, per dozen:		
— 60's	6 0	12 0
— larger, each ...	2 6	10 6
Croton, per dozen	18 0	30 0
Cyperus alternifolius, per doz.	5 0	6 0
— laxus, per doz.	4 0	5 0
Daffodils, per doz.	6 0	8 0
Dracæna, green, per dozen ...	10 0	12 0
Ericas, per dozen:		
— Willmorei, 48's	15 0	18 0
— persoluta ...	27 0	30 0
Ferns, in thumbs, per 100... ...	8 0	12 0
— in small and large 60's ...	12 0	20 0
— in 48's, doz. ...	6 0	—
Ferns, choicer sorts, per doz.	8 0	12 0
— in 32's, per dozen	10 0	18 0
Ficus elastica, per dozen	9 0	12 0
Genistas, 48's, per doz.	10 0	12 0
Geonoma gracilis, 60's, per dozen	6 0	8 0
— larger, each ...	2 6	7 6
Hyacinths white & clrd., p. dz. pots	10 0	12 0
Kentia Belmoreana, per dozen	5 0	42 0
— Fosteriana, 60's, per dozen	4 0	6 0
— larger, per doz.	18 0	60 0
Latania borbonica, per dozen ...	12 0	30 0
Lilium longiflorum, p. doz.	20 0	24 0
— lancifolium rubrum in pots, per dozen ...	15 0	18 0
— lancifolium alba	15 0	18 0
Marguerites, white, per dozen ...	8 0	10 0
Pandanus Veitchii, per dozen ...	36 0	48 0
Phœnix rupicola, each	2 6	21 0
Spiræa japonica, p. dozen pots ...	10 0	12 0

Fruit: Average Wholesale Prices.

	s.d.	s.d.
Apples (English cookers) bushel	6 0	12 0
— Nova Scotian, per barrel ...	17 0	22 0
— Californian Newtowns, pr. case	6 0	8 0
— (Canadian), per barrel	20 0	—
— Oregon (Hood River), per case	16 0	18 6
— American, per barrel	20 0	32 0
— Australian per case	14 6	25 0
Bananas, bunch:		
— Doubles ...	10 0	12 0
— No. 1 „ ...	8 0	10 0
— Extra	10 0	12 0
— Giant „ ...	14 0	18 0
— Loose, per dz.	0 6	1 0
— Red coloured...	5 6	6 6
— Jamaica Giants, per ton ...	£10	£12
— Jamaica Ordinary, per box (9 doz.) ...	4 0	5 0
Cranberries, per case (30 qts.)...	10 0	11 0
— Cape Cod, per case (30 quarts)	9 6	—
Dates (Tunis) doz. boxes	4 6	5 6
Grape Fruit, case:		
— 96's		
— 80's		
— 64's	14 0	20 0
— 54's		
Grapes (English), per lb.:		
— Black Alicante	2 3	3 0
— Gros Colman ..	2 0	3 6
— (Belgian), Gros Colman, p. lb.	1 3	2 0
— Almeria, p. brl.	11 6	15 6
Per dozen lbs.	4 0	6 0
— (Cape) per case	4 0	5 0
— „ White...	5 0	6 0
— „ Red ...	5 0	7 0
Lemons:		
— (Naples), case	26 0	30 0
— Messina, p. case	7 6	17 0
Limes, per case ...	4 0	—
Mangoes, per doz.	6 0	10 0
Melons (Cape) ...	0 10	1 6
Nuts, Almonds, per bag	52 6	—
— Brazils, new, per cwt. ...	85 0	100 0
— Spanish, per sack	40 0	42 0
— Barcelona, bag	35 6	36 6
Nuts, Chestnuts, per bag ...	3 6	19 0
— Cocoanuts, 100	18 0	23 0
— English Cobs per lb.... ...	0 3	—
— Walnuts (Naples) kiln dried, cwt. cases	54 0	—
Nuts, French Grenobles, per bag	6 6	7 0
— Boeris, per bag	6 0	7 0
Oranges, Jamaica per case ...	9 0	10 0
— Californian ...	15 0	16 0
— Denia, case ...	16 0	34 0
— Valencia ...	10 0	12 0
— Jaffa, per case	9 6	—
— Blood, per case	8 0	9 0
— Mandarins, per box ...	0 6	3 6
— Bitter, per ½ chest	16 0	18 6
— Seville Sour ½ chest ...	15 0	18 0
Pears (Californian), per case ...	10 6	16 6
— Glou Morceau	11 6	12 6
— Easter Beurré	8 6	—
— Winter Nelis	12 6	18 6
— (American) per barrel, 180 lbs.	25 0	26 0
— cases	7 0	—
— (Cape)	4 0	5 0
Pineapples, St. Michael ...	2 6	5 0
Pines Cape), each	0 6	0 9
Plums (Cape), per case	4 0	6 0
— Apple, per box	6 0	8 0
Strawberries, p. lb.:		
— A quality ...	8 0	10 0
— B quality ...	3 0	5 0

Vegetables: Average Wholesale Prices.

	s.d.	s.d.
Artichokes (Globe), per dozen ...	3 0	4 0
— Jerusalem, per ½ bushel ...	1 0	—
Asparagus, Sprue.	0 10	1 0
— Lauris ...	2 6	3 6
— Paris Green ...	3 0	—
— (English), per bundle	2 0	3 0
Beans, Guernsey, Dwarf, per lb.	1 0	1 3
— French, per packet, lb. ...	1 6	1 9
Beetroot, p. bshl.:		
— Long	2 6	3 0
Broccoli, sprouting, per bag ...	2 0	3 0
Celeriac, per doz.	2 6	3 0
Cabbages (French) per dozen ...	2 6	3 0
— (English), per tally	6 0	10 0
— Cornish, per dozen	1 0	1 3
Cauliflowers, p. dz.	2 0	3 0
— (Italian), p. pad	2 0	3 0
— (Cornish), per crate	5 0	7 6
Celery, doz. bndls.	6 0	10 0
— (washed), per dozen bundles	10 0	18 0
Carrots (English), pr. doz. bun....	2 6	3 0
— per cwt. ...	3 6	4 6
— (washed) p. bag	4 0	5 0
Chicory, per lb. ...	0 4	—
Cucumbers, p. doz.	2 0	4 0
Endive, per dozen	2 0	—
Greens, per bag ...	2 6	3 6
Herbs (sweet), pkts., p. gross	7 0	—
Horseradish, 12 bundles ...	10 0	14 0
Leeks, per doz. ...	1 6	—
Lettuce (French), per doz. ...	0 9	1 3
Mint, per dozen bunches ...	4 0	5 0
Mushrooms, cultivated, p. lb. ...	0 7	0 9
Mustard and Cress, pr. dz. punnets	1 0	1 6
Onions (Dutch) per bag	7 0	8 6
— English ...	8 0	9 0
— (Spanish), per case	9 0	10 0
Parsley, ½ sieve ...	1 6	—
— per doz. bun.	2 6	3 0
Parsnips, per bag	4 6	5 0
Peas (French) p. pad	5 0	6 0
— (Guernsey), lb.	3 0	3 6
Radishes (English), per dozen ...	1 3	1 6
Rhubarb, forced, per 12 bundles	0 8	1 0
— Outdoor, per dozen	2 6	—
Savoys, per tally..	10 0	12 0
Spinach, pr. bshl.	3 0	4 0
Seakale, p. punnet	0 8	0 10
Tomatos (Canary Islands), per bundle... ...	10 0	12 0
Turnips (English), per dz. bunches	2 6	3 0
— bags (washed)	4 0	4 6
— (unwashed) ...	3 0	3 6
Turnip Tops, per bag	2 0	2 6
Watercress, p. dz. bunches ...	0 4	0 6

REMARKS.—Supplies of English hothouse Grapes are limited, but Cape Grapes, black, white and red varieties, are plentiful. Supplies of Belgian Gros Colman Grapes continue a fairly good supply. Three cargoes of Australian Apples have arrived, the consignments consisting of about 40,000 boxes; there were also a few Pears and other fruits. The s.s. "Suffolk" and "Orsova" are due this week, the former with 4,000 and the latter 18,000 boxes of Apples, &c. Shipments of fruit from other sources consisted of 8,000 to 9,000 barrels and boxes. English Apples are limited to a few fruits of Bramley's Seedling. Hothouse Strawberries show a marked increase in supply; there is a considerable depreciation in their prices compared with last week. About 12,000 boxes of fruit have been received from the Cape, consisting principally of Grapes in an excellent condition. Shipments from the Canary Islands amounted to 5,000 odd packages of Tomatos, Bananas and Potatos. Forced Vegetables from France and the Channel Islands continue a good supply all round. Home-grown vegetables are a shorter supply with the exception of Seakale, which has been much in excess of the demand. New Brazil Nuts have made their appearance this week, their size and quality are excellent. *E. H. R., Covent Garden, March 27, 1912.*

Potatos.

	per cwt. s.d.	s.d.		per cwt. s.d.	s.d.
Kents—			**Lincolns—**		
Queen's ...	4 0	4 6	Maincrops ...	4 3	4 6
Up-to-Date ...	4 0	4 6	Blacklands ...	3 0	3 3
Lincolns—			**Bedfords—**		
Up-to-Date ...	3 9	4 6	Up-to-Date ...	3 9	4 0
British Queen ...	3 9	4 3	**Dunbars—**		
King Edward ...	4 0	4 6	Up-to-Date ...	5 0	5 3
Northern Star ...	2 9	3 6	Maincrop ...	5 3	5 6
Evergoods ...	3 0	3 9			

New Potatos.

Teneriffe ... ... 10 6-14 0 | Algerian — ... 12 0-14 0

REMARKS.—The condition of the Potato trade is the same as last week, with no differences in the prices for old tubers. Supplies are plentiful. *Edward J. Newborn, Covent Garden and St. Pancras, March 27, 1912.*

Proposed Municipal Vegetable Market for Edinburgh.—Councillor Rose delivered an address on "The Necessity for a Municipal Fruit, Flower, and Vegetable Market" to a meeting of the South Side Merchants' Association, held in the Livingstone Hall, Edinburgh, on the 11th inst. Mr. T. M. Sleigh, J.P., president, occupied the chair. Councillor Rose said that a municipal market would bring new business and increase the assessable rental of the city. It would meet a long-felt want on the part of producers and distributors. Fresh material could be had every day, and less risks and loss incurred than at present. Encouragement would be given to people engaged in one of the healthiest and most interesting occupations, namely, the fruit and vegetable trade.

ANSWERS TO CORRESPONDENTS.

CARNATIONS: *South Stafford.* The plants are free from either eelworm or fungous disease. The trouble must be looked for in some error of culture.

CINERARIAS: *I. L.* The photograph is indistinct; but, judging from the display of blooms, the plants are excellent specimens.

COCOONS ON DWARF JAPANESE TREES: *C. O.* The curious and beautifully-protected cocoons sent to us for identification are tenanted by a caterpillar or "basket-worm," belonging to the Psychidæ, a family of moths in which the sexes are remarkably dissimilar in form; the females are wingless and often quite maggot-like, while the male is provided with ample wings like those of other members of this group of insects. The females never leave their cocoons or "cases," but lay their eggs inside them and then die. The young caterpillar on escaping from the interior constructs a covering of silk into which it generally weaves or attaches portions of the food-plant. One of the African species employs the long, sharp spines of Acacia horrida, and when these are packed tightly together and lying side by side they bear a striking resemblance to a basket in miniature, hence the name "basket-worm" or "case-bearer." We advise you to have the infested plants thoroughly fumigated with hydrocyanic acid gas, as although the insects are not likely to reproduce their species in captivity, they might, if liberated, prove a serious pest to Larch and other Conifers in this country. The injury to the twig is undoubtedly the work of the imprisoned larvæ.

FRUIT TREE STOCKS: *A. R.* See *Gardeners' Chronicle*, January 28 and February 4, 1911, pp. 58, 76.

GINSING: *Auckland.* Ginsing (Aralia quinquefolia) is not cultivated for commercial purposes in England. The plant is grown in Kew gardens, but does not thrive there. It favours high and dry land in woods, and does not succeed in swampy situations. Wild plants are stated to yield better results than those in cultivation, as it takes five years to grow the root from seed for market. Full particulars on the subject will be found in "Sang or Ginsing," a leaflet published by Harlan P. Kelsey, Tremont Building, Boston, Massachusetts, U.S.A., price 10 cents.

GRAMME AND SAMPHIRE: *B. & W.* (1) The seeds are those of the Chick Pea or common Gram, an annual extensively cultivated in India in the Northern Provinces and in the Nilgiris. The ripe, unhusked seeds are largely used for feeding horses and cattle in many parts of that country; the seeds, after parching, grinding, steeping, or the removal of the husks, form an important food in some districts, chiefly of the labouring classes. For an analysis of the seeds, see *Food Grains of India*, by A. H. Church. (2) Several plants are known under the name of Samphire, but from the description furnished there is little doubt that the Marsh Samphire (Salicornia herbacea) is the one you refer to. This plant is sometimes pickled, and was formerly burnt for obtaining barilla.

MANURE FOR PALMS: *W. Morris.* The best stimulant for Palms in pots is liquid manure made from cow dung and soot.

MUSHROOMS: *A. W.* The Mushrooms are affected with the disease Hypomyces perniciosus. Sometimes the spawn is infected before it is placed in the Mushroom bed; in such cases, when the spawn commences to "run," the threads have a fluffy appearance. Under these circumstances, the entire bed should be removed before the parasite produces spores, otherwise if the house becomes thoroughly infected the disease will be very difficult to eradicate. All infected Mushrooms should be removed as soon as the slightest symptoms are discerned. Great care should be taken in cleansing the tools, boots, and clothing after removing the soil and manure from the infected bed. When a house or other structure in which Mushrooms are grown has become infected, it should be emptied, and sprayed everywhere three times at intervals of 10 days with a solution of sulphate of copper, using 1 lb. of the sulphate to 15 gallons of water.

NAMES OF FRUITS: *Coombes.* Northern Spy.—*W. Wilson.* 1, Lord Lennox; 2, Newton Wonder; 3, Dean's Codlin; 4, Grange's Pearmain; 5, Beauty of Kent; 6, Forge; 7, Flower of Kent; 8, Gloria Mundi.—*H. P.* Rymer.—*T. Taylor.* Franklin's Golden Pippin.—

NAMES OF PLANTS: *Hugh L. Roxburgh.* Saxifraga Sancta.—*A. H. L.* Primula viscosa.—*Hibernian.* Your box contained leaves of two Dracænas and one Codiæum, also flowers of Cymbidium aloifolium and a species of Eupatorium. Not being numbered, we regret it is impossible to indicate the names more definitely.—*E. J. W.* 1, Cypripedium villosum; 2, Omphalodes verna (the small blue flower); 3, Pulmonaria officinalis.—*H. H.* Dendrobium fimbriatum oculatum.—*J. M.* 1, Calanthe Bryan; 2, Selaginella cæsia; 3, Codiæum Weismannii; 4, C. reticulatum; 5, C. longifolium; 6, C. chrysophyllum; 7 (or 1), Pulmonaria saccharata; 8, Marguerite. The numbers were scarcely recognisable.—*Gaslight.* 1, Maranta Regalis; 2, Episcia fulgida; 3, Abutilon megapotamicum variegatum; 4, Convolvulus Cneorum; 5, Melianthus major; 6, Eucalyptus species.—*H. R.* 1, Oncidium pubes; 2, Octomeria diaphana; 3, Bulbophyllum lilacinum; 4, Dendrobium luteolum; 5, Epidendrum oncidioides.—*E. T.* Cypripedium Madiotianum (Chamberlainianum × villosum), Saxifraga species; send when in flower.—*R. P. M.* Mackaya bella.—*Foreman.* Lonicera involucrata.

PEACH LEAVES DISEASED: *F. Wiles.* The leaves are affected with the silver-leaf disease. See *Gardeners' Chronicle*, November 12, 1910, p. 356.

PEACH LEAVES WITH HOLES: *E. D.* The holes are caused by the shot-hole fungus (Cercospora circumscissa). On account of the very tender nature of the leaves, spray the trees with the self-boiled lime-sulphur mixture. The proportions of the mixture are: lime 8 lbs., sulphur 8 lbs., and 50 gallons of water. The lime should be slaked with water and the sulphur added afterwards as a fine powder, mixing enough water to make the lime into a paste. The mixture should be constantly stirred during the time it is applied.

SOIL FROM A VINE BORDER: *F. B., Sparkeswood.* The soil is of a heavy nature, and not the best for a vine border. The fact of the Grapes shanking points to some wrong condition in the rooting medium, and most probably the drainage is at fault. Efficient drainage is especially necessary when the soil is of a heavy nature, and a stagnant condition at the roots would not be remedied by a surface application of fresh compost. In the autumn, when the vines are dormant, overhaul the border, lifting the roots so as to get down to the drainage. Read the article on the cultivation of "Fruits under Glass" in the issue for February 17, page 103.

Communications Received.—A. J. J. G.—H. S Beckenham—Mushrooms—M. B. G., Herts—R. E. W.—E. H., Keswick—W. C., Stroud—Apple—F. R. S.—P. B —F. C. F.—M. L. B.—T. R. B.—A. P. R.—J. W. B. —T. G. H. H —R. A. M.—T. M —McL. & C.—A. H — B. & Sons—M. C., Gaud—E. T.—H. S.—W. E. B.— C. T. D.—F. K., Berlin—R. P. B.—W. A. M —W. F.— J. G.—T. S.—G. M.—A. H. H., W. Indies (many thanks) —V. B.

SCHEDULES RECEIVED.

Shropshire Horticultural Society.—This society will hold, as usual, two exhibitions, a spring show on April 16, and a summer show on August 21 and 22. The spring exhibition will be held in the Market Hall, Shrewsbury. The schedule embraces some 35 classes, the most important one being for a collection of 20 varieties of Daffodils, representing three groups. In the summer show the class for a group of hardy and perennial plants in or out of bloom has been slightly altered so as to make the reading of the conditions more explicit. The prizes offered in this class are £25, £20 and £15 respectively. There are three new classes for Roses (*a*) a collection of cut Roses arranged in a space 12 feet by 4 feet, for which four prizes are offered of the total value of £19; (*b*) nine baskets of cut Roses in nine distinct varieties; (*c*) twelve vases of decorative Roses in not fewer than six nor more than twelve trusses of each variety. The champion decorative fruit class is altered this year so as to require only nine distinct kinds instead of ten. The first prize has been raised from £20 to £25, there being no cup offered on this occasion, the one won outright last year not having been replaced. The second prize in this class is £20, and there are four other substantial money prizes. Secretaries, Messrs. Adnitt & Naunton, The Square, Shrewsbury.

Leamington and County Flower Show.—The fourth annual show of this society will be held in Victoria Park, Royal Leamington Spa, on Wednesday and Thursday, July 24 and 25. A challenge cup valued at 30 guineas will be offered for the best non-competitive exhibit occupying a space of 250 square feet. Four other challenge cups, each valued at 25 guineas, are offered for (*a*) a group of Roses in a space 12 feet by 4 feet; (*b*) a collection of fruit; (*c*) for hardy herbaceous flowers; (*d*) a group of Carnations occupying a space of 10 feet by 4 feet. Two challenge cups, each valued at 20 guineas, offered for a group of Ferns, and a display of Sweet Peas respectively, whilst a challenge cup, valued at 15 guineas, is offered for a collection of fruit, and one valued at 10 guineas for a group of plants arranged in a space measuring 12 feet by 9 feet, open only to amateurs and gentlemen's gardeners in Warwickshire. Secretary, Mr. H. T. Birch, 104, Parade, Leamington.

National Vegetable Society.—The third exhibition of this society will be held in the Clarendon Hall, Watford, on Wednesday, October 2. The president, the Duke of Portland, offers £10 10s. as the first prize for a collection of 12 kinds of vegetables, the second prize of £7 7s. being given by Lord Howard de Walden. In the class for a collection of nine kinds the prizes are £5, £3, and £2 respectively. Traders classes are very numerous, embracing 58 out of 81 contained in the schedule. Mr. E. G. Quick, Kelmacott, Harrow Weald.

Bath Floral Fete.—The summer exhibition of the Bath Floral Fête and Band Committee will be held on Wednesday and Thursday, July 10 and 11, in the Sydney Gardens, Bath. The majority of the floral classes are for Roses, the show being held in association with the National Rose Society. A silver cup or £6 in money is offered for the best exhibit of 72 distinct varieties of Roses in a class open only to nurserymen. A silver cup is also offered in the amateurs class for 24 distinct varieties of Roses. Silver medals of the National Rose Society will be awarded to the best bloom of a Hybrid Perpetual or Hybrid Tea Rose, and the best Tea or Noisette flower respectively. The society will not hold the usual autumn show this year. The secretary is Mr. B. R. F. Pearson, 17, Argyle Street, Bath.

Birmingham Horticultural Society.—This new society has arranged to hold its first annual exhibition and floral fête (being the twenty-eighth of the old Handsworth Horticultural Society, which is now incorporated), in Handsworth Park, on Friday and Saturday, July 19 and 20. Six silver challenge cups are offered, the first one, valued at 10 guineas, being offered in the open class for a group of plants. A silver cup, valued at 5 guineas, is offered outright for the best exhibit of a collection of Roses. A silver challenge cup, valued at 20 guineas, together with a gold medal, is also offered for the best display of Sweet Peas. The second winner in this class will receive the society's gold medal, whilst the third prize is the society's silver medal. Three other silver challenge cups are offered. The secretary is Mr. William G. Carradine, 84, Hamstead Road, Handsworth, Birmingham.

Kent Commercial Fruit Show.—This exhibition will be held at the Corn Exchange, Maidstone, on Tuesday and Wednesday, October 29 and 30. The earlier date than last year will not only allow growers who sell their fruit earlier in the season the opportunity of exhibiting, but also the inclusion of classes for early varieties of Apples, such as Lord Derby and Worcester Pearmain; also a class for Pears. The prizes this year amount to about £100, as against £70 last year. Several other alterations have been made, including the opening of the large growers' classes, which form the first eight in the schedule, to the whole of Great Britain and Ireland. Another alteration of some importance is the exclusion of the Federation Special box for exhibition purposes—in the bushel classes; the Federation Standard box 20 inches long, by 11 inches wide, by 10 inches deep, will only be permitted. Pears are to be shown in a half-box size, 20 inches long, 11 inches wide, by 10 inches deep—exactly half the depth of the Federation Standard. It is hoped to standardize this box for Pears and select Apples. A copy of the schedules may be obtained from the hon. secretary, Mr. R. Wellington, Wye College.

Borough of Croydon Chrysanthemum Society.—The twenty-fifth autumn show of this society will be held on Wednesday and Thursday, October 30 and 31, at the Central Baths Hall, Scarbrook Road, Croydon. A challenge cup is offered for 18 cut blooms of Japanese Chrysanthemums, distinct. A silver cup, valued at £5 5s., is offered for 15 cut blooms of Japanese Chrysanthemums, the cup to be won two years out of three. In the amateur's classes a challenge cup, valued at £5, is offered, besides gold, silver, and bronze medals. Mr. F. Oxtoby, The Cottage, Coombe Lodge, Coombe Road, Croydon.

Wolverhampton Floral Fete.—The twenty-fourth annual floral fête will be held in the West Park, Wolverhampton, on Tuesday, Wednesday and Thursday, July 9, 10 and 11, when silver cups, gold, silver and bronze medals, and cash prizes to the value of nearly £900 will be offered. Mr. W. E. Barnett, for 21 years secretary, has resigned the office. The new secretary is Mr. R. F. Amphlett, 80, Darlington Street, Wolverhampton.

Co-Partnership Festival.—This society will hold a flower show, in connection with its annual festival, at the Brentham Garden Suburb, Ealing, on Saturday, August 24. A gold medal is offered by Mr. Hutchings, chairman of the festival, for the best exhibit in certain classes. The hon. secretary's address is 6, Bloomsbury Square, London.

Scottish Horticultural Association.—The Chrysanthemum show of this association will be held in the Waverley Market, Edinburgh, on Thursday, Friday and Saturday, November 14, 15 and 16. The City of Edinburgh Cup is offered for 15 vases of Japanese Chrysanthemums in 15 varieties—3 blooms in each vase. The Scottish Challenge Cup, open only to Scottish gardeners and amateurs, is offered for 8 vases of Japanese Chrysanthemums in 8 varieties—3 blooms in each vase. In these two classes points will be awarded for variety of colour. For the first time the schedule includes classes for villa and window gardening. Secretary, Mr. A. D. Richardson, 19, Waverley Market, Edinburgh.

Bath Gardeners' Debating.—The eighth annual Chrysanthemum show of this debating society will be held in the Assembly Rooms, Bath, on Wednesday and Thursday, November 6 and 7. Secretary, Mr. F. L. Ashman, 6, Caroline Buildings, Bath.

Haywards Heath Horticultural Society.—The twenty-fourth annual summer show of this society will be held on Wednesday, July 24, in Victoria Park, Haywards Heath. Four silver challenge trophies, besides gold and silver medals, are offered in certain classes of the schedule, which comprises 104 classes. The sixteenth annual Chrysanthemum show of the society will be held on Wednesday and Thursday, November 6 and 7, at the Public Hall, Haywards Heath. Secretary, Mr. Geo. Prevett, The Rosery, Haywards Heath.

Ousecliffe Rose and Sweet Pea Show.—This exhibition will be held in the Assembly Rooms, York, on Thursday, July 11. There are 10 classes for Sweet Peas, 6 open and 4 for amateurs only. In the section devoted to Roses there are 5 open classes and 3 classes for amateurs only. Secretary, Mrs. Richard Lawson, 44, Coney Street, York.

Weston-super-Mare and District Chrysanthemum Society.—The twenty-sixth exhibition will be held in the Knightstone Pavilion on Thursday, November 7. Secretary, Mr. John Lee, 7, Victoria Buildings, Weston-super-Mare.

The Royal Bucks. Sweet Pea and Horticultural Society.—The annual show of this society will be held on Saturday, July 20, at the Skating Rink, Chesham. Secretary, Mr. A. M. Bates, "Weylands," Chesham, Buckinghamshire.

CATALOGUES RECEIVED.

Maurice Prichard, Christchurch, Hampshire—Herbaceous and Alpine Plants; Aquatics; Shrubs; Climbers; Hardy Ferns.

R. Gill & Sons, Tremough, Penryn, Cornwall—Himalayan Rhododendrons.

Clarence Elliott, Six Hills Nursery, Stevenage, Hertfordshire—Alpine and Herbaceous Plants.

Stuart Low & Co., Bush Hill Park, Middlesex—Carnations.

J. Cheal & Sons, Crawley—Ornamental Trees and Shrubs.

Randolph Meech, Poole, Dorsetshire—Poultry Houses and Appliances.

Hogg & Robertson, Ltd., 22, Mary Street, Dublin—Hybrid Gladioli.

A. W. Gamage, Ltd., Holborn, London—General List of Plants, Seeds, and Horticultural Requisites, including Garden Furniture, Heating Appliances, Greenhouses, &c.

G. W. Scott & Son, King's Lynn—Potatos; Nursery Stock; English and Foreign Fruit and Vegetables.

Barr & Sons, King Street, Covent Garden, London—Hardy Perennials.

FOREIGN.

Ant. Roozen & Son, Overveen, Haarlem, Holland (London Agents: Messrs. Mertens & Co., 3, Cross Lane, St. Mary-at-Hill, London)—Vegetable and flower seeds.

François Gerbeaux, 21, Rue de Cronstadt, Nancy—New Plants.

C. L. Klissing Sohn, Barth (Pommern), Germany—Caladiums.

Fratelli Rovelli, Lago Maggiore, Pallanza, Italy—Palms, Trees, Shrubs, and Conifers.

Léon Fonteneau, 14, rue Mesnil, Paris—Seeds.

Wilhelm Pfitzer, Stuttgart, Germany—Garden Plants, Roses, Shrubs, &c.

Vilmorin Andrieux et Cie, Paris—Plants.

A. Dallinges, Chene-bourg, Geneve, Switzerland—Alpine and Herbaceous Plants; Rare Shrubs.

Ketten Brothers, Luxemburg—New Roses.

H. Correvon, Florarie, Chêne-Bourg, Geneve, Switzerland—Alpine Plants.

H. Henkel, Darmstadt, Germany—Nursery Stock.

V. Lemoine et Fils, Rue du Montet, 134, Nancy—New Plants; Indoor Flowering Plants; Flowering Shrubs; Hardy Plants; Flower Seeds.

Soupert & Notting, Luxemburg (Grand-Duchy)—New Roses.

Théodore Panwels et Cie, Meirelbeke-Station, lez-Gand., Belgium—Orchids.

J. G. Tissot, 7, Rue du Louvre, Paris—Garden Sundries.

West India Gardens, Altadena, California—Trees of Avocado Pear and Feijoa Sellowiana.

GARDENING CHARITIES.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.

GEO. J. INGRAM, Sec.,

92, Victoria Street, S.W.

Telephone—Westminster 5142.

NOTICE TO ADVERTISERS.

Friday next, April 5th, being Good Friday, the "Gardeners' Chronicle" will be published on Thursday, April 4th. Advertisements for next week must therefore reach the Office not later than TUESDAY, 5 p.m., April 2nd.

SITUATIONS VACANT.

Four Lines 3s. (Head-line counted as Two), 6d. for each succeeding line.

PRIVATE.

WRIGHT begs to Thank all who Applied for JOURNEYMAN'S Place, which is now Filled.

C. DURBIN, Westwood Park Gardens, Thanks all Applicants for FOREMAN'S Place, which is now Filled.

MR. A. CHENEY wishes to Thank all Applicants for FOREMAN'S and DECORATOR'S places, the same being now Filled.

MESSRS. JAMES CARTER & CO. wish to Thank all Applicants for the situation advertised in the last issue of the "Gardener's Chronicle." The situation is now Filled.

West Suffolk Education Committee.

INSTRUCTOR IN HORTICULTURE AND SCHOOL GARDENING.

THE Committee require the services of a fully qualified INSTRUCTOR in School Gardening and Horticulture; the person appointed will be required to visit the schools, and instruct the scholars in the principles and practice of Flower, Fruit, and Vegetable Culture; to give periodical lectures and demonstrations, and to act generally under the direction of the Secretary; applicants must be practical men, between the age of 30 and 40 years, strong and healthy, and good cyclists; the salary will be at the rate of £120 per annum with travelling (locomotion) expenses, and 1d. per mile when cycling; the appointment will be terminable by three months' notice on either side; applications for this post, which must be forwarded not later than April 9th, should be made on a form provided for the purpose, which may be obtained from the undersigned on receipt of a stamped addressed foolscap envelope or wrapper.

FRED. R. HUGHES,
Secretary to the Committee.

Shire Hall,
Bury St. Edmunds.

WANTED, GARDENER (Head Working); Inside and Out; another and odd man kept; Wife good Laundress; no young children.—Apply, Box 4, Leicester.

WANTED, GARDENER for Broadstairs; wages 25s.; must understand Greenhouse and have good references; permanent position.—Write, "W. R.," care of J. W. Vickers & Co., Ltd., 5, Nicholas Lane, E.C.

WANTED, WATER GARDENER; an experienced man to take the responsible charge of a Water Garden of considerable size; must have a thorough knowledge of water plants.—Particulars of experience, with references, to HEAD GARDENER, Wittington, Marlow.

WANTED, ORCHID GROWER; good experience with Hybrid Cattleyas and Cypripediums; wages 22s. per week, Bothy, milk, and vegetables.—Apply, stating age, with copies of testimonials, to W. GOODMAN, The Gardens, Shipley Hall, Derby.

WANTED, LEADING HAND (Outside); must be well up Roses, Herbaceous, Rock and Alpine; state age, wage with Bothy.—G. F. CHISLETT, Danehurst Gardens, Uckfield.

WANTED, a MARRIED COUPLE, without children, the husband to take charge of a small garden and to help in house occasionally when needed, the wife to be housekeeper and to perform head housemaid's duties; both to live in the house; good wages.—Apply, E. W., Sharp's Library, 4, Berkeley Square, W.

WANTED at once, strong active MAN, about 25, for the Kitchen Garden; Duty once a month; wages £1, no Bothy.—H. RANSON, The Gardens, Holmbury, Dorking.

WANTED, strong, active MAN for Kitchen Garden, Vegetables, Hardy Fruit; age 35; wages 20s. and cottage.—Apply, with full particulars, Mrs. EDWARD SMITH, The Heath, Bewdley, Worcestershire.

WANTED, strong MAN for Pleasure Grounds, and Knowledge of Motor Mower.—State age and experience to G. SIMS, Gardener, Cheverells, Dunstable, Beds.

WANTED, an experienced MAN (Single) for Bog, Rock and Water Garden; only those having good experience in that department need apply, enclosing copy of testimonials, age, wages required (without Bothy) to G. SMEETH, The Elms, Lymington, Hants.

WANTED, MAN (Inside), charge of Glass; must be well up Carnations, Chrysanthemums; state age, wage with Bothy.—G. F. CHISLETT, Danehurst Gardens, Uckfield.

WANTED, smart, active MAN at once; age about 25; with good general experience; wages 22s. per week; no Bothy; take duty.—Full particulars to the GARDENER, Ewell House, Ewell, Surrey.

WANTED, good MAN (Inside and Out); chiefly Herbaceous and Roses; wages 18s. and rooms.—W. COOKE, Pishiobury Park, Sawbridgeworth.

WANTED, LAWN HAND; experienced in Herbaceous Borders; alternate duty; good Bothy.—Apply, with full particulars, Mr. C. M. JONES, The Gardens, West Hatch, Chigwell, Essex.

WANTED, GARDENER (Single-handed) to take charge with help, about March 30th next or within a week or two of that date; married; smart, respectable, intelligent man; experience in Vines, Bedding Plants, Lawns, &c.; abstainer; one able to take charge small Electric Lighting Installation preferred; good house and garden close to work.—Apply, with original references and photo, to H. HAMMOND SCOTT, Esq., The Elms, King's Lynn, Norfolk.

WANTED, GARDENER (Single-handed); well up in Kitchen Garden, Flowering Shrubs, Roses, Herbaceous Plants; no need to apply unless have knowledge of Hardy Perennials.—WEISSMULLER, "Hill Crest," Runcorn, Cheshire.

WANTED, GARDENER (Under).—A smart Man, age 25, for Lawns, Vegetable and Pleasure Garden; strong and willing; must know something about Stoking for Greenhouses; none from Nurseries need apply.—Write, HEAD GARDENER, "Pilgrim's Holt," Margery, Reigate, for particulars.

WANTED, a strong, active Man as FOREMAN, for Decorating, Conservatory and Pleasure Ground; wages 18s. per week; Bothy, vegetables; four in Bothy.—State age and experience to J. BANTING, Tortworth Gardens, Falfield, Glos.

WANTED, FOREMAN (Inside).—Can any Gardener recommend a good Man as above; experienced in Fruit, Carnations, Orchids, Stove and Greenhouse Plants; eight employed here.—HY. COUSINS, Markree Castle Gardens, Collooney, Co. Sligo.

WANTED, pushing FOREMAN (under Glass); abstainer; not under 24; state height; 18s. to start and Bothy.—SILCOCK, Hollycombe Gardens, Liphook.

WANTED, two FOREMEN; one for the Pleasure Grounds; experienced in Clipping Shrubs, Pruning Roses, &c. Also one for the Kitchen Garden; able to produce vegetables in quantity, also well up in Pruning, &c.; wages £1 each weekly and Bothy.—Full particulars and copies of references to HENRY LYDIATT, Grimsthorpe Gardens, Bourne.

WANTED, FOREMAN; a Young Man who has held a similar position in a good garden; must be skilled in the culture of Fruit and Flowers, and experienced in House and Table Decorations; state full particulars of experience and age; wages 20s., Bothy, milk, and attendance.—HEAD GARDENER, Headfort, Kells, Co. Meath.

WANTED, FOREMAN (Outside).—Can any Gardener recommend smart, active Man (Scotchman preferred) as above; experienced Roses, Herbaceous, and Water Garden, and general Pleasure Ground work; knowledge of Budding and Grafting; wages £1 per week; no Bothy.—A. MacGREGOR, The Gardens, St. Osyth's Priory, Colchester.

WANTED at once, JOURNEYMAN (Inside and Out); chiefly Outside; good experience; 18s. per week; copies of testimonials.—HEAD GARDENER, Colston Bassett, Bingham, Notts.

WANTED, JOURNEYMAN.—Can any Gardener recommend a willing Man as above (Inside and Out); wages 18s. per week; Bothy; 3s. for duty every third week; overtime, for which nothing is paid; age about 22.—G. W. TURNER, Weardale Gardens, Brasted Chart, Kent.

WANTED, JOURNEYMAN for the Fruit Houses, where Peaches are extensively grown; age about 21; duty every third week; Bothy; overtime in summer paid for.—Particulars to GEO. MILLER, The Gardens, Mount Clare, Roehampton, S.W.

WANTED, JOURNEYMAN (Second, Inside).—Can any Gardener recommend me immediately a smart, active Young Man; wages 16s. per week and Bothy; charge Conservatory, Greenhouse, and Frames.—Age and particulars to C. GOVES, Walton Hall Gardens, Warrington.

WANTED, smart, active JOURNEYMAN (Working) for Plant Houses; must be good hand at Malmaison and winter-flowering Carnations and other Greenhouse and Stove-flowering Stuff; age about 24; wages 18s., Bothy, &c.—Apply, with copies of testimonials, to W. POTTS, Somerley Gardens, Ringwood, Hants.

WANTED, JOURNEYMAN (Outside); experienced; one with knowledge of Motor Mower preferred; wages 18s. weekly and Bothy.—Apply, GARDENER, Hartham Park Gardens, Corsham, Wilts.

WANTED, Young Man as JOURNEYMAN (Second, Inside); must have had experience with plants, Vines, Peach Trees, &c; wages 17s. per week; Bothy, vegetables, milk.—Apply, J. COLLIER, Gatton Park Gardens, Reigate.

WANTED, on April 8, a YOUNG MAN with some experience of Kitchen Garden work and Pleasure Grounds; must be active and energetic; wages to commence at 16s. per week, no Bothy.—Apply by letter to CLAUDE BARTON, Ingleborough Estate Office, Clapham, Yorkshire.

WANTED, strong, active YOUNG MAN, Inside and Out; age not under 20; alternate duty; wages 18s. per week; no Bothy.—Apply, stating experience, to HEAD GARDENER, Brettenham Park, Suffolk.

WANTED, strong, active YOUNG MAN, chiefly for Kitchen Garden; able to take duty; wage 15s. per week and Bothy.—Apply, stating age and experience, BLAKE, Clandon Park Gardens, Guildford.

WANTED, YOUNG MAN; chiefly for Inside; must have had previous experience; smart and active; wages 16s.—E. POWELL, Pickenham Hall Gardens, Swaffham, Norfolk.

WANTED, YOUNG MAN, not under 21, for Kitchen Garden and Pleasure Grounds; able to take duty; wages 18s. weekly with Bothy.—C. A. HANSON, The Gardens, Ashby, Folville, Melton Mowbray.

WANTED, a strong, active YOUNG MAN for Kitchen Garden; assist with Duty every third week; wages to commence 18s., overtime paid; age about 24.—W. JONES, Hadlow Castle Gardens, Hadlow, Kent.

WANTED, strong, willing Young Man, not under 20 years of age, as GENERAL HELP in Gardens; wages 16s.—Mrs. EDWARD SMITH, The Heath, Bewdley, Worcestershire.

WANTED, IMPROVER for Pleasure Grounds and help Decorator; must be active and strong; age 17 to 19 years; wages 14s. per week with Bothy.—Apply, F. FENNER, Holker Gardens, Cark-in-Cartmel, Lancs.

WANTED, GROOM-GARDENER; handy youth.—Apply, 52, Nightingale Lane, Balham.

TRADE.

WANTED, FOREMAN for Glass Department; must be experienced in Grafting Roses, &c., and general Soft-wooded Propagating; good references indispensable.—Particulars to T. H. ENGLISH & CO., Eventyde Nurseries, Gloucester.

WANTED, LEADING HAND for Grapes, Figs, Tomatos, Fires, putting on Air, &c.—State experience, wages, references, to A. Z., Box 20, 41, Wellington Street, Covent Garden, W.C.

WANTED, ROSE GROWER.—ALEX. DICKSON & SONS, LTD., Hawlmark, Newtownards, Ireland, require a thoroughly practical Man, with good experience in exhibiting, to act under Principal; only competent men may apply, stating experience, with references and wages required.

WANTED, ROSE GROWER; reliable Budder and Grafter essential; position of promise for energetic Young Man.—State experience fully and wages required, B. G., Box 24, 41, Wellington Street, Covent Garden, W.C.

WANTED, FIRST HAND (Outside); married man; good Budder; house found.—State wages, experience, &c., MANAGER, Clapton Lane Nurseries, Clevedon.

WANTED, an active MAN to take charge of our Outdoor Department of Hardy Climbing Plants, &c.; execute and pack orders, &c.—Reply, stating experience, references, and wages required, to GEO. JACKMAN & SON, Woking Nurseries, Surrey.

WANTED, strong MAN (18 to 20), under good Foreman; Cucumbers, Tomatos, Bedding Stuff, &c.—State age, wage, height and experience, RAISBRICK, Mansfield Nursery, Bingley, Yorks.

WANTED, a good MAN for trained Trees; and 2 or 3 good NURSERY HANDS.—Apply, Gunyah Nurseries, Vine Road, Barnes.

WANTED, by a leading firm of Nurserymen, a MAN to control Landscape work; will require to be well experienced in Designing and carrying out new work, alterations, &c.—State experience, TAXUS, Box 20, 41, Wellington Street, Covent Garden, W.C.

WANTED, an active MAN for Nursery and Jobbing Work; near London; wages £1 1s. per week and cottage on premises.—State particulars as to age, experience and family, to PROGRESS, Box 2, 41, Wellington Street, Covent Garden, W.C.

WANTED, MAN for small Nursery; quick at Potting and Tying; permanency for reliable man; good character; abstainer.—All particulars, to A. S., Box 25, 41, Wellington Street, Covent Garden, W.C.

WANTED, a good, practical JOBBING GARDENER at Once.—MARK DELL, The Nurseries, Norbury, S.W.

WANTED, GLASSHOUSE HAND; experienced Market Growing Tomatos, Cucumbers, Peaches.—Full particulars age, height, wages, copy references, Mr. BULLEN, Hangleton Nurseries, Goring, near Worthing.

WANTED, JOURNEYMAN for Softwoods under Glass.—State age, wage, experience, with testimonials, to A. B., care of Hurst & Son, 152, Houndsditch, London.

WANTED, immediately, YOUNG MAN; used to growing Cucumbers for Market; quick tyer; state wages required.—OAKLANDS NURSERIES, Haslemere, Surrey.

WANTED, YOUNG MAN, between 25 and 30; good Jobbing Gardener; good reference.—Apply, T. WEBB, Villa Nursery, Rochester Square, N.W.

WANTED, willing, reliable and tidy Young Man; good knowledge either Orchids, Carnations, and Pot Stuff; competent to take charge in absence of Manager; state lowest wages required and references; good place to suitable hand.—Reply, S. W., Box 20, 41, Wellington Street, Covent Garden, W.C.

WANTED, Young Man as JOBBING and SCYTHE HAND.—Wage and particulars, R. RICHARDSON, Rokeby Nursery, Headstone Drive, Wealdstone, N.W

WANTED, YOUNG MAN with experience in Growing Tomatos and Chrysanthemums for Market.—Apply, giving references and salary required, H. T. MASON, Thorpe Lee, Egham.

WANTED, YOUNG MAN for Cucumbers, Tomatos, and Chrysanthemums.—State age, experience, and wage required with Bothy, to KNOWLE NURSERIES, Sidmouth, Devon.

WANTED, a YOUNG MAN for Greenhouses.—State experience, references, and wages required to GEO. JACKMAN & SON, Woking Nurseries, Surrey.

WANTED at once, for Market Nursery, two YOUNG MEN, one for Ferns and one for growing Tomatos; must have experience; permanent situation for suitable men.—Apply, with references and wages required, to TURNER BROS., Garston, Liverpool.

WANTED, an IMPROVER, about 18 or 19 years of age, in perpetual-flowering Carnations.—Apply, with references, wages expected, &c., to GEO. CLARKE, The Nurseries, March, Cambs.

WANTED, two IMPROVERS for provincial Nursery, Glass Department.—State age, wages, experience, with testimonials, to A. B., care of HURST & SON, 152, Houndsditch, London.

WANTED, IMPROVER, with experience in Bedding Plants, Tomatos, and Chrysanthemums; permanency.—SACKVILLE NURSERY CO., Hove.

WANTED, APPRENTICE; Gentlemanly Youth (three years); small premium.—Apply, by letter, V. J. LEWIS, Nurseryman, Orchard Nurseries, Hampton Hill, S.W.

WANTED, as CLERK, smart Young Man, capable of keeping day-books and sales ledger; must have had previous experience.—State age, experience, references, and wages required, JOHN PERKINS & SON, 52, Market Square, Northampton.

WILLS and SEGAR, Florists to His Majesty, South Kensington, London, will have vacancies after Easter for young Gardeners desiring a season's experience in general London Furnishing and Decorative work.—Apply by letter only.

WANTED, immediately, ASSISTANT FLORIST; must be quick at Wreath and Bouquet making, with a knowledge of ballroom and other decorations; willing to fill spare time in Greenhouses.—Apply, stating wages required, &c., DICKSON'S NURSERIES, Chester.

THE GARDENERS' CHRONICLE

ESTABLISHED 1841 — No. 3719

No. 1,319.—Vol. LI. {THIRD SERIES.} SATURDAY, APRIL 6, 1912. {Registered as a Newspaper.} {PRICE 3d. POST-FREE, 3½d.

SUBSCRIPTION—Inland, 15/-; Foreign, 17/6 [22fr. 10c.] [$4 26c.] per annum. Entered at the New York Post Office as second-class matter.

Postal Address—41, Wellington Street, Covent Garden, W.C. Telegraphic Address—"Gardchron, London." Telephone—Gerrard, 1543.

☞ **For CONTENTS see page 213.**

For Advertisement Charges see page iv.

Bedding Favourites.

WEBBS' BEDDING ASTER.—Rose, Dark Crimson, White, Purple, Pink, Light Blue, and mixed colours. Each, 1s. per packet. Collection of 6 distinct colours, separate, 3s., post free.

WEBBS' BEDDING STOCK. — Scarlet, Canary Yellow, Purple, Light Blue, White, Rose, and mixed colours. Each, 1s. per packet, post free. Collection of 6 distinct colours, separate, 3s., post free.—WEBB & SONS, The King's Seedsmen, Wordsley, Stourbridge.

BARR'S VEGETABLE AND FLOWER SEEDS of finest selected strains and tested growth. Descriptive Catalogue free.

BARR'S HARDY PERENNIALS, ALPINES, AQUATICS, CLIMBERS, ETC., FOR SPRING PLANTING. Descriptive Catalogue, with Cultural Notes, free.

BARR'S BEAUTIFUL LILIES, Gladioli, Cannas, Montbretias, Tigridias, etc., for Spring Planting. Special Catalogue free on application. BARR & SONS, 11, 12 & 13, King St., Covent Garden, London.

LISSADELL ALPINE & HERBACEOUS PLANTS.—Write for our new illustrated and enlarged List, containing many beautiful novelties at moderate prices. Also List of Seeds collected from above in 1911.
J. A. COOPER, Lissadell (No. 2), Sligo, Ireland.

THE BEST OF ALPINES, and new and old-fashioned Perennials, Rock Gardens, Borders, Water Gardens, and Wild Gardens designed and planted. Illustrated Catalogue (free).—THE GUILDFORD HARDY PLANT NURSERY, Guildford.

THE Popularity of "XL ALL" Specialities increases every year. All gardeners proclaim that nothing equals these celebrated preparations. "XL ALL" NICOTINE VAPORISING COMPOUND, the gardeners' favourite Fumigant, both Liquid and Cake. "XL ALL" NICOTINE INSECTICIDE WASH for Syringing, Dipping and Dressing Fruit Trees and Plants; Mealy Bug, Scale, etc., cannot exist where this is used. "XL ALL" INSECTICIDE WASH B (*sine* Nicotine), best non-poisonous Wash on the Market. No licence required to sell this. Other preparations of great renown are:—"XL ALL" WEED KILLER, "XL ALL" FERTILISER, "XL ALL" ROSE MANURE. Richards' GREEN SUNSHADE, finest powder shading on the market, 1s. packet, does 100 feet of glass. Don't forget to ask your Nurseryman or Seedsman for my small pink list.—G. H. RICHARDS, Manufacturer, 234, Borough High Street, London, S.E.

GREENHOUSE PAINTING & GLAZING "Vitrolite" superior to White Lead Paint, 9/- per gall. "Plastine" supersedes Putty, 16/- per cwt. Full particulars from W. CARSON & SONS, Grove Works, Battersea. Agents throughout the country.

HUTS FOR THE GARDEN. — Fruit Rooms, Potting Sheds, Workshops, Cycle Houses, Boot Rooms, Servants' Mess Rooms, Children's Playrooms, &c. Send for Illustrated Catalogue, free.
BOULTON & PAUL, Ltd., Norwich.

GISHURST COMPOUND is harmless in use; its soluble Sulphur, &c., has for 40 years cured Blights and Fungus on Plants, and is good for washing unhealthy dogs. Gishurstine keeps boots dry in all weathers; they will polish. Good for Harness.
Wholesale from—
PRICE'S PATENT CANDLE CO. Ltd., London.

SUTTON'S Superb BEDDING ASTERS. A splendid selection, specially adapted for producing masses of colour in beds. Scarlet, Delicate Rose, Bright Rose, Blue, Lilac (Mauve), White. Each per packet, 1s. Collection of the six colours, separate, 5s.

SUTTON'S Superb BEDDING STOCKS. Selected with great care, expressly for bedding purposes. White, Yellow, Blush-rose, Peach-blossom, Pink, Terra Cotta, Carmine-pink, Scarlet, Mauve, Blue and Purple. Each per packet, 1s.

SUTTON & SONS, The King's Seedsmen, READING.

BATH'S SELECT SEEDS.—New Illustrated Catalogue of Choice Vegetable and Flower Seeds, with full cultural notes, is now ready, and will be sent post free on application.
(Dept. A), R. H. BATH, Ltd., The Floral Farms, Wisbech.

FRUITING VINES IN POTS.—Muscat of Alexandria, and leading Market varieties. We make Vines a speciality.
G. COLEMAN, The Vineries, Burgess Hill, Sussex.

ALPINES & HERBACEOUS PLANTS, —Himalayan and other rare Rhododendrons, rare Shrubs, Construction of Rockeries. Catalogues ready.
G. REUTHE, Keston, Kent.

New Phloxes.

GUNN & SONS were Awarded a Silver Cup at the Great Show at Olympia. New Lists now ready. Address: Olton, Warwickshire.

BUNYARD'S CATALOGUES, free on application.
BORDER CARNATIONS, 50 varieties.
ROSES AND OTHER CLIMBERS, in Pots.
HERBACEOUS AND AQUATIC PLANTS for present planting.
GEORGE BUNYARD & CO., Ltd., Royal Nurseries, Maidstone. Established 1796.

DICKSONS Horticultural Manure & other high-class Fertilizers; also Dicksons Improved Mushroom Spawn. Priced Circulars free on application to DICKSONS, Royal Seed Warehouses & Nurseries, Chester

AUTO SHREDS FUMIGANT kills Leaf-mining maggot, insects in greenhouses, frames. For 1,000 cubic feet, 6d.; 10,000, 3s. 6d. No apparatus.
WM. DARLINGTON & SONS, Patentees, Hackney, N.E.

RITCHIE'S SWEET PEAS.—Universally acknowledged to be the best procurable; Exhibition collection, containing the best 12 Spencers, viz., Asta Ohn, Clara Curtis, Edna Unwin, Elsie Herbert, Gladys Burt, Jno. Ingman, Marj. Linzee, Maud Holmes, Mrs. Sykes, Mrs. Breadmore, Prince Asturias, Tennant Spencer, 30 seeds each, 2s. 6d., post free; Sweet Pea list free on request.—
A. S. RITCHIE & CO., Seedsmen, Belfast.

ORDER TRELLIS-WORK NOW.—Get our book on Trellis-work, showing Screens, Wall Panels, Window Surrounds, Arches, Arbours, &c., post free.
BOULTON & PAUL, Ltd., Norwich.

DOUGLAS'S CARNATIONS & PINKS, border and perpetual, are noted all over the world. 5 Gold Medals, R.H.S., 450 Medals and Cups. Newest and best varieties at most reasonable prices, all ready for planting or potting on. Finest hand fertilized seed only sold. Carnation and Picotee seed, all types, 1s. 6d. to 2s. 6d. packet. Auricula, Pink, Polyanthus, finest strain in existence, all 1911 fine crop, now ready for sowing. Send for catalogue, Edenside, Gt. Bookham.

KELWAY'S "Manual of Horticulture" is the best of all Garden Books, 2s., post free. From ——, Esq., Northwood, Middlesex, September 28th, 1911: "I find that I have never forwarded 2s. for your lovely Catalogue you sent me some weeks since. It would be cheap at five times the price, and I sincerely regret the oversight."—KELWAY & SON, Langport, Somerset.

THE MODERN HERBACEOUS BORDER.—Full particulars and prices of Kelway Borders packed, arranged for planting, to flower in tasteful schemes of colour, from—KELWAY & SON, The Royal Horticulturists, Langport, Somerset. From ——, Esq., Putney, S.W. "The Delphiniums, Carnations, and Picotees have arrived safely, and beautifully packed. There were two plants more than I had a right to expect. Everything is obviously in splendid condition, and I thank you for your careful attention to my humble order."

NOW is the time to plant Kelway's Delphiniums—fine, bold upstanding plants with a wealth of bloom in all shades of blue and purple. They are from strong country-grown stocks, and flourish under almost all conditions. From ——, Esq., ——, Ravenscourt Park, London, W.: "The Delphiniums you sent me some years ago have been a great success, and have been much admired." Choice named collections, 15s., 24s., 34s., 56s. a dozen.—KELWAY & SON, The Royal Horticulturists, Langport, Somerset.

GARDEN PESTS.—Cross's "Clubicide" is the Gardeners' Insurance against damage by Eelworm, Wireworm, Slugs, Maggot, and all Disease Germs and Insect Pests. Kills all harmful Bacteria, reinvigorates the soil, stimulates plant life. In 1s. flasks and ½-gall. and 1 gall. drums. From all Seedsmen.
Sole Manufrs.: A. CROSS & SONS, Ltd., Glasgow.

OSMUNDA for Orchids.—Consignments arrive fortnightly. 2s. 6d. per bushel; per bag, 8s. 6d.
SANDER & SONS, St. Albans.

WM. DUNCAN TUCKER & SONS, Ltd., 27, Cannon Street, London, E.C.; Works, Tottenham. Conservatories, Winter Gardens, Vineries, Peach-houses, Portable Buildings, etc. Catalogue gratis.

MACKENZIE and MONCUR, Limited, Hothouse Builders and Heating Engineers, London, Edinburgh, and Glasgow. By Special Appointment to H.M. The King.
London Office: 8, CAMDEN ROAD, N.W.

Roses and Herbaceous Plants.

GUNN & SONS were awarded the 25 Guinea Challenge Cup in each collection at the Leamington Show. Up-to-date List for each now ready.
Address: Olton, Warwickshire.

WALTERS & CO., Morland Rd., Croydon, Makers of Lath Roller Greenhouse Blinds; also Pinoleum, Scrims and Tiffany Blinds. Prices and samples free. Established 20 years.

HARRISON'S "RELIABLE" WEED KILLER.—Best and cheapest. See p. iv. this issue.

CUTHBERT'S SPECIALITE MUSHROOM SPAWN.—NEW SPAWN NOW READY. We continue to receive the most gratifying testimonials as to the productiveness and good quality of our Spawn. Per bushel, 5s.—R. and G. CUTHBERT, Seed and Bulb Merchants, Southgate, Middlesex.

VERBENAS.—The best sorts are Miss Willmott (pink), Princess of Wales (deep blue), Queen of Whites, King of Scarlets, and Lovely Blue (light blue); clean, healthy, strong young plants; carriage paid; 10s. per 100, cash.—H. DUDDERIDGE, The Dorset Nurseries, Blandford.

Royal International Horticultural Exhibition,

MAY, 1912.

MESSRS. PROTHEROE & MORRIS,

Horticultural Auctioneers, 67 and 68, Cheapside, London, E.C., beg to announce that they have arranged to hold a series of important Auction Sales of

RARE ORCHIDS

from many of the best known and finest Collections in Great Britain and on the Continent, as well as from noted growers, at their Central Auction Rooms, during the period covered by the Show, as follows:—

MAY 21st—200 semi-established unflowered plants of **Cattleya Aurea,** from an entirely new district, fine, well-leaved, healthy plants with strong growths or dormant eyes. Together with other **Valuable Orchids.**

MAY 23rd—By order of J. J. Holden, Esq., of Southport, Lancs. Many magnificent **Cattleyas,** including some of the finest **White varieties** in cultivation, rare Cypripediums and the best Odontoglossums.

MAY 24th—By order of Francis Wellesley, Esq., Westfield Common, Woking. Exceedingly choice and rare **Cypripediums, Cattleyas, &c.,** from this Collection.

MAY 28th—By order of C. Cookson, Esq., Oakwood, Wylam, Northumberland. Many **rare and valuable** varieties from this celebrated Collection.

MAY 29th—By order of Messrs. Sander and Sons, St. Albans, A wonderful lot of **Choice Plants** from these renowned growers.

MAY 30th—By order of R. Brooman White, Esq., Arddarroch, Garelochhead, Dumbartonshire. Many of the finest **Odontoglossum crispum** extant; an exceedingly fine lot of choice hybrid Odontoglossums.

MAY 31st—**Rare and Valuable Orchids** from various sources. Gentlemen desirous of including plants of merit in this sale are requested to send particulars as early as possible.

Messrs. PROTHEROE & MORRIS will be pleased to forward Catalogues of these Sales, as soon as published, to any applicants.

CENTRAL SALE ROOMS, 67 and 68, CHEAPSIDE, E.C.

SALES BY AUCTION.

Wednesday and Friday next.

WEDNESDAY NEXT, April 10th, at 12 o'Clock.—Japanese Liliums in large variety, Begonias, Gloxinias, Gladiolus, Tuberoses, Lily of Valley, Iris, Carnations, Pinks, &c., Herbaceous and Rock Plants, and Perennials.

At 1.30 o'Clock.—4,000 ROSES, English and Continental, Standards, Dwarfs, Climbers, &c.

At 5 o'Clock.—100 lots of Ornamental and Decorative Palms and Plants, Azalea indica, Rhododendrons, Aspidistras, Standard Bays, &c., from Belgium, also Stove and Greenhouse Plants.

FRIDAY NEXT, April 12th, at 12 o'Clock.—A choice assortment of Perennials and Herbaceous Plants, Lily of Valley, Spiræas, Iris, Pæonies, &c., Japanese Liliums, Gladiolus, Begonias, and other Hardy Bulbs.

At 1.30 o'Clock.—1,500 ROSES, Standard, Dwarf, Climbing, &c.

MESSRS. PROTHEROE & MORRIS will SELL the above by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, E.C. On view mornings of Sale and Catalogues had.

Friday next, April 12th, at 12.45 o'Clock.

A consignment of about 200 lots of imported Orchids, comprising Odontoglossum grande, Oncidium Leucochilum, Lælia anceps and Lycaste Skinneri. Also established Oncidium oblongatum. A small importation of about 200 Cattleya Mossiæ, received direct in good condition. 450 lots of choice established Orchids in variety from various sources. Orchids in flower and bud.

MESSRS. PROTHEROE & MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C. On view morning of Sale and Catalogues had.

STEVENS' AUCTION ROOMS. ESTAB. 1760.

WEDNESDAY NEXT at 12.30.

MR. J. C. STEVENS will SELL by AUCTION at his rooms, 38, King Street, Covent Garden, London, W.C., quantities of Standard, Dwarf, and Climbing Roses, Rhododendrons, Azaleas, Japanese Lily bulbs, Begonias, Gladioli, &c. Standard and Pyramid Bay trees, Box trees, Latanias, and other decorative plants.

On view morning of Sale. Catalogues had on application. Lots can be purchased for gentlemen unable to attend the sale.

Removed for convenience of Sale.

SALVAGE.

MR. WILLIAM F. LAING will SELL by AUCTION, at the Warehouse, 29, Fulbourne Street, Whitechapel Road, London, E., on WEDNESDAY, April 17th, 1912, at 12 o'Clock, Stock of Wholesale Horticulturist, comprising 400 doz. Pruning Knives, Scissors and Secateurs, 150 high-class Garden Syringes (Abol and other), 50 doz. Barometers and Hot-bed Spirit Tubes, Hammers, Asparagus Knives, Saws, Reaping Hooks, Scythes, Edging Knives, Grass Shears, Tree Pruners, &c. 300 doz. Hoes, Rakes, Trowels, Forks, &c. Fumigators, Fly Brushes, Water Cans, 50,000 Garden Sticks and Canes, 2 tons Bouquet Wire, 2 tons assorted Twines, 6 tons Guano, Clay's Fertilizer, Vaporites, &c. Lawn Sand, Netting, Bamboo Flower Stands, Fancy Flower Baskets, Hones, Stones, and Scythe Stones. 3 tons Raffia, 500,000 Wood Labels, 150 doz. Hyacinths and other Glasses, Fern Cases, Flower Stands, Enamel and other Paints, Garden Rollers, Lawn Mowers, 25 Cases Horticultural Glass and large assortment of miscellaneous goods which are in good condition. Goods on view day previous and morning of Sale. Catalogues on the premises and of the Auctioneer, 148, Whitechapel Road, London, E., and Mitcham, Surrey. Telephone: 3114 Central.

BUSINESSES FOR SALE, &c.

Over 100 Nurseries, Market Gardens, Florist & Seed

BUSINESSES to be DISPOSED OF.

MESSRS. PROTHEROE and MORRIS' HORTICULTURAL REGISTER contains full particulars of the above, and can be obtained gratis at—67 and 68, Cheapside, London, E.C.

FOR SALE, through illness, old-established NURSERY SEED and FLORISTS' BUSINESS; eight-roomed house; spacious shop; 10 houses (heated); three acres; long lease; in centre of good residential town, 20 miles from London; all well stocked and in thorough working order; would suit partners.—Particulars, G. N., Box 21, 41, Wellington Street, Covent Garden, W.C.

GREENHOUSES, garden, one acre, convenient dwelling house, freehold, for SALE; 450 feet run glass, 100 lights; well stocked; specialities—Tomatos, Bedding Plants; excellent opportunity; satisfactory reasons.—WOODMANSEY, Cambridge Street, Bridlington.

GREENGROCER'S and FLORIST'S.—Exceptional opening in this block of shops; rent from £70. Boots', Sainsbury and Express Dairy Co. already open in this established market; population 150,000; immediate possession.—OWNER, 3, Walm Lane, Willesden Green, London, N.W.

PARTNERSHIPS.

ADVERTISER, young, with capital business abilities; well up in all branches of the profession, desires a Berth in well established Firm; view Partnership or otherwise.—HORTUS, Box 21, 41, Wellington Street, Covent Garden, W.C.

PUBLISHERS' NOTICES.

Present-Day Gardening.

Edited by R. HOOPER PEARSON, Managing Editor of the GARDENERS' CHRONICLE. Now Ready. Post free, **1/9** each.

Numerous Beautifully Coloured Plates are contained in Each Volume.

1.—**SWEET PEAS.** By HORACE J. WRIGHT, late Secretary and Chairman of the National Sweet Pea Society. With Chapter on "Sweet Peas for Exhibition," by THOS. STEVENSON.

2.—**PANSIES, VIOLAS, AND VIOLETS.** By WILLIAM CUTHBERTSON, J.P., and R. HOOPER PEARSON.

3.—**DAFFODILS.** By the Rev. J. JACOB.

4.—**ORCHIDS.** By JAMES O'BRIEN, V.M.H., Secretary of the Orchid Committee of the Royal Horticultural Society.

5.—**ROOT & STEM VEGETABLES.** By ALEXANDER DEAN, V.M.H., Chairman of the National Vegetable Society.

6.—**CARNATIONS & PINKS.** By T. H. COOK, Head Gardener at Sandringham; JAMES DOUGLAS, V.M.H., and J. F. McLEOD, Head Gardener to Mr. Pierpont Morgan. Contains 8 full-page coloured plates.

7.—**RHODODENDRONS & AZALEAS.** By W. WATSON, with preface by Sir F. W. MOORE, M.A. (the first popular volume published on this subject). Contains 8 full-page coloured plates.

8.—**LILIES.** By A. GROVE, F.L.S., with preface by H. J. ELWES, F.R.S. Contains 8 coloured plates.

9.—**APPLES & PEARS.** By GEORGE BUNYARD, V.M.H. Contains 8 coloured plates.

10.—**ROSES.** By H. R. DARLINGTON, with 8 full-page coloured plates. A double volume, price **2/10**, post free. Special presentation edition, with beautiful cover design, in cloth gilt, gilt top, price **3/10**, post free.

11.—**IRISES.** By W. R. DYKES, M.A., with preface by PROF. BAYLEY BALFOUR. 8 full-page coloured plates.

THE PUBLISHER,

"Gardeners' Chronicle" Offices, 41, Wellington St., Covent Garden, London, W.C.

THE
Gardeners' Chronicle

No. 1,319.—SATURDAY, April 6, 1912.

CONTENTS.

Apples in Ontario ... 222
Australia, notes from ... 224
Barnes, Mr. G. F., retirement of 224
Books, notices of—
The Carnation Year Book 223
The Modern Culture of Sweet Peas ... 223
Chrysanthemum King of Plumes 227
Daffodils, prizes for Leedsii 221
Dianthus callizonus ... 227
Economic Biologists, Association of ... 224
Egypt, chemical fertilisers in 222
Elms, British 216
Fruit buds, birds and ... 227
Hafod, Cardiganshire... 214
Irish department of agriculture ... 222, 225
Iris tuberosa 227
Maize crop in Argentina 224
Manchester, horticulture in 226
Market fruit garden, the 218
Medal of the North of England Horticultural Society 224
Obituary—
Gow, William ... 231
Pentland, Francis ... 231
Parasitic fungi, the nature of 215
Parks, cost of the Royal 223
Plants, new or noteworthy—
Hybrid Rehmannias 218
Potatos, drying 221
Rosary, the—
Cultural notes for April 214
The Orleans Rose ... 214
School gardens, extent of... 223
Scotland, early flowers in 227
Scotland, notes from ... 225
Shirley Society, the old 227
Societies—
Liverpool Hort. ... 230
Manchester and N. of England Orchid ... 229
Royal Counties Agricultural 222
Royal Horticultural... 227
Royal Meteorological 230
Royal Society of Edinburgh... 230
Société Française d'Hort de Londres 231
Torquay District Gardeners 230
Strawberries, failure of 226
Trees and road tar ... 223
Tulipa Kaufmanniana.. 217
Turnip, the ... 213
Udaipur, the gardens of 222
Violas at Wisley, trial of 226
Week's work, the 220, 221
West Indies, notes from 224

ILLUSTRATIONS.

Cattleya Dirce "Westonbirt variety" 226
Gow, William, portrait of the late 231
Hafod, Cardiganshire, views at 214, 215
Magnolia salicifolia 223
Map showing the distribution in England of Ulmus sativa 216
Medal of the North of England Horticultural Society 224
Philadelphus microphyllus, a flowering spray of ... 225
Rehmannia kewensis 218
Strawberry, leaf-spot disease of 219
Tulipa Kaufmanniana 217

THE TURNIP.

THE Turnip, though a common vegetable, is not without its points of interest. It has a very ancient history, and was esteemed by the Greeks as well for its physical as for its edible properties. The Roman peasantry was fed to a large extent on its roots. Pliny mentions three distinct sorts, and chronicles a root which weighed 40 lbs. Columella reports on the turnip fly, to circumvent which the seeds were mixed with soot and sprinkled with water to render the sap bitter and distasteful to the fly! While the Roman agriculturist sowed his Basil and Hemp seed with abundant curses, he stole out in a state of nudity to sow his Turnip seeds, at the same time praying to the gods and exclaiming: "I sow this for myself and my neighbour," Turnips being free to everybody, just as they were in Scotland till recently.

Though Hume's assertion that "It was not till the end of Henry VIII.'s reign that any Salads, Carrots, Turnips, or other edible roots were produced in England" has been generally accepted as fact, it is known that the historian was mistaken, all having been cultivated long before that period. The word "Turnip" does not occur till the time of Edward V., but Naep and Navet, the former an anglicised form of Napus, and still current in the north, and the latter the Gallic form of the same word were in use centuries earlier. While Napus was the name for the plant, Rapum distinguished the bulb. Lyte distinguishes the "round Rape or Turnep" as Rapa, the "long Rape or Navet" as Napus, and "wild Rapes or Rampion" as Rapum. The Napus of Turner is explained thus: "I have hearde sume cal it in Englishe a turnepe, and other some a naved or navet, long rape or navet gentle." Dr. Prior derived Turnip from Terræ Napus, but there seems to be no authority for this beyond his bare assertion, and I am extremely doubtful if these two words are to be found anywhere in conjunction. Lyte mentions "his roote or turneppes," and discribing the root of Orobanche, calls it a "turne or pear." Not improbably, therefore, "turn" is another name for round, "turn-nepe" being the round Nepe, to distinguish it from the long Nepe or Navet. John Evelyn is the first to spell Turnip as we do with an "i." Gerarde, in his gossipy way, relates that the Turnips of a small variety grown at Hackney and "brought from that village to Cheapside Market, are the best that ever I tasted." Parkinson's "best kinde is known to be flat with a small pigges tail-like roote," and to show how gardeners valued Turnips he adds they were very particular to preserve the strain true. Evelyn, in *Acetaria*, has a lucid description of Turnips, the yellow from Denmark being preferred to all others. The red Bohemian—named by Lyte the Bohem—was sown on hot-beds for using in salads. For a like purpose the stalks of common Turnips when they began to bud were also in request. Those running to seed were utilised by taking the stalks, peeling and tying them in bundles and presenting them at table cooked instead of Asparagus. Enveloped in paper coverings, Turnips were also roasted under hot embers and eaten with sugar and butter, and they were sometimes mixed with an equal bulk of Wheat Meal and baked and eaten as bread, even "at the greatest Person's Tables." A year or two earlier than Evelyn, Donaldson, the earliest writer on Husbandry in Scotland, remarks on Turnips, that "the commonest way they are made use of are boyled and broken, and stewed with butter and new milk. Yea, some make bread of them, by mixing them with Oats or Barley Meal after they are broken and stewed with milk; others parboyle them and bake them with Apples after the manner of tarts." In Switzers' *Catalogue of Seeds* (1731) only four kinds are noted—the Early White Dutch; Bohemia, Hackney or Red; Yellow from Germany, and Navew, or long French, and these varieties continued down to last century as the only named ones with the exception of the Black-skinned.

Turnips at an early period formed a large part of the food of the common people on the Continent, not only cooked, but raw. Gerarde states that the Welsh also ate the roots uncooked, and Gay mentions "sweet Turnips" as the food of Blouzelind. It was long a standing joke in England that Turnips were the only fruit that the sister country produced, and, indeed, they were there consumed as a delicacy. Travellers in the 18th century never failed to remark on the custom, and Colonel Topham in 1774 was amused at Turnips being offered to him at dessert. Justice, 20 years earlier tells how gardeners tried to excel each other in having the Early Dutch ready early in May for eating raw. In *Humphry Clinker* it is a yellow variety that is mentioned and said to be eaten as "whets" at dinner. "They"—the Turnips—"are small and conical, of a yellowish colour, with a very thin skin," and, again, "The Turnips in this country are as much superior in sweetness, delicacy, and flavour to those in England as a Musk-Melon is to the stock of a Cabbage," and it will be remembered that Cobbett said of the yellow Scotch Turnip that if it did come from Scotland, "there is something good that is Scotch at any rate"! The Creel wives of Musselburgh, like the Newhaven fish wives with fish, made the streets of Edinburgh resound with their cry, "Neeps like succar! Neeps like succar!" Whether the Turnip north of the Tweed retains its supremacy is now, I fear, a debatable question.

It is barely credible that Turnips, as a field crop, when grown at all, were sown on barley stubble in exactly the same manner as related by writers on Roman husbandry. Hartlib showed a better way, but little or no progress was made till Tull introduced drill culture. When grown in the neighbourhood of London in fields, the seeds were sown broadcast, and singled with hoes to 6 inches apart. Gardeners in private establishments were permitted to contract to single them, for which 7s. per acre was paid. They were so adept at the work that Laurence called them "dextrous artists," half an acre being a day's work, but it is not improbable that these artists in Turnip hoeing went to work when the lark began to sing and left off when the nightingale commenced her lay. Cockburn of Ormiston sowed Turnips in fields in 1725, probably the first to do so in Scotland, but many years passed before farmers adopted the practice. The "Swede" was introduced in 1772 by Dickson of Perth, but 30 years passed before it was in general cultivation. Besides being a farmers' root, the Turnip is an excellent garden vegetable, the roots being delicious cooked and the sprouts in spring, when vegetables are invariably scarce, a good substitute for Sea-kale.

A few words in conclusion will show that the Greeks had followers in England who discovered in the Turnip important medicinal properties. Langham, in *The Garden of Health*, that repository of long-forgotten receipts has no fewer than 29 receipts for long Rapes or Turnips. "Rapes" here also represented the plant as a rule, and the roots were "Turneps." Seeds were also utilised, and, besides other uses, they were employed to "beautifie the face and all the body," for "kibes," whitlows, the gout, headaches, and other complaints. The following is rather drastic: "Seethe Rape in oyle, and anoint thy head therewith for the Frensie, and thow shalt either sleep or die"! If one happened to be poisoned, then: "Drinke presently the seeds or *roots* of Turneps." It is interesting to know that a medicine was made "neare to Linne" from Rapes, etc., "very profitable in our Commonwealth." *R. P. Brotherston.*

THE ROSARY.

CULTURAL NOTES FOR APRIL.

Any further planting should be carried out with pot-plants, even though the expense is greater. All pruning should be completed during the first half of April. Stir the soil with the hoe whenever the conditions are suitable: few subjects benefit more by a constant moving of the surface soil than Roses. Stocks left over from grafting will now be pushing into growth sufficiently to allow the bark to be lifted for budding. Those that are backward in this respect may be afforded weak liquid manures and given every encouragement to cause the sap to become active. The earliest forced Roses under glass will generally supply plenty of suitable buds, which may be inserted in forward stocks in the ordinary way. This provides a capital method of increasing choice, new or scarce varieties of Roses. If budded early, many of the plants may be cut down to the bud after it is united well with the stock. By putting a little mastic or grafting wax upon the cut before it has become too much wetted by the sap, the inserted buds will grow and form good heads by next season. Green shoots, a little more than half-ripened, will root freely under glass in a compost consisting of loam, leaf-mould and sand in equal proportions. Give the cuttings one good watering, and then keep them under close conditions until roots have developed. After hardening them gradually, the rooted cuttings may be potted up and grown on in the ordinary way. Take care not to break or even bruise the new roots, which are particularly tender and brittle. Let the plants be kept close again for a short time after the first potting. Employ a stronger compost at each successive shift and use relatively small pots. Roses under glass need a slight shading during periods of bright sunshne: ordinary herring netting affords just sufficient protection to break the sun's glare; later on it may be used a double thickness. Fish netting is cheap, effective, and readily removed at any time.

Roses grafted during winter may be shifted once more, if they are destined to remain in pots. In this establishment we propagate a large number of the dwarf Polyantha varieties by grafting, because it is often a difficult matter to obtain suitable buds for open-ground working, planting them in well-prepared ground as soon as danger from frosts is passed. Should the ground be not quite ready, it must be attended to at once. I have found it an excellent plan to stand the Roses in the meantime in cooler quarters during the present month, and turn them outside in May. Roses are not harmed by a fairly severe frost if they are treated in this way, but their hardening must be gradual. Let them be planted quite firmly, and always cover the union of scion and stock with about two or three inches of soil. Planting in this manner favours a freer growth of the lowest eye on the graft, and assists in making a firmer union. By the end of this month many of the buds inserted last summer will be pushing up from both dwarf and standard plants. Look very closely for suckers and remove them if present before drawing a little of the surrounding soil up to the growing buds of dwarfs: it is an excellent plan to first scatter a little prepared compost around the base of the plants. Old compost from a pit or frame or light soil with a suspicion of some concentrated manure (bone meal is very suitable) will help the dwarfs to develop their own roots. It also aids the union by keeping both scion and stock softer, while not the least advantage comes from the extra support afforded at a time when the young Rose is too small to tie to sticks. Writing of sticks reminds me that a goodly number of these should be prepared for use. Sticks and stakes are more lasting when the bark is removed, and bark only harbours insects. It is well to have the sticks in various sizes and lengths: small Hop-poles are useful for standards. The present is a good time to lift and pot a number of dwarf stocks for budding or grafting next season. Use a stiff, rather rich loam, and plunge the pots in ashes or cocoanut fibre and sand on a sheltered border, so that the plants may become well established during the coming summer.

Standards and climbers in pots will need extra food, either in the way of mulchings or liquid manures. Large pots are not needed for standards; I have had much the best results when growing them in relatively small pots. *Practice.*

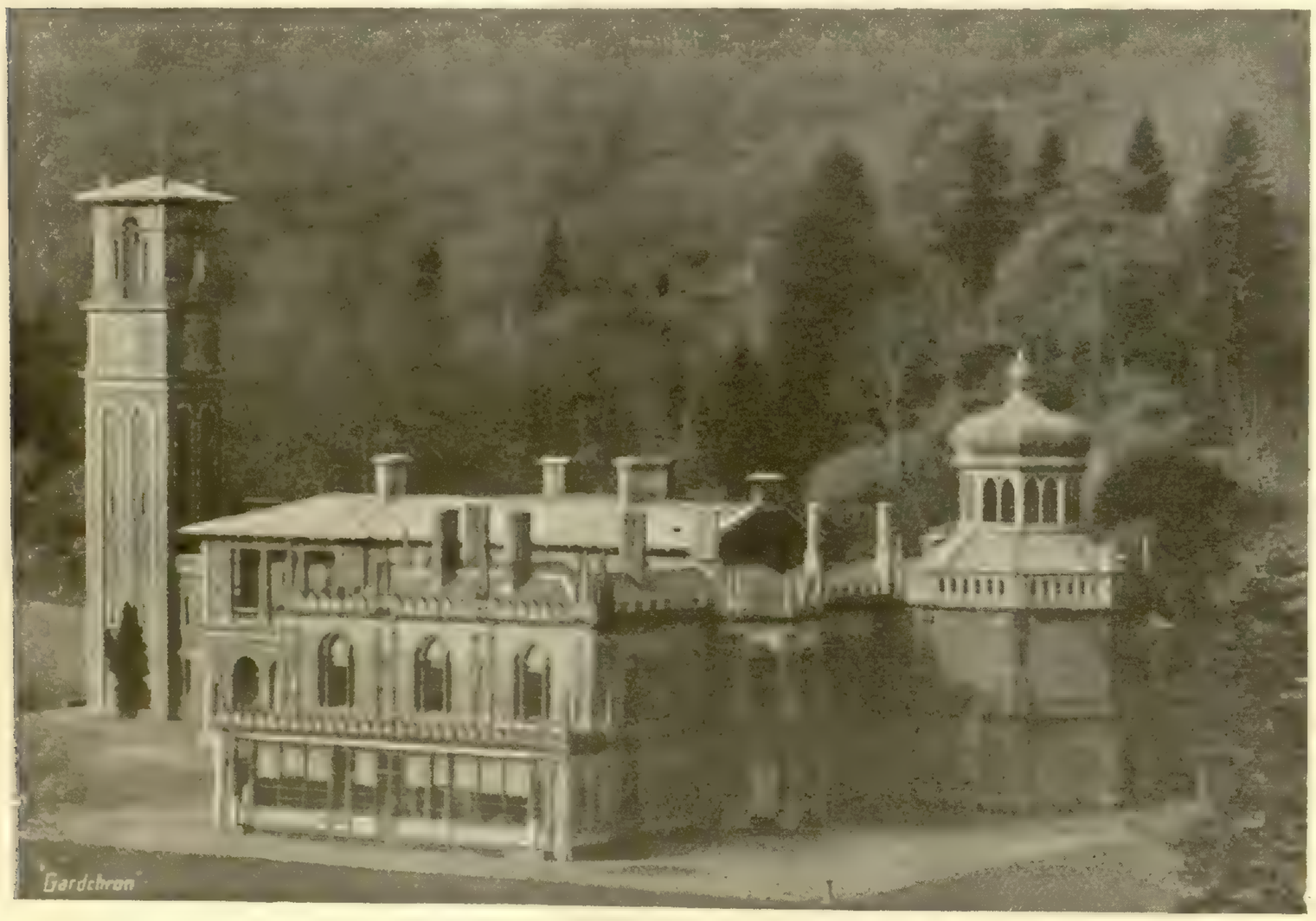


Fig. 93.—Hafod, Cardiganshire, the residence of T. J. Waddingham, Esq.

THE ORLEANS ROSE.

I predict a great future for this beautiful Polyantha Rose. The variety has a vigorous constitution, and it flowers abundantly and continuously. The colour has been described by some as a Geranium red, but my description is rose-pink. The most remarkable point about it yet to be noted is the longevity of its blossoms. A specimen I grew in a pot expanded its blossoms on April 22; they remained for several weeks, and even after it had been planted out of the pot for a fortnight some of the same flowers were still present. I would advise all Rose growers to add this variety to their collection. *E. M.*

HAFOD.

The main road that leads from Aberystwyth to Rhayader brings the traveller to the lodge gates of Hafod, but the house itself is situated two miles at least from the roadway. The drive leading to the residence is cut along the mountain side, and is so tortuous that it is never possible to see much more than a hundred yards ahead. It is so happily designed that at all points the traveller can see and hear the river Ystwyth, meandering hurriedly through the deep, narrow valley on the south side, over its bed of blue slate rock, tumbling over rocks, roaring and foaming. From the river brink the mountain range rises 500 to 600 feet, or 1,400 feet above sea-level, terminating at Pontrhydygroes, a quaint, scattered village, about four miles distant, but only to commence again after the valley and river are crossed. The mountain-slopes—for there are three of them—are clothed with Larch, and between the mountains are stretches of grazing land, but so poor that an acre will only support a couple of sheep, the allotted number per acre in the mountainous districts of East Cardiganshire; yet trees thrive in a still poorer material. On the north side of the drive there are scores of acres of mountain slope planted with Larch as second crop, and, as well as I could see, there was not a failure amongst them; the previous crop was felled with the saw within the past dozen years. As there are no suckers, I conclude that the previous crop must have been Larch. Much of this area is carpeted with the Wild Hyacinth and Anemone nemorosa in the season, and, later on, Hypericum quadrangulum and Scabiosa succisa, which, with the dwarf Larch trees, made a lovely picture at the time of my visit.

The journey is now through a wood. On the way I noticed trees growing on the face of a well-nigh perpendicular precipice. It is surmised that the seed must have been sown there, and, as it would be impossible for anyone to stand there and handle tools, unless secured with a rope, it is not unlikely that they may have had such a contrivance, for a slip would mean a fall of 50 feet to 60 feet. There are some fair-size trees on the very brink of the precipice—a Beech measured 8 feet round at breast high, and an Oak 5 feet 8 inches. The wayside is sweet with Violets in the season. I have resided in eight different counties in England and Wales, but hitherto had never met with Viola lutea and V. tricolor. The Navelwort, Cotyledon Umbilicus, nearly covered the face of a projecting rock, and I have been told that it is common in Cardiganshire.

Among Ferns, Polypodium vulgare, Asplenium trichomanes, and Lomaria Spicant are numerous. A few small waterfalls are passed; but now the loud roaring of water denotes the presence of a cataract of no small dimensions. Belts of Common Spruce and Douglas Fir skirt the roadway, standing at 9 feet apart, and 80 feet to 90 feet high. Larch trees are still taller. A typical specimen, about 100 feet high, had a girth of

7 feet 6 inches at 2 feet from the ground. I am aware that there are taller Douglas Firs in the country, but what surprises one is to see such ponderous growth rising up from such poor, shaly substance. Perhaps the supply of water which trickles down the mountain sides into the channel along the roadside most of the year will, in a measure, account for such results.

Emerging into the open, clumps of healthy plants of choice Rhododendrons on the fringe of the mountain facing south are passed, with some choice Conifers not many years planted. Passing through a gateway, there is to the west a winding carriage road across a park-like enclosure, terminating in a roadway that passes the back of the mansion, leading to the main road, where there is another lodge entrance, about two miles distant. The carriage-way is known as the Duke's Drive, as it was made, about 70 years ago, by one of the Dukes of Newcastle, who purchased the property, and, four years later, after spending a large sum of money on the estate, sold it. It changed hands again before becoming the property of the father of the present owner, Mr. T. J. Waddingham.

Fig. 94.—ROADWAY AT HAFOD; AT THE POSITION MARKED × IS SOIL OVERLYING A SHALY DEPOSIT.

Turning sharp to the north by the said gateway, the road is cut through the tail of the mountain. The slope of the rock facing east was covered with Asplenium trichomanes; but I could only see three specimens on the opposite side. We were now in full view of the hall nestling amidst the wildest surroundings. The approach is flanked on each side with healthy plants of Abies nobilis, 15 feet to 20 feet high, planted on breadths of lawn a few yards wide, and that is the only artificial embellishment—no flowerbeds or borders. Flowers, mainly for cutting, are grown by Mr. James, the gardener, in the kitchen garden, which is situated by the riverside, where there are good crops of fruit. There were Black Currant bushes of Boskoop Giant, four years planted, with shoots the length of my walking stick, covered with fruit.

The Hafod is not an old estate, as far as planting of trees is concerned. This work was only commenced about 100 years ago, when Colonel Johnes came to the property, after the death of his father; previously it was a barren waste. Colonel Johnes built himself a residence, formed a good library, and collected many valuable pictures, but the whole was destroyed by fire 24 years later, causing loss estimated at £70.000. Colonel Johnes built the present mansion, and in the course of six years is said to have planted 2,065,000 trees, about one-half being Larch, having soil carried up the mountain side to place a few handfuls round the young trees. For many years afterwards he planted about 200,000 trees annually, beside planting hundreds of acres with Acorns. The trees now extend some miles on the mountain side, bordering on the roadway at the back of the mansion. They are not scrubs, as one would expect, but healthy trees, with straight trunks, 20 feet to 30 feet high.

There is no highly-paid forester for the five square miles of forest on the Hafod Estate, only an ordinary workman, who has grown up with the trees he helped to plant. He certainly knows how to plant successfully and thin judiciously, leaving the trees thicker on the windward side.

The study of climate and the prevailing conditions of soil, which some consider necessary qualifications for foresters, are absolutely worthless for planters in East Cardiganshire, as the first cannot be altered, and there is no choice of the latter. I presume that there are very few—if any—landowners in these days who think of planting trees on land that will grow some useful crop, unless they plant for shelter or ornament. Sir W. Schlich's yield tables are equally valueless. No mathematical calculations will add one cubit to the stature of the trees, and as a few years cannot make much difference to the growth of a healthy tree, the time to fall is when the timber is wanted. It requires no trained forester to dispose of the timber; this can be done by auction sales, either before or after the trees are felled. I understood that Mr. J. G. Morris, F.S.I., has a fixed price on the Hafod Estate, and the would-be purchaser of timber can take it or leave it. The Larch in the Hafod forest is considered exceptionally good; except in the case of small orders, the felling is done by the purchaser, who brings his saw mill into the forest, the nearest station for long timber being 16 miles distant. *W. P. R., Fron Haul, Holywell.*

THE NATURE OF PARASITIC FUNGI.

THEIR INFLUENCE UPON THE HOST PLANT.

(Concluded from p. 198.)

Our next problem to consider is the mode of life of fungi and their influence upon the host plant.

Green (chlorophyll-bearing) plants manufacture their food, as is well known, from the carbonic acid of the air, by means of the small chlorophyll grains in their leaves, and by the action of sun and water. This physiological process is known as "assimilation."

The first visible product of assimilation is starch. The starch again undergoes certain changes and forms carbohydrates (e.g., sugars), and sugar, which are used as food by the plants.

In other words, the manufacture of food necessary for the growth of the green plants takes place in the chlorophyll-bearing portions. Fungi possess no chlorophyll. Hence they are not able to utilise directly the carbonic acid of the air. They are compelled to search elsewhere for the carbohydrates essential for their development, and accomplish this by living upon substrata from which they are able to obtain a "ready-made" supply of food. Parasitic fungi live in various ways upon plants. They may be confined to the surface entirely like the mildew fungi, when there will be produced on the mycelium peculiar suckerlike organs—so-called haustoria—by which they absorb their food from underlying cells. Other fungi, by far the greatest number, live within the tissues of the host plant. They may also produce haustoria, but more generally the absorption of food takes place directly by the action of the vegetating hyphæ on the infected tissues.

Following the growth and development of parasitic fungi, a collapse of those cells which have been robbed of their contents takes place, and the earliest symptoms of disease appear. Often the infection is exceedingly local, and the result is the production of smaller or larger spots of dead tissue. The shot-hole fungi of Plums, Cherries, and Peaches illustrate well this peculiarly confined growth.

Other fungi may attack, besides the leaves and fruit, the young shoots of trees, and destroy last year's growth, and thus much of the expected harvest. Others, again, cause cankers which spread from year to year until the whole branch is ringed and shut off from the food supply. Formations like the enlarged portions of plants, which occur in Potato canker, Plum pocket, club root, &c., are also very common.

It next becomes necessary to consider briefly the question of the predisposition of plants towards disease. The word predisposition may not be fortunately chosen to describe the peculiar observations that may be made in the direction of resistance or susceptibility towards disease. In medicine, as well as in plant pathology, we often meet with typical cases of immunity in animals or plants. For some reason or other, some individuals escape a disease altogether, or remain singularly resistant by recovering unhurt from an attack. Hence modern investigators claim that the successful selecting of resistant varieties would, sooner or later, decide the question of treatment for diseases. This expectation is undoubtedly quite reasonable, but at present we have only just begun to open our eyes to this fact, and the results obtained so far are more of a scientific than a practical value. Disease resistance to "Rust" has been established to a certain degree in Wheat. We must also bear in mind that adaption of disease-causing organisms to new conditions will play a very important role, and at present, whilst there is every hope of improving our knowledge in this respect, our results are not established long enough to speak the last word in the breeding to disease-resistant varieties. It would, however, be quite erroneous

to construe my remarks in a manner in which they were not intended. While pointing out the difficulties, yet there is every hope of making important discoveries along these lines; and here again is an opening for the practical fruit-grower to teach a lesson any day to the scientific investigator.

Next, let us consider the resistance of disease. In medicine we are informed that living according to common, normal sense, avoiding foods or practices which lead to the weakening of the organism, we will not only reach but maintain a condition which we describe simply as health. Health, to my mind, is nothing else but the keeping of body and mind sound by performing the normal functions of our organism. Thus, by following closely our needs, and by living correctly, we can bring our bodies into a state of great resistance and even immunity, though we may be living amidst a serious epidemic at the moment. Infectious germs, though surrounding us constantly, will have no chance of exercising their serious effect upon us if we are in a perfectly sound state of body. It is quite impossible to avoid contact with disease germs, and, this being the case, prevention of disease is largely dependent upon success in bringing our organism into a strong condition of resistance.

Now this is exactly the same case in plants. Plants are living beings, subject to all kinds of ills, without being actually diseased, i.e., being attacked by a specific organism bringing about a pathological condition. The late Professor Marshall Ward has expressed himself very instructively on the subject of predisposition of disease in plants. He refers to two plants of the same kind, as much alike as possible in every respect, size, condition, development, etc., and goes on to say: "Picture to yourself one of these plants growing under the most perfect conditions, supplied with the proper amount of food, its roots expanding into a well-ventilated soil, rich in humus and plant food, &c., &c., and the other growing under absolutely reverse conditions. The result will be, in one case, a strong, healthy plant, and, in the other, a poor, weakened plant, just strong enough to keep alive." Now the conditions, not to say constitutions, of these two plants must be very different. Different modes of nutrition, we know, produce different chemical changes within a living plant. And no doubt this difference in the condition of the host is accountable for its power of resistance or state of susceptibility. There may be a number of other factors producing similar differences in constitution, or in composition, if this is more correct. A Potato tuber, sound and fresh, will remain free from fungi if kept in an ordinary room, while one that has been exposed to frost or steam heat for a moment or two will soon be covered with mould fungi of various kinds. We know, of course, that the chemical composition of the Potato exposed to frost or heat is changed, but in addition we have also partly destroyed its life. The same may be said of Professor Ward's "ill-treated" plants. Together with the changes of the chemical composition, we have reduced its vital power; hence, would it not be reasonable to expect an increased resistance to disease if the vital power of any living organism is kept up to the highest mark?

That this contention is fundamentally correct is amply proved by the fact that cultivated plants which we grow in unaccustomed conditions are, generally speaking, more subject to disease, just as Europeans are more liable to disease in tropical climates. The sudden or even gradual changes frequently result in lowering the vitality of a living organism. Cultivated trees—fruit trees—are constantly subject to such unnatural changes. Hence, if we do not concentrate all our efforts in providing for them the most favourable conditions for growth, disease is likely to appear. Proper care of the trees should be our foremost aim, and diseases will then levy a less severe tax upon the fruit-grower. To be most successful in fruit-growing would necessitate an intimate knowledge of the chemical, mechanical and physical condition of the soil, and to remedy, above all, any deficiencies in this direction. The next step would be to become acquainted with the general principles of protection from diseases and their treatment.

I have endeavoured to explain in the foregoing remarks, briefly, the life and nature of parasitic fungi. We have considered how fungous diseases are spread by means of the spores produced by the causal organism, we know how different may be their mode of fructification, and that winter and summer spores must be looked for in many kinds. We have further discussed the effect of a fungus on the host plant, and hinted at certain factors rendering plants more or less susceptible to disease. Bearing these points in mind, and knowing the ways and means of attack of our enemies, it is only wise to exercise all tactics to prevent a successful onslaught in our orchards.

First of all, successful work must be begun as soon as possible after the harvest, but not before all leaves have fallen to the ground. In order to carry the destruction of hibernating fungi as far as possible, all leaves and bad fruits should be removed from the trees. The practice of

Fig. 95.—Map showing the distribution in England of the small-leaved Elm, Ulmus sativa.

leaving some fruits on the trees is very common, and very dangerous. In the case of Plum pockets, brown rot of Peach, Plum and Cherry, this practice provides conditions favourable to the hibernating fungus. Therefore, remove all dead wood and fruits and other rubbish covering the ground. It has been frequently recommended to plough the orchards soon after harvest to bury all dead leaves and fruit, when they will be put out of harm. This would be correct if subsequent cultivation in spring did not result in the bringing to the surface the matter we desired to destroy. For the burying over winter of fungus spores in soil does not destroy, but rather tends to preserve them in the orchard. It is best beyond doubt to thoroughly clean the surface of the ground by raking together all rubbish and burning it. If this practice were general we should only have to deal with diseases that come from our less careful neighbours. This recommendation may sound very simple, but where the orchard is sown with a cover crop of Clover, Lucerne, or Rape, it is almost impracticable. Here is another opportunity for growers to test by experiment whether it would be more profitable to get the benefit from a cover crop, which may be valuable in itself, or enrich the soil, or protect the roots from frost injury, as some growers claim, or whether it would prove of greater value to keep the ground clean, kill the winter spores of disease, and have an increased revenue from sound fruit. Together with this cleaning operation, there should be practised the scraping of cankers and the trunks of trees showing rough bark, and the painting of the former and any wounds with white lead or any other paint which does not contain turpentine, for turpentine penetrates into the wood and kills the cambial and other tissues.

After an orchard has been carefully cleansed, the trees should be sprayed, and lime-sulphur cannot be too highly recommended for this purpose. It not only prevents any fungus spores from starting into life, but is also invaluable as an insecticide.

In spring, when the days are free from frost, lime sulphur may be sprayed again, followed thereafter with Bordeaux Mixture as soon as the buds begin to swell.

The expense of labour to carry these suggestions into effect should not be made responsible for neglect. Recommendations such as I have made can only be of the desired benefit when they are practised universally, and successful fruit-growers should do their utmost to get all others to follow their examples. *H. T. Güssow. Dominion Botanist, Ottawa, Canada.*

BRITISH ELMS.

(Continued from p. 199.)

The Small-leaved Elm (U. sativa Mill).

Goodyer's second Elm is designated "Ulmus minor folio angusto scabro." This is much "lesser and lower" than the English Elm. Goodyer observed it "in the hedges by the highway. . . . between Christ Church and Limmington in the New Forest in Hampeshire"; and here, I may add, it still may be found. Goodyer's description and the specimens of the old English collectors (who attach Goodyer's name to their plants) prove this to be the Small-leaved Elm. It is the U. minor of Parkinson (*Theatr. Bot.*, p. 1405, 1640), the U. campestris var. B. Hudson (*Fl. Angl.*, 96, 1762), and the U. sativa of Miller (*Gard. Dict.*, ed. 8, no. 3, 1768). Miller cites Goodyer's name, and adds that "as this tree is so well known, it requires no description." Miller's is the first binomial given to the plant after the publication of Linnæus's *Species Plantarum* (1753) where modern botanical nomenclature begins; and we are bound, if we follow the international rules of nomenclature and if we regard this Elm as a species, to accept Miller's name U. sativa for the tree which the early English botanists from Goodyer's time to Miller's, with unvarying consistency designated as U. minor folio angusto scabro, as the specimens preserved in the British Museum show.

The tree has received several other binomials; but all these, being of later date than U. sativa Mill., must lapse into synonymy. The latest name to be given to it is U. Plotii Druce. I have seen several specimens of plants so named and issued by Mr. Druce; and all of these are to be referred to the small-leaved Elm (U. sativa Mill.).

I can well understand Mr. Druce's eulogy of this tree which had almost been consigned to oblivion by those botanists who attempted the almost impossible task of describing the numerous British Elms under two names; but Mr. Druce's description of it is meagre, and does a real injustice both to the tree itself and to his commendable enthusiasm for it.

This and the Cornish Elm (U. stricta) are the last of our Elms to come into flower. As this is written (Feb. 25, 1912) they are the only Elms near Cambridge whose flowers have not fully opened.

As it is not mentioned in any modern British

flora, I furnish a map (see fig. 95) showing its distribution in England so far as it is at present known to me. I have seen specimens of the tree from Oxfordshire, Buckinghamshire and Northamptonshire, and have seen it growing in all the other counties indicated. I have no doubt it will be found in at least four or five additional counties when these are searched.‡ The eastern distribution of the tree in England is interesting, and reminds one of that of Populus canescens, P. nigra, Fagus sylvatica and Carpinus Betulus. I believe the tree is widespread in Europe and Western Asia.

It will, I am sure, be readily conceded that there is much confusion in the botanical names of our Elms; but it is not generally known that confusion has existed with regard to their common names also. The true English Elm is, as I have already pointed out, the "very great high tree" described by Goodyer; but many botanists, from Miller's time to Loudon's, and even later, have given the name of "English Elm" to the small-leaved Elm. Miller refers on several occasions to this practice which seems to have caused him some annoyance, for he never fails to add some condemnatory remark, such as "this is far from being a right appellation." We shall see later that the name "wych Elm" has passed through still greater vicissitudes.

The Wych Elm (U. glabra Huds.).‖

Goodyer's third Elm is named "Ulmus folio latissimo scabro" (= U. latiore folio Parkinson), the "Witch Hasell or the broadest leaved Elme." It is a "very high tree," "especially when he groweth in woods." This Elm is acknowledged by all to be the Elm now commonly known as the Wych Elm, though its identification with this tree rests on precisely the same kind of evidence as the identification of Goodyer's first Elm with the English Elm and his second with the Small-leaved Elm. The Wych Elm has most frequently been named U. montana Stokes in With. *Bot. Arr.*, ed. 2, i., 259 (1787); but both U. scabra Miller *Gard. Dict.*, ed. 8, no. 2 (1768), and U. glabra Hudson *Fl. Angl.*, 96 (1762) are earlier. If we follow the international rules, there is no alternative but to name the Wych Elm U. glabra Huds.

The tree is now always known as the Wych Elm by British botanists; but the early writers spoke of it as the Wych Hazel.

The Smooth-leaved Elm (U. nitens Mœnch).

Goodyer's fourth Elm is designated "Ulmus folio glabro." It has never been questioned that this is the Smooth-leaved Elm, the U. glabra Mill. *Gard. Dict.*, ed. 8, no. 4 (1768). However, the name U. glabra Mill. cannot be used, because the earlier name U. glabra Huds. has to be used for the Wych Elm, so we have to find the earliest available name. This appears to be U. nitens Mœnch *Meth. Pl.*, 333 (1794). Mœnch's description, though very brief, fits this plant; and it is the earliest name I can trace with respect to which this may be said. Unfortunately, no specimen by Mœnch is available. I have been in communication about the matter with Professor L. Diels, of Marburg, where Mœnch flourished; and Professor Diels believes that Mœnch's specimens have been destroyed. Other earlier names have been applied by certain botanists to this tree, namely, U. vulgaris Pall. and U. angustifolia Mœnch; but both these names are *nomina nuda*, appearing without description, and have therefore to be rejected.

This is the Wych Elm of the early English botanical writers. Later, cf. Miller (*op. cit.*), there were two Wych Elms, the Smooth-leaved Wych Elm (U. nitens Mœnch) and the Rough-leaved Wych Elm (U. campestris Linn.). Nowadays, neither of these trees is the Wych Elm, but only U. glabra Huds.

The Dutch Elm (U. glabra Huds. × nitens Mœnch—(a) × U. hollandica).

Miller's fifth Elm is his U. hollandica. It is founded on the U. major hollandica angustis et magis acuminatis samarris folio latissimo scabro Plukenet, *Almagestum Botanicum*, 393 (1720), and is called the Dutch Elm. No further information is to be obtained from Plukenet's work; and I have been unable to find a specimen so named in his handwriting. There are three specimens so named in the Sloane Herbarium at the British Museum; but the names are not in Plukenet's handwriting. The specimens are mixed. The two leaves at the bottom of vol. 102, fol. 131, belong to U. glabra Huds., and so does the specimen in vol. 98, fol. 168. Only the specimen at the top of vol. 102, fol. 131, is the Dutch Elm. No type specimens of any of Miller's Elms are to be found at present. Smith, *Eng. Bot.*, t. 2542 (1814) saves the situation by founding his U. major, of which he gives a description and figure, on U. hollandica Mill. and U. major hollandica (&c.) Plukenet. However, the name U. major Smith cannot be used, as, on Smith's own showing, his plant is U. hollandica Mill. In fact, Smith not only cites Miller's name, but uses several of Miller's words and phrases in his account of the plant. It is difficult to see the reason that Smith had for not using the name U. hollandica Mill.; but this is not the only occasion on which Miller has been treated in this way by Smith and even by living authorities.

Recent observations by Mr. A. Henry on Elm seedlings indicate that the Dutch Elm is a hybrid, though no experimental evidence is forthcoming as to its parentage. The characters of the plant suggest that its parents may be the Wych Elm (U. glabra Huds.) and the Smooth-leaved Elm (U. nitens Mœnch). *C. E. Moss, D.Sc.*

(To be continued.)

‡ Whilst this article was in preparation I received a specimen of this Elm from the Rev. H. J. Riddelisdel, who collected it in Glamorganshire in what he regards as probably a native station. The occurrence of this eastern species in Glamorganshire is most interesting, and is paralleled by Mr. Riddelisdel's previous discoveries of an eastern Orchid (Liparis Loeselii) and an eastern Hair-grass (Weingaertneria canescens) in the same county.

‖ In the *Gard. Chron.* (p. 120) for Feb. 24 last, the statement is attributed to Messrs. Henry and Backhouse that "the difference between these two species [i.e., between the Wych Elm, U. glabra Huds., and the Smooth-leaved Elm, U. nitens Mœnch] is a simple difference involving two pairs of Mendelian factors." There is some serious error here: the differences between the two species are practically indefinite in number.

TULIPA KAUFMANNIANA.

This fine species deserves to be far more generally known and grown, for not only is it one of the most beautiful of the species of Tulip, but also it is probably the earliest to flower. This year, it came into bloom exceptionally early, for the first buds opened in the last days of February, and this in an open bed in a garden which is unsheltered and windswept. The flowers lasted well, for many still remained in the last week of March. Throughout the month any gleam of sunlight was enough to cause the flowers to open wide and display their Water Lily colouring of white, with a soft yellow centre.

My 60 or 70 flowering bulbs are the result of a sowing of seed in the autumn of 1906. In 1910, one or two flowers were produced; last year there were about a dozen; and this year nearly every bulb has flowered. The new bulbs have a curious habit of dropping down below the level at which the bulbs are planted in the autumn, and this accounts for the fact that it is extremely difficult to lift the whole of one's stock of this Tulip. Proof of this is to be seen in my garden this year, for, in spite of all my care in lifting the bulbs annually, a stray plant or two has made its appearance in everyone of the positions that the bulbs have occupied in former years. A layer of leaf soil and old manure placed an inch or two below the bulbs tends to check the tendency of the bulbs to drop down.

[*Photograph by R. A. Malby.*

FIG. 96.—TULIPA KAUFMANNIANA.

The species appears to be variable, both in colour and in shape. The yellow centre seems to be constant, but the outer parts of the segments are certainly in some specimens not pure white, but more or less tinged with cream, while in two cases the flowers have been wholly yellow on the inside.

The back of the petals are still more variable. Usually they are marked with broad scarlet bands, but sometimes these are very pale in colour, and sometimes they fade away to a mere shading of purple or bluish-grey. *W. R. Dykes, Charterhouse, Godalming.*

[The illustration in fig. 96 represents a group of T. Kaufmanniana in Mr. Malby's garden at Woodford, Essex.—EDS.]

NEW OR NOTEWORTHY PLANTS.

HYBRID REHMANNIAS.

Rehmannia, a small genus of Scrophulariaceæ peculiar to China and Japan, is likely to become popular in gardens. It is a near relation of the Foxglove, but in habit it is more like a Tydæa; indeed some botanists include it in Gesneraceæ. Several new species have been discovered in China by Henry, Wilson, and others in recent years, and they, or some of them, have been introduced into European gardens. The most imposing of these is R. elata, generally known as R. angulata, and figured as such in the *Botanical Magazine*, t. 8177 (1908) and *Gardeners' Chronicle*. It forms a handsome plant, from 4 to 6 feet high, in about two years from seeds, and has large, mauve-pink flowers, with a yellow, red-spotted throat. The species shows considerable variation, in which respect it is like the Foxglove. In 1910 R. Henryi flowered at Kew. This is one of Henry's discoveries in Ichang, but it was introduced later by Wilson. It forms a cluster of upright stems 1 foot to 18 inches high, with hairy stems and leaves, the latter grey-green, and crenately toothed; its flowers are nearly as large as those of R. elata, with less acute calyx and lobes, and a remarkably contracted corolla, the "two-keeled palate partially occluding the mouth"; the tube is yellow, spotted with red, and the lobes are white.

[*Photograph by C. P. Raffill.*

Fig. 97.—Rehmannia kewensis (R. henryi × R. glutinosa): flowers creamy-yellow with crimson blotches.

A hybrid has been raised from R. Henryi and R. elata, and named R. Briscoei. It is fairly intermediate between the two parents, but just misses being of the quality that catches the eye of the gardener. A cross between it and R. Henryi again has been raised at Kew, and has nearly white flowers. A better than either of these, however, is a hybrid between R. Henryi and R. glutinosa (chinensis), which is now flowering at Kew (see fig. 97). It was a happy inspiration of Mr. Coutts to make this cross, because R. glutinosa supplies the colour that is wanting in R. Henryi. Introduced from China in 1831 by Dr. Bunge, who found it growing on walls and waste mountainous places about Pekin, R. glutinosa has never found favour outside botanical gardens. It has slender stems about 1 foot high, lanceolate-toothed leaves and nodding flowers, after the size and shape of those of Mimulus luteus, but their colour is dull-brown purple and creamy-yellow, a plant of no account, except as a breeder. R. kewensis (Henryi × glutinosa) is a really good decorative plant. The cross was made in August, 1910, only five plants being raised from the few seeds obtained, and they are now in flower in House No. 5 at Kew. Each plant of R. kewensis consists of some half-a-dozen stems, leafy to the base, and nearly 2 feet high; the leaves are petiolate, ovate, glossy-green, irregularly toothed. The flowers are 2 inches long, 1½ inch across, and the segments are broad, almost square in outline, and toothed; the pose of the flowers just right for effect, and their colour creamy-yellow with a dark-crimson blotch on the upper segments. There is variety in the shade and in the blend of the crimson with the yellow. In this hybrid we have a beginning for a race of first-rate biennials for greenhouse cultivation, probably for summer bedding also, the plants being quite easy to grow, and they appear to seed freely. *W. W.*

THE MARKET FRUIT GARDEN.

It was a fortunate circumstance that no rain fell on seven of the last eight days of March, and sunshine prevailed except on two days. Such a respite has only once before occurred in the six months ending with March, and that was during the only prolonged spell of frost that the winter gave us. On no other occasion before last week were there as many as six consecutive days and nights free from rain in my district. There were 183 days in the period, and rain was measured on 107 of them, the total amount being 26.68 inches, or only 1.64 inch less than the annual average in this district for the last 11 years. Work is seriously in arrear, as we were planting during the only times when the land was not too wet for doing anything with it, and no digging at all was done in my orchards before last week. Fortunately, most of the trees are not too old to allow of horse cultivation, for it would be impossible to obtain labour enough to dig the ground before the season is too far advanced for the operation. Even now it is undesirably late.

Premature Blossoming.

It is a source of serious anxiety to see fruit trees and bushes coming into blossom dangerously early. Black Diamond Plum was in full beauty on March 24, and Monarch and Coe's Golden Drop on the 30th. President, a late variety which, like Monarch, is one of the earliest bloomers, was in nearly full blow on the 30th also, while a few blossoms were open on Early Prolific, Czar, Victoria, Pond's Seedling, and Greengage. Full blossoming among Plums will be more

nearly simultaneous than I have ever seen it before, and a severe frost during the next week or two would do an incalculable amount of damage. I have a regular record of Plum blossoming for the past 11 years, and an irregular one for some previous seasons, and no approach to the forwardness of this season appears in it. April 17 is the earliest date for even Black Diamond or Monarch to reach the stage of full blossoming, and in nearly all other years it has not been reached before the end of the third week of April.

A few blossoms of Louise Bonne of Jersey Pear were open on March 30, while all other varieties of that fruit were showing clusters of blossom-buds well out of their sheaths. In 1903 early Pears were in full bloom on March 31; but I have no other record of that stage having been reached in any other year before April 21, though in several seasons the appearance of unopened blossom-buds has been as early as it was this year.

One Cherry tree was in nearly full blossom on March 30, and other varieties were showing a few expanded blooms. The earliest previous record of full blossoming is April 15, an account having been kept for the past 11 years. Peaches and Nectarines in the open were in bloom on March 18. Only once before have I noticed them in full beauty as early as the 21st. Gooseberries and Red Currants were nearly fully out at the end of last week. On a few previous occasions similar precocity has been noticed.

Apples promise to be relatively as premature in blossoming as other kinds of fruit, as the clusters of blossom-buds on some early varieties were out of their cases on March 18, a date beyond precedent in a register of 16 years. Black Currants and Strawberries are not particularly forward.

The Promise of Fruit.

After the hot drought of last summer it was not at all surprising to find trees covered with fruit-buds, as an uncommon development of such buds was predicted. The display is most striking in the case of Pears, every variety of which in my orchard is densely covered with clusters of blossom-buds or (in the case of the earliest) blossoms. No doubt, one reason is that Pears failed to fruit to a great extent last season. Apples, although well up to the mark, are less striking than Pears in promise of blossom; but then they bore a great crop last year. Most varieties of Plums and particularly those varieties which had only half-crops last season are, or will be, well covered with blossom. Mature trees of Early Prolific, which alone bore a tremendous crop last year in my orchards, have comparatively little blossom, except on their tops, which presumably had not come into bearing last season. But young trees of this variety promise well. Cherries always bloom so profusely that it is difficult to compare one season's display with that of another; but they could not be fuller of blossom than some of them are already, while others will exhibit equal splendour in a few days. Gooseberries and Red Currants promise to fruit abundantly. Of Black Currants, Strawberries and Raspberries, it is too early to speak in this connection. Growers view the fine outlook with fear and trembling, because of the premature blossoming alluded to above. It is hardly necessary to add that, even if we escape damaging frosts, fructification will depend largely upon the character of the weather during the blossoming periods, particularly in relation to sunshine and wind. Gloomy weather, discouraging to the working of pollinating insects, or very cold wind, which has a like effect, besides being directly injurious to blossoms, might spoil to a great extent a fine prospect.

Remedy for Strawberry Leaf-spot.

Lime-sulphur appears to be a complete remedy for Strawebrry leaf-spot (Sphaerella fragariæ). I have used it a little stronger than the summer strength for Apples, namely, one gallon of the factory-made solution in 30 gallons of water, instead of 40, as for Apples. One gallon to 20 would not be too strong in the case of home-made lime-sulphur, if not boiled. The wash should be applied after the fruit has been gathered, and again early in March. In the strength named the wash did no harm at all to the young leaves in the spring.

Watching for the Aphis.

Repeated search amongst Plum and Apple trees has hitherto failed to reveal any aphides. Is it possible that, for once, they are out of their reckoning? It would be sanguine to indulge any such hope. Moreover, it is quite common to search in vain for the pest on one day, and to find them swarming on trees three or four days later. A curious point about the Plum aphis is that I have never found its eggs upon the trees. This is not the case with Apple trees; but this season, in pruning, only about half-a-dozen shoots with eggs upon them have been noticed. It seems to me that the eggs must be deposited to a great extent upon wild trees or shrubs. It is most important, particularly in the case of the leaf-curling aphis, to spray at the very beginning of an attack, as it is little better than waste of labour and money to spray after the leaves have curled over the insects.

Nicotine as a Spray Stuff.

Reference to the aphis is a reminder of the proposal, now under consideration of the Board of Agriculture, to allow the growing of Tobacco

Fig. 98.—Strawberry leaf-spot.

in this country under certain regulations, rendering it unfit for smoking. It appears to be assumed that nicotine must be extracted from the crop by the ordinary process, which is an expensive one. This, however, is quite unnecessary. The crop should be harvested just as it grows, after being sprayed with an offensive smelling wash, such as lime-sulphur or potassium sulphide. The Tobacco plants, stems included, could be tied up in bundles as beans are, and cut up roughly and boiled when required to make spray stuff. A few experiments by chemists would show the weight of Tobacco plants necessary to make a decoction of a hundred gallons. As Tobacco wash is harmless to vegetation, it would not be necessary to be very precise in the matter. I do not see why every grower of not less than 10 acres of fruit trees should not be allowed to grow a patch of Tobacco plants. He might be required to register, and perhaps to pay a small fee to cover expenses of inspection, which would be needed only once in a season, when the crop was denatured by spraying it before harvesting it. A local policeman could inspect the operation, or any other person appointed by the Board of Agriculture. Nicotine wash is one of the best destructives of the aphis and the Apple sucker, and the safest of all to use on tender foliage. At present its price is prohibitive, and it seems to me that fruit growers should be allowed to grow Tobacco for themselves, in order that they may make a valuable wash cheaply.

The Need of Summer Pruning.

Nothing has struck me more forcibly while pruning Apple trees during the winter or in March than the enormous waste of energy involved in neglecting the summer pruning of young trees particularly. An attempt was made last summer to deal with all trees not over seven years from the planting; but time did not allow us to finish the task, and the amount of cutting away of shoots from 2 to 4 feet in length required in the cases of some Cox's Orange Pippin trees planted seven years ago was remarkable. From some of the larger trees 100 to 160 shoots were cut, mostly being shaved closely off the main branches, as they were too stout for spurring as a rule, or too weak to bear the tax of spurs. From just below the cut made in the preceding winter pruning, to say nothing of laterals lower down, three shoots had grown in the great majority of instances, and the most vigorous of the three was commonly the middle one, which in nearly every instance was growing in the wrong direction, and had to be cut away. The two shoots that had to be sacrificed had robbed the one left to grow of quite two-thirds of the nourishment which it should have received, and in many a case it is slender in consequence. This waste would have been almost entirely saved if the trees had been pruned, or rather pinched, in the summer. I say "pinched" because I think that the operation should be carried out early in the summer, when the superfluous laterals have only recently started and are tender enough to allow of pinching them off by the nails of finger and thumb. The worst of it is that, if left as spurs, they would require pinching a second time early in the autumn, as fresh growths would then have emerged from them. This involves a great amount of work; but I believe that it would pay well. In the cases of trees sufficiently furnished with branches it would be better to rub the embryo laterals off entirely than to leave them unpruned until the winter. That could be done quickly, and no second operation before the winter pruning would be necessary, unless fresh laterals formed. Weak and slender main shoots, indeed, would be all the better for the complete removal of the laterals, although judicious spurring is the ideal system for most varieties of Apples. Of course, very young trees may need some of the laterals to be left to form branches. If time can be found to deal with mature trees, which make only slight extension, the complete removal of laterals from new shoots in the early part of the summer would be beneficial, and this would render winter pruning unnecessary. The only objection is that the operation has to be carried out in one of the busiest seasons of the year.

A Southern Grower.

Publications Received.—***Bulletin of the Department of Agriculture, Jamaica,*** edited by H. H. Cousins. (Kingston, Jamaica: Government Printing Office.) Price 2s.—***The Small-Holder's Handbook,*** edited by W. M. Elkington. (London: L. Upcott Gill.) Price 3s. 6d. net.—***Traders, Farms, and Agricultural Organisation,*** by Edwin A. Pratt. (London: P. S. King & Son.) Price 3d.—***Poppies,*** by George Gordon, V.M.H. (London: Agricultural and Horticultural Association.) Price 1d.—***Les Produits Coloniaux,*** par G. Capus et D. Bois. (Paris: Armand Colin.) 7 fr.—***Report of the Maryland State Horticultural Society held in Baltimore, December, 1911.*** (College Park, Maryland: Maryland State Horticultural Society.)—***Ferns and Fern Culture,*** by J. Birkenhead; revised by F. Parsons. (London: A. B. May & Sons, and W. H. and L. Collingridge.) Price 1s.—***The Growing of Tobacco for Nicotine Extraction,*** Part II., by G. H. Garrad and D. R. Edwardes-Ker. (Wye: South-Eastern Agricultural College.) Price to residents in Kent or Surrey, 1s.; to non-residents, 2s.—***Gardening for the Ignorant,*** by Mrs. C. W. Earle and Miss Ethel Case. (London: Macmillan & Co., Ltd.) Price 1s.—***Die Feigenbaume Italiens,*** von Dr. Ruggero Ravasini. (Bern: Max Drechel.) Price 11 M.

The Week's Work.

THE FLOWER GARDEN.

By J. G. WESTON, Gardener to Lady NORTHCOTE, Eastwell Park, Kent.

THE HERBACEOUS BORDER. — Seeing that most of the hardy perennial plants have started into growth, any arrears of planting should be completed without further delay, so that the plants may become established before dry weather sets in. Many choice early-flowering perennials, such as Pæonies, Hemerocallis, Alströmerias, and Delphiniums resent disturbance at the roots when the season is advanced, but late-flowering subjects, such as perennial Asters, Solidago, Helianthus, and Chrysanthemum uliginosum may still be planted without detriment to their flowering this season. If the soil is of a heavy and close texture, a mulching of decayed leaf-soil or other light material spread over the surface after planting is completed will be beneficial. The Dutch hoe should be in constant use on the borders, not only for the eradication of weeds, but to keep a fine tilth on the surface, thus preventing a too rapid evaporation of moisture from the soil during hot weather.

VIOLETS. — Preparations should be made without delay for the transferring of Violets from the frames in which they are growing to their summer quarters. In gardens where the soil gets very hot and dry in summer, plant them where they will be partially shaded from the midday sun. If the soil is a cool, deep loam, plant in an open situation. The ground, having been previously trenched and manured, will not require much more preparation, but should be lightly forked over, the surface raked fine, and shallow drills marked out. If the soil is of a stiff nature and lumpy, a little fine earth placed in the drills will assist the plants to make a good start. In the case of strong-growing varieties, such as Princess of Wales, the rows should be 18 inches apart, and the plants the same distance in the rows, but for the more compact-growing varieties, 6 inches less room will suffice. Where space is limited, they may be planted at 9 inches apart both ways. Violets in frames should be well hardened before they are planted out-of-doors, as the foliage when tender is liable to become damaged during bad weather. The best method of propagation is by division, although, if necessary, cuttings may be rooted in boxes. Only strong, healthy crowns should be selected, and the old root-stock discarded. Most of the young plants are now rooted, and in a suitable condition for planting, which should be done firmly, being careful not to bury the crowns. The work is best done during showery weather; if drying winds prevail the roots should be watered and the foliage damped frequently till the plants are established. An occasional dusting with soot will act as a deterrent to slugs and red spider, besides being a capital fertiliser.

HOLLYHOCKS. — Pot-plants of Hollyhocks raised from seed sown last summer, and wintered in cold frames, should be planted in their permanent positions without delay. Seedlings are less susceptible to disease than plants propagated from old stools. By sowing the seed in June or July, and growing the seedlings in cool conditions all through the winter, they develop strong and robust plants suitable for planting at this date. Plant in well-prepared ground not recently manured, selecting a position that is sheltered from winds, as the tall flower-spikes snap or twist at the base easily. Place strong stakes in position as the spikes develop, and tie the latter at intervals as necessary.

MONTBRETIA.—In certain soils and districts it is unnecessary to lift Montbretias in the autumn and store them during the winter as a safeguard against frost, but it is good practice in any case to lift the clumps, and replant the best corms in well-prepared ground. Montbretias left undisturbed for several years deteriorate owing to exhaustion of the soil, and overcrowding of the plants, and the number and quality of the flowers obtained from starved clumps bear no comparison with those produced by plants treated properly. Plants that have been stored should now be replanted. Single growths should be planted at from 9 to 12 inches apart, in rich, moist soil. Some, such as M. Pottsii and crocosmiæflora, are suitable for planting in large masses in the wild-garden and shrubbery, or in quantity by the water side. Clumps comprising one or two dozen roots of the choicer sorts, such as King Edmund, Prometheus, Lady Hamilton, Westwick, Lord Nelson and George Davidson, should be planted in the mixed flower-border.

PLANTS UNDER GLASS.

By THOMAS STEVENSON, Gardener to E. MOCATTA, Esq., Woburn Place, Addlestone, Surrey.

SEEDLINGS. — Very young seedlings require to be watered with great care, especially those raised from very small seeds. Such seedlings have tiny roots, and if they become dry only once, it may cause a sufficient check to kill them. Where seedlings are crowded in the seed-pans, it needs only a little excess of humidity in the atmosphere to set up damping; should this occur, the best plan is to prick them off at once into other receptacles. Seedlings of Begonia, Gloxinia, Streptocarpus, Exacum, and Torenia should be transplanted whilst very small. It is not necessary to afford much room between the plants, as they do best in a frequent change of soil, and it is astonishing how quickly they grow. The rule should be a little more space at each succeeding transplanting. The shading of seedlings is an important detail, and, although I do not believe in coddlings plants, shading is necessary during the brightest part of sunny days. Strong-growing plants such as Acacia, Celosia, Mediola, Asparagus, and Grevillea may be allowed to remain in the seed-pans until they are large enough to transfer singly into thumb-pots, but this cannot be practised when the seeds have been sown thickly. In the case of very small seedlings, a special soil composed of equal parts loam, leaf-mould and sand should be prepared for them.

THE SHOW HOUSE.—At this season the show house is gay with Rhododendrons (Azaleas), Cinerarias, Schizanthuses, Primulas, Clivias, Hippeastrums (Amaryllis), Liliums, Spiræas, Deutzias, and forced bulbs. A dry atmosphere should be maintained, and plenty of fresh air admitted to keep the plants in a good condition for as long a time as possible, providing shade during the hottest part of the day. Tulips should always be kept on the shady side of the house, as the flowers expand widely when exposed to bright sunlight, rendering them of little value as cut blooms.

FORCED PLANTS.—Plants of Prunus, Laburnum, Wistaria, Rhododendron sinense (Azalea mollis), Cerasus and other kinds that have flowered and not been subjected to much heat may, with advantage to the other occupants of the houses, be removed to some temporary shelter out-of-doors. Many of these plants may be forced year after year, provided they receive proper attention after flowering. They should not be left to take care of themselves after being placed outside. If a deep pit is not available, a temporary shelter may be constructed easily with a few posts, battens and canvas. If placed in this makeshift structure for a week or two the plants will get hardened and experience very little harm in times of slight frosts. Many of the plants are still growing actively, and a little manure water will benefit them, especially those that have been confined in pots for more than one year.

PITS AND FRAMES.—As the pits or frames become emptied of bulbs and other spring-flowering plants, the opportunity should be taken to give them a cleansing. They will then be in a proper condition to receive the batches of bedding plants which require the extra room the pits will afford. As the season is advancing, every opportunity should be taken to remove bedding plants from greenhouses, as the majority of greenhouse plants require more space.

STAKING GREENHOUSE PLANTS. — In last week's Calendar I advised the immediate staking of Souvenir de la Malmaison Carnations, but there is even greater necessity to do this work in the case of softer growing plants. Specimen plants of Calceolaria, Show, Fancy and Regal Pelargoniums should be staked and trained before the plants are far advanced in flower. Nothing is better for the purpose than clean, straight hazel stakes; if these are sharpened to a long point they may be pushed into the soil without causing much injury to the roots. When staking such decorative subjects as Clarkia and Schizanthus, use only one stake, supporting the branches or shoots by very fine strands of matting, tying them only sufficiently tightly to keep them from breaking down, or the decorative value of the plants will be spoiled.

POT ROSES.—The earliest forced plants having finished blooming, may, if hardy enough, be removed into the open, or, preferably, into a temporary shelter, as advised for the other forced plants. Their removal will allow plants of successional batches to be given more room, and, possibly, a good batch of the later climbing varieties may be brought in under glass. The houses in which Roses are grown require very careful ventilation at this season to keep the plants free from mildew. Though plenty of air is necessary, cold draughts must be prevented. A little shade may be necessary during periods of bright sunshine, but the shading must not be excessive, or the Rose shoots will become soft and more susceptible to mildew.

FRUITS UNDER GLASS.

By E. HARRISS, Fruit Foreman, The Royal Gardens, Windsor.

STRAWBERRIES IN POTS.—Strawberry plants under glass must be examined frequently, for it is now almost impossible to give them too much water, and they require liberal applications of stimulants. Except when they are in flower or ripening their fruits, the foliage should be thoroughly syringed two or three times a day with rain-water. At this time of year it is most convenient to arrange the plants in a house by themselves; but should they have to be grown on shelves in vineries or other permanent fruit-houses, a sharp look-out must be kept for red spider. At the first sign of this pest, the Strawberry plants should be moved to another house, or the spider will quickly spread to the permanent occupants of the house. In any case, when the berries enter upon the ripening stage, the plants must be moved to a cooler house for the fruits to mature. Admit plenty of air to plants now in flower, and when the fruits have set, thin them out without delay, at the same time removing some of the older leaves from the base and securely staking and tying each truss of fruits. The later batches which are still in their winter quarters out-of-doors are growing fast, and most of the plants are showing their flower-spikes. Should it be necessary to retard some of these plants for the latest supplies, plunge them again in ashes at the foot of a north wall. It will be necessary to keep them well supplied with water alternated with liquid manure.

CHERRIES IN POTS. — Trees on which the fruits have set thickly may be given some weak stimulating manure. Although the fruits may have set thickly, and are apparently swelling satisfactorily, no attempt must be made to hurry them by closing the house too early, or overheating the pipes. Admit air freely during favourable weather, using both top and bottom ventilators, and leaving them open, or partially open at night, according to the conditions out-of-doors. In bright, sunny weather it will be an advantage to slightly shade the trees during the hottest part of the day. Syringe the foliage twice daily, and damp the paths and floors frequently. Cherry trees are subject to attacks of black fly, a pest which may be kept in check by syringing the trees occasionally with water containing soft soap. Keep a sharp look-out for small grubs, which are sometimes found curled up in the leaves; if they are allowed to go unchecked now they will attack the fruits later on.

EARLY POT VINES.—The vines which were started early in November will now be ripening their crops. At this period the atmosphere must be kept less moist than formerly, discontinuing

damping altogether as the Grapes approach to ripeness. The roots must still be supplied liberally with moisture. Applications of manure may be discontinued gradually as the crop ripens. When the weather is warm, abundance of air should be admitted, opening both top and bottom ventilators, and leaving them partly open during the night. Although it is still necessary to keep the water pipes fairly warm during cold and wet weather, fire-heat must not be used to excess, this being prejudicial to the maturation of the Grapes.

Early Permanent Vines.—Vines affected with mealy bug should be examined with a view to keeping these insects from entering the fruit bunches. At the same time, any bunches which are in need of more thinning may be given attention, but be careful not to make the bunches appear too thin, especially the variety Black Hamburgh. It will greatly assist the swelling and finishing of the berries if the roots are given a good mulching of rich, well-rotted manure, and a thorough application of tepid water directly afterwards.

THE KITCHEN GARDEN.

By Edwin Beckett, Gardener to the Hon. Vicary Gibbs, Aldenham House, Hertfordshire.

Potatos.—Between now and the middle of this month, according to the locality, the main crop of Potatos should be planted. Select medium-sized "sets" that have been allowed to sprout naturally in a cool, airy, light shed or house. If the sets are extra large they may be divided, but this should be done ten days or so before planting. The methods of planting vary. I prefer to plant in shallow trenches made with a spade or plough, and, especially on retentive soils, place a layer of long manure or leaf mould on which to drop the tubers, before filling in the trenches. I do not recommend planting with a dibber. Where Potatos do well a distance of 2 feet 6 inches is not too much space between the rows, allowing 18 or 20 inches between the tubers.

Potatos in Frames.—The earliest crops of Potatos in frames will need judicious ventilation to prevent the haulm from becoming drawn. If frost threatens, place mats over the glass. Later plants will need the soil drawn up about them, as the shoots elongate. Plants of the earliest batch grown in herring boxes may be transferred to frames and have soil placed over them: they will then develop their tubers satisfactorily.

Asparagus.—At the time of writing we have been favoured with several fine days, and advantage has been taken at Aldenham to plant several new Asparagus beds, the site for them having been prepared some time previously. The young plants were growing in 3-inch pots and were planted at 15 inches apart in the beds. The present is a capital time to sow Asparagus seeds to raise plants for planting next spring. Sow three or four seeds in a well-drained 60-size pot and stand the pots closely in an unheated frame. Keep the frame fairly close and afford water as necessary, until the seeds have germinated, when air should be admitted on every favourable opportunity until eventually the lights are removed entirely. Afford water as often as is necessary and sprinkle the frame with moisture to encourage a free growth. In the autumn, when the growth is ripened, plunge the pots to just above their rims in a bed of cinder ashes, when no further attention will be necessary till the time for planting arrives. I prefer this method of raising Asparagus seedlings to any other I have practised. Whether planting seedlings, or, as is often done, older roots, let there be no unnecessary delay, as the roots suffer from exposure to the air. There is yet time for forcing another batch of Asparagus in a frame: this latest batch should furnish a supply of the vegetable until the outside crop is available.

Winter Greens.—Make a sowing of all the varieties of Kales for winter use. Select, for preference, a south border and one that has not recently been cropped with any form of Brassica, including Turnips. Label each variety correctly and place nets over the seed-bed as a protection against birds. In the event of prolonged dry weather, water the bed through a rose until the seeds have germinated.

Chicory.—Where a varied supply of winter salads is required, Chicory is almost indispensable. Make a sowing of Chicory in ground that has been well worked, and, if a considerable quantity is needed, a further sowing may be made later. Draw drills at distances of 1 foot and thin the plants when large enough to 9 inches or so apart. Beyond preventing weeds and giving an occasional hoeing with the Dutch hoe but little attention will be needed until the crop is cleared.

Endive.—To maintain a long and regular supply of Endive, a small sowing should be made at once in the soil of a warm border, in shallow drills formed about 18 inches apart. When the plants have attained to a sufficient size thin them, in the case of the curled-leaved variety, to 1 foot apart: the large-leaved or Batavian Endive should be allowed a little more room. Further sowings may be made at intervals of a fortnight or three weeks.

French Beans.—Where space permits make a sowing of French Beans in 5-inch pots to provide plants for transferring to cold frames. Raise the seeds in a gentle warmth, but inure them to fresh air as soon as they have germinated.

Onions. — Plants raised from seeds sown early in the New Year having been transplanted into boxes, will need gradual hardening preparatory to planting them out-of-doors. The ground will need to be forked over and given a good dressing of soot and wood ashes, preparing as good a tilth as possible before the plants are inserted. In the meantime, keep the plants free from weeds and promote aëration of the soil by stirring it with a pointed stick. When planting, retain as much soil on the roots as possible. Allow a distance of from 15 to 18 inches between the plants in the lines and 18 inches between the rows.

Leeks. — The finest Leeks are grown in trenches, which should have a depth of 2 feet and a width of 18 inches. Break up the bottom of the trench with the fork, place a layer of well-decayed farmyard manure in the trench and cover this with some of the excavated soil. Gradually harden the plants in much the same way as advised for Onions.

THE ORCHID HOUSES.

By J. Collier, Gardener to Sir Jeremiah Colman, Bart., Gatton Park, Surrey.

Cattleya, Lælia, and Lælio-Cattleya.—Plants of Cattleya bicolor, C. Leopoldii, C. velutina, and hybrid Cattleyas, such as C. Iris, C. Adula, C. Atalanta, and C. Hopkinsii, also Lælio-Cattleya Nisa, L.-C. callistoglossa, L.-C. bletchleyensis, and many others that flower late in autumn and winter are becoming active at their roots. Therefore, those that require new rooting material should be attended to in that respect. Healthy plants requiring increased rooting space should be afforded larger receptacles, taking care, if the compost is in a good condition, not to disturb or injure the roots more than is unavoidable. Where the roots are clinging so firmly to the sides of the pots that the plants cannot be taken out without damaging the roots, the pot should be broken and removed carefully in pieces. Many of these species and hybrids are of a vigorous habit of growth, and should be afforded more rooting space than less robust kinds. When potting the plants cut away the back leafless, pseudo-bulbs, for if these remain they will weaken the plant and necessitate the use of larger pots. Plants that have sufficient pot room and are in a satisfactory condition at the roots may be top-dressed only. Remove some of the old compost from between the roots and substitute fresh material. Plants growing in sour soil, or unhealthy plants, should be taken out of the pots, cutting away all decayed roots and useless pseudo-bulbs. They should be repotted in receptacles only just large enough to hold them, after which they should be placed in a moist, shady position in the house, and watered with great care until they are again well established. Plants with long, heavy pseudo-bulbs should be secured firmly to neat, strong stakes, for if they become loose in the soil there is a danger of the roots becoming broken. Any of the old psuedo-bulbs that have been taken off may, if they possess sound eyes and a portion of the rhizome, be employed for purposes of propagation. They should be placed in pots furnished with crocks and a covering of Sphagnum-moss. Stand them in a moist, shady part of the house and syringe them frequently. After roots and top growth have formed, they may be potted up and afforded a similar treatment to the established specimens. A suitable rooting medium for these plants consists of equal parts of A1 fibre and Osmunda fibre broken up rather roughly, with a small quantity of Sphagnum-moss and a rather liberal amount of crushed crocks added. Pot firmly, and place the compost to within about ½ inch of the rim of the pot. Plants of Cattleya Trianæ and its varieties have passed out of flower, and are starting afresh into growth. Any plants that require attention at the roots should be dealt with as soon as young roots appear from the base of the new growth. In other respects they should be treated similarly to the plants already mentioned.

Shading.—Where lattice blinds only are employed for shading Orchid houses these will not afford the necessary protection to such plants as Miltonia, Odontoglossum, Phalænopsis, Angræcum, Vanda Lowii, V. suavis, V. tricolor, Aërides, and Saccolabium. The glass may be stippled with a mixture of flour and water, and the work should be done on a fine day so that the coating may dry quickly. The glass should be washed thoroughly and allowed to dry again before applying the stippling.

Temperatures.—As the days lengthen and the sun-heat increases the temperatures of the Orchid houses should be raised both by night and day. This will necessitate an increase of atmospheric moisture, therefore the floors and stages should be damped at least three times each day, and the plants that are not in flower sprayed overhead. This should be done sufficiently early in the day to allow the foliage to become dry before night.

THE HARDY FRUIT GARDEN.

By F. Jordan, Gardener to Lady Nunburnholme, Warter Priory, Yorkshire.

Strawberries.—The ground in which Strawberries are growing, whether of beds or borders, should be forked lightly at least once a year, especially when it is of a heavy texture. If this work has not been done already, let there be no further delay, as the plants are developing new growths. Apply a dressing of soot and freshly-slaked lime between the rows, after the digging is completed, to destroy slugs, but avoid dusting the plants. In the case of old plantations, a dressing of some chemical manure may be applied with beneficial results, using for preference one that contains a large percentage of potash. A mulching of stable litter should be applied as soon as the surface has become dry. The litter will be washed clean by the rains before the berries are ripe. If pot plants that have been forced are to be planted, let the ground be prepared thoroughly by deep digging or trenching, and enriching it liberally with manure. In all cases care should be taken to see that the foliage is free from mildew and red spider. Plants of the latest batches that have been forced under relatively cool conditions are the most suitable for planting, being stronger and better in every respect than those that have been subjected to much fire-heat. Set out the plants at distances of 2 feet apart in rows, allowing 2 feet between the rows. Afterwards apply a mulch of short manure to preserve the moisture in the soil and encourage growth. Plantations formed recently should be examined and the soil about the plants made firm by treading, as in many cases the roots have become loosened by frosts.

Raspberries.—Canes that were planted last autumn and cut down as advised in the Calendar for February 10 should be producing suckers freely from their bases. Select four or five of the stronger growths, removing the weaker ones. Remove also suckers that develop between the rows of old plantations. Fork the soil lightly and apply a mulch of manure at once.

General Work.—The mild, rainy weather has favoured the growth of weeds, therefore as soon as the ground is in a suitable condition it should be stirred frequently with the hoe. Constantly stirring the surface of the soil at this season is of much value in the fruit quarters; it is not only beneficial to the growth of the trees, but prevents the seeds of weeds from germinating.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, *as well as specimens of plants for naming, should be addressed to the* **EDITORS, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Special Notice to Correspondents.—*The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.*

APPOINTMENTS FOR THE ENSUING WEEK.

SATURDAY, APRIL 6—
Soc. Française d'Hort. de Londres meet.

MONDAY, APRIL 8—Bank Holiday.

WEDNESDAY, APRIL 10—
Kingsbridge Daffodil and Spring Fl. Soc. Exh. Royal Caledonian Hort. Soc. Spring Sh. (2 days).

THURSDAY, APRIL 11—
Cornwall Daffodil and Spring Fl. Sh. at Truro (2 days).

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—46°.

ACTUAL TEMPERATURES:—

LONDON.—*Tuesday, April 2* (6 P.M.): Max. 54°; Min. 34°. *Gardeners' Chronicle* Office, 41, Wellington Street, Covent Garden, London.—*Wednesday, April 3* (10 A.M.): Bar. 29·7°; Temp. 51°; *Weather*—Sunshine.

PROVINCES.—*Tuesday, April 2:* Max. 51° Cambridge; Min. 48° England N. and Scotland.

SALES FOR THE ENSUING WEEK.

WEDNESDAY—
Herbaceous and Border Plants, Lilies and Hardy Bulbs, at 12; Roses, at 1.30; Palms and Plants, at 5; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.
Roses, Liliums, Palms and Bay Trees, at 12.30; at Stevens's Rooms, 38, King Street, Covent Garden, London.

FRIDAY—
Hardy Bulbs and Roots, Perennials, &c., at 12; Imported and Established Orchids, at 12.45; Roses, at 1.30; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

The Irish Department of Agriculture and Retail Trading.

We publish an illuminating correspondence which has taken place between the Department of Agriculture of Ireland on the one hand and the Horticultural Trades Association on the other.

The subject of the correspondence is the allegation made by the Horticultural Trades Association that the Department of Agriculture is doing grave damage to the horticultural industry of Great Britain and Ireland. It is alleged that this damage is caused by the activity of the Department in undertaking the sale and distribution of fruit and other trees. The Department purchases the trees by open tender, and the sales carried out through the Department are effected at cost price plus charge for carriage.

This new departure in departmental activity appears to have had its origin in the laudable desire on the part of the Department of Agriculture to encourage farmers, small holders, and labourers in the work of planting unproductive land.

So long as the efforts of the Department were confined strictly to educational work no reasonable objection could be made to their giving a practical trend to their propaganda by supplying the poorer classes of the rural community with useful trees at low rates. But no reasonable man outside a Department would imagine that when Plums are to be had cheap none but poor purchasers will buy them.

As a matter of fact, the Horticultural Trades Association maintain, and produce evidence in support of their contention, that the purchasers of trees from the Department do not belong exclusively to the labouring classes. Other sections of the community have not been slow to take advantage of the vicarious benevolence of the Irish Department of Agriculture, until that Department has become the salesman, not only to the labourers, but also to many of the landowners of the country. The wares which the Department sells are not apparently confined to fruit and forest trees, but include such purely ornamental subjects as Cupressus, 4 to 5 feet high, Laurels and Clematis.

The officials of the Irish Department appear to be developing considerable business activity—rare in Departments—and according to the evidence of the Horticultural Trades Association are pushing their sales, not only among the peasants, but also among the proprietors of private gardens, to whom they offer trees and shrubs at attractive prices. It will be at once evident that unless the President of the Board and his officials do this work entirely out of office hours they are charging prices which are not fair to the nurserymen. They charge nothing for the services of the head of the Department, nor for those of the army of official commercial travellers who do the pushing of the goods.

We note with astonishment the nature of the defence urged by the Department, and say deliberately that it provides a remarkable example of bureaucratic indifference. This defence is three-fold. In the first place, it maintains that the County Committees do not as a rule supply fruit, forest or ornamental trees to landowners. When, therefore, do they do so? Frankly, though the public Departments of Great Britain are above all suspicion of dishonesty, it is evident that this setting up in the retail trade is bound to result in loss of prestige and confidence.

In the second place, the Department urges that its methods inflict no hardships on the horticultural community. What of the small grower? Is he in a position to tender? What of the differences between wholesale and retail prices? Are they to be snatched from the trade and used as credit for a Government Department? But we need not labour the point except for the benefit of the new school of economics which exists at the Irish Board.

The third item of the defence is the most scandalous of all. It consists in the curt announcement that "I am now to remind your Council that what is done with the trees thus obtained in the open market by tender is a matter which concerns the Department and the County Councils alone."

It does not. Until our form of Government becomes officially a bureaucracy, "what is done with the trees" concerns every citizen. The form of the reply is interesting, but the matter of it is vital.

It is natural for a public department to survey the result of its labours and to pronounce it good; but though bureaucratic power is sufficiently menacing it is not yet supreme, and the Trades Association should not rest until it has taught the Irish Department of Agriculture a salutary lesson both in manners and in methods.

MAGNOLIA SALICIFOLIA (see fig. 99).—This beautiful species is a native of the mountains of Nippon in Japan. Plants were introduced to the Arnold Arboretum by Professor SARGENT, who discovered specimens growing on Mount Hakkoda at elevations of from 2,000 to 3,000 feet above sea level. Our illustration is reproduced from a flowering spray of a tree growing in the Royal Botanic Gardens, Kew. The plant grows best in a moist soil, and forms a tree about 15 or 20 feet high, with Willow-like leaves, 5 to 6 inches long, light green above and silvery-white beneath. The flowers are borne on rather long stalks, and are narrow, tapering to both ends. The species has been cultivated in Britain for some years, but we do not know of a previous instance in which a plant has flowered out-of-doors. All Magnolias are flowering abundantly this season, which is doubtless attributable to the extra amount of sunshine experienced last summer.

ROYAL COUNTIES AGRICULTURAL SOCIETY.—The annual exhibition of this Society will be held at Guildford on June 11, 12, 13, and 14. The arrangements include a flower show. The secretary is Mr. C. S. FUIDGE, Silverdale Road, Southampton.

APPLES IN ONTARIO.—The Fruit Branch of the Ontario Department of Agriculture, in issuing *Bulletin* 194 on Apple orcharding, has done a valuable service to the State. The *Bulletin* compresses into the space of 64 pages an excellent account of the cultivation of the Apple, as well as information on spraying, marketing, and cold storage. In the lists of the most valuable varieties for market approved by the Board of Control it is noteworthy that several varieties are recommended because of their special hardiness for planting in regions north of latitude 46°. They include:—summer: Transparent Lowland Raspberry and Charlamoff; fall and winter: Duchess, Wealthy, Hibernal, Longfield, Patten, Whitney, Hyslop, and Milwaukee.

THE GARDENS OF UDAIPUR.—The annual report of the gardens of his Highness the Maharana of Udaipur shows that this excellent establishment continues to make good progress. It is interesting to find that the old difficulty of sending seeds to India has been got over by our seedsmen, and that all the vegetable seeds supplied to Udaipur by Messrs. SUTTON & SONS germinated well and produced good crops. This garden continues to do good work in cultivating not only native but also fruits of temperate regions, such as Plums, Apples, Pears and Quinces.

CHEMICAL FERTILISERS IN EGYPT.—Owing to intensive cultivation and also to the larger area of land now under crops, Egypt has increased its consumption of artificial fertilisers enormously of recent years. The chief manure used appears to be nitrate of soda (30,000 tons in 1910), which altogether outdistances sulphate of ammonia (1,660 tons). It is satisfactory to learn that an increasing amount of the trade is in British hands. Thus, that share was in 1910 fourfold the share in the previous year.

Popularity of School Gardens.—Remarkable evidence of the growing popularity of school gardens is contained in the recently issued report of the Board of Education for the year 1910-11. In the introduction the following paragraph appears:—"Closely connected with the growth of interest in nature study is the subject of school gardens. How great has been the increase in the number of schools where gardening is taught since 1902 may be seen from the following comparison. In 1902 gardening was taught in 387 schools, and the total number of boys on whom grant was paid was 4,359. In the year 1909-10 the subject was taught in 2,014 schools, and grant was earned by 811 girls and 28,948 boys. The subject is taught in practically every county area in England and in all but two in Wales. In all school gardens with hardly an exception the cultivation of vegetables is the main feature. Calculations as to quantities of seeds and crops make admirable exercises in arithmetic; children draw the gardens to scale, and paint and model from the fruits and flowers which they have themselves grown. These drawings and paintings form a useful record of what has been done from year to year." In another part of the report, the following information appears:—"Gardening is now taught in 48 of the 49 county areas in England and in 11 of the 13 in Wales. The number of schools where this subject is taught and the number of scholars instructed show a considerable increase. The complete returns for 1908-09 show that grant was paid for 24,925 boys and 486 girls. During 1909-10 instruction was given in 1,872 school courses, and grant was paid for 28,948 boys and 731 girls. During 1910-11 instruction was given in 14 centres and 2,270 school courses."

The Cost of the Royal Parks.—According to the Estimates for Civil Services which were published as a Parliamentary paper last week, the net amount to be spent during the year ending March 31, 1913, on the Royal parks and pleasure gardens is £125,700. The gross expenditure is estimated at £137,170, the appropriations in aid amounting to £11,470. This amount compares with the following expenditure in previous years:—1902-3-4, £118,365; 1904-5, £103,219; 1905-6, £104,391; 1906-7, £108,150; 1907-8, £139,972; 1908-9, £131,084; 1909-10, £125,337; 1910-11, £125,938; while the grant for 1911-12 amounts to £133,600. The estimate shows a decrease of £7,833. This includes a revote of the amount needed for beginning the second portion of the new laboratory in the Edinburgh Royal Botanic Gardens, which has been delayed in consequence of a difficulty with the Corporation of Edinburgh on the question of frontage. Provision is also made for the better policing of Hyde Park and for improvements in the bathing ground at the Serpentine.

"The Carnation Year-book." *—The third number of the annual publication issued by the Perpetual-flowering Carnation Society contains much that is of interest to lovers of Carnations. Besides accounts of the impressions of the society's delegates who visited America on the occasion of the American Carnation Society's meeting in the spring of last year, there are many portraits of members and exhibits. A list of American Carnation names revised to January, 1912, should prove useful, and there is a record of the varieties, with descriptions and raisers' names, registered by the English Society in 1907 and onwards to last year.

* *The Carnation Year Book*, price 1s. 6d.

Trees and Road Tar.—Observations made by M. C. L. Gatin (C. R. Acad. Sci., July, 1911) leave no doubt with respect to the injurious effect of road tar on trees. M. Gatin's observations, which were made on trees of Catalpa bignonioides and Robinia Pseud-Acacia, &c., in the Bois de Boulogne, show that the tarring affects the number of leaves, their size and shape. The effective leaf-surface on trees in parts of the Bois where the roads are tarred is just one-half of that on trees in parts the roads of which are not tarred.

"The Modern Culture of Sweet Peas." *—The latest edition of Mr. Thomas Stevenson's book on Sweet Peas has been issued at a low price (1s.) in the hope that it may enjoy a large circulation amongst amateurs. The author takes his readers through the various details of Sweet Pea culture in plain, straightforward language, and any garden-owner who wishes to grow first-rate blooms can do so if the directions given are followed in an intelligent manner. The author advises his readers to confine their attention to the cultivation of a few sterling varieties which yield refined blooms, rather than to grow a number of sorts which bear larger, but looser flowers of coarse texture. As a preventive from the ravages of mice at the time of sowing the seed, Mr. Stevenson questions the advisability of soaking the seed in paraffin, and we agree that it would not be wise to allow the seed to remain in paraffin for more than a few minutes; a much better plan is to place a thin layer of fine cinders over the rows after the seed has been sown, and to daily spray the cinders with paraffin emulsion until the seedlings are safe from the attacks of mice.

* *The Modern Culture of Sweet Peas*, price 1s. The Cable Printing and Publishing Co., Ltd.

[*Photograph by E. J. Wallis.*

Fig. 99.—Magnolia salicifolia: flowers white.

(See p. 222.)

NORTH OF ENGLAND HORTICULTURAL SOCIETY'S MEDAL.—In fig. 100 is reproduced the medal of the North of England Horticultural Society, designed by Mr. F. RANSOM, and manufactured by Messrs. FATTORINI & SONS, of Bradford. On the side shown in the illustration is a figure of Demeter, a Greek divinity, emblematical of Mother Earth. The goddess is bearing in her right hand a bunch of Poppies, and in her left a basket of assorted fruit.

PRIZES FOR LEEDSII DAFFODILS. — From remarks made at the R.H.S. Show on Tuesday last, it was evident that some Daffodil growers have overlooked the announcement made in our issue for March 2 that Mr. CHESTER J. HUNT, of America, has offered prizes to be awarded in an open class for six distinct varieties of Leedsii Daffodils at the R.H.S. Daffodil Show to be held on the 16th and 17th inst. Three stems must be shown of each variety, and no variety must be included that cannot be purchased as cheaply as two guineas for 100 bulbs.

DRYING POTATOS.—As is well known Germany produces an enormous annual crop of Potatos. After the sales for human consumption, for cattle feeding, seed purposes, and the starch and alcohol industries, there remains a large surplus. The problem of the profitable utilisation of this surplus has recently been solved to a great extent. No doubt inspired by Colonial and American methods of preserving Apples, the Germans have adopted similar plans with their surplus Potatos. There are many systems in vogue, but only two of them are in general use. The tubers are either sliced or flaked, and are usually dried by steam; hot air is used in some of the factories. It is claimed that these dried Potatos form excellent feeding stuff for all kinds of stock, and are decidedly superior to raw tubers which have lost value by sprouting.

ASSOCIATION OF ECONOMIC BIOLOGISTS.—The eleventh general meeting of the Association of Economic Biologists was held at Dublin on March 28, 29, under the presidency of Prof. G. H. CARPENTER. Among the subjects of papers read and discussed were:—Biological Training for Agricultural Students; Parthenogenesis; Methods of Testing Grass Seeds; The Culture of Phytophthora infestans (fungus causing Potato blight); The Food of Birds; The Pollination of Hardy Plants; and Cereal Breeding.

MAIZE CROP IN ARGENTINA.—The Board of Agriculture and Fisheries have been informed by telegram from the International Agricultural Institute that the production of Maize in Argentina is estimated at 147,927,000 cwts.

RETIREMENT OF A LONDON PARK OFFICER.—In March, 1911, the London County Council authorised the retention for one year as from April 15 last of the services of Mr. G. F. BARNES, second officer of the London Parks Department, who attained the age of 65 years on the latter date. It is now proposed that Mr. BARNES should be retired from the service as from the end of next June. Mr. BARNES, who is in receipt of a salary of £500 a year, has completed 24 years' service. He is one of 42 officers who, when the Council came into existence, had been for varying periods in the service of the Metropolitan Board of Works, but had not been placed on the permanent staff He entered the service in 1888 with a wide technical knowledge which, the Establishment Committee report, has proved very valuable to the Council. The technical work of the Parks Department has been done under his supervision since 1892, and he has designed and supervised the execution of many important works during his period of office. It is proposed to grant Mr. BARNES a retiring allowance of £220 3s. 11d. a year as from July next.

THE WEST INDIES.

HIPPEASTRUMS IN JAMAICA.

CONSIDERABLE success can be accomplished in the cultivation of hybrid Hippeastrums in Jamaica, as the following notes on the plants in the Botanical Gardens clearly show.

In November, 1909, one bulb of each of the following varieties was obtained from Messrs. Veitch, Chelsea:—Surprise, Bala, Eclipse, Horsa, Gamos, Enid, Estella, and Regina.

As an example of what can be done, our experience with the variety Surprise is of interest. On January 19, 1910, this bulb bloomed, and the two flowers were crossed with the pollen of one of the flowers of Bala, which bloomed on the same day. The cross was successful, and on February 25, 190 seeds were sown. As a result of this sowing, 167 seedlings were raised, and these were planted out on July 26 following in

FIG. 100.—MEDAL OF THE NORTH OF ENGLAND HORTICULTURAL SOCIETY.

a bed shaded by Guango trees. The plants grew very rapidly, and built up bulbs so quickly that by the end of the year 1911 the majority of them were fully 8 inches in circumference, while each was surrounded by six or eight offsets or smaller bulbs.

On January 9, 1912, all were taken out, and after the earth had been shaken from the roots, the bulbs were placed in the sun to dry and ripen. A week was allowed to insure complete ripening, after which the smaller bulbs were separated, and then they were counted up. It was discovered that there were 163 large or flowering bulbs, and 280 smaller bulbs, making a total of 443 plants obtained from a single bulb in less than two years. The 163 large bulbs, when quite matured, were planted in a carefully prepared bed, where a little shade could be afforded from the hot sun, and on February 25 the first flowers commenced to open.

The result of this cross is a very fine hybrid, superior in both form and colour to either parent. The flowers are large and of a rich, velvety red, faintly marked with yellow. They are borne on stouter flower-spikes, and in many cases there are two spikes to a bulb.

It is easy to see that of the two parents, Surprise and Bala, the latter is prepotent, as the flowers of this most closely resemble those of the hybrid, and are of the same colour.

The 280 small bulbs have been planted in beds adjoining the above, and after a year's growth should be ready to flower.

Similar experiments are being conducted with the other varieties, while in the same plot are over 1,000 young plants, which were raised in 1911 from 36 hybrids received from Kew in 1910. *A. H., Botanical Gardens, Jamaica.*

AUSTRALIA.

HOURS AND WAGES OF GARDENERS.

AN immigrant gardener who called on me recently related how disappointed he was with the conditions of gardening here. He informed me that a Government representative in London told him and others about to come to this country that gardeners in Victoria could easily get situations with wages from £3 to £5 per week.

I do not wish to dishearten gardeners who would like to come to Victoria, or, for that matter, to any part of this rich and fertile continent, for there is no better in the world; but if such a statement was made to induce gardeners to come here, it should be contradicted. I have been over 20 years in the colony, and know I am safe in saying that the number of private gardeners who are in receipt of a salary of £3 per week may easily be counted on the fingers of one hand. I do not know of one who receives £4 per week, much less £5.

Gardening has improved during the last few years here, but only as regards wages in Government or Town Council appointments. In these cases, Members of Parliament and Municipal Councillors see to it that garden and other employees are paid proper wages, and it is only necessary to work the 48 hours per week to fulfil the conditions of their employment. The emigrant gardener who is employed by either of these powers on his first landing here may consider himself fortunate. Up to the present, there is no legislation that stipulates what wages a private gardener should get or what hours he should work. His profession is a happy hunting ground for the wasters from other trades or professions.

It was no uncommon thing, a few years ago, during scarcity of labour among tradesmen, to find carpenters, bricklayers, and plasterers keeping the wolf from their doors by working as gardeners for low wages, the same men who, at the present time, would scorn any wages offered as low as 10s. per day. Even at the present time many who were coachmen or cabmen are filling situations as gardeners in Melbourne and district. This fact throws light on the chances a genuine gardener has of commanding good wages. Round Melbourne, the average wages for a gardener vary from £1 16s. to £2 5s. per week, or from £1 to £1 5s. or £1 10s., with maintenance. If the place is single-handed, he may have to milk, clean boots and knives, besides growing vegetables and flowers, and generally keeping the garden in order. His hours may be 8 or 10 per day, with extra work in dry weather, such as watering in the evenings or at night, if the garden he is employed in is not blessed with a good pressure of water. For these extra hours I have never heard of payment having been given. In the country the same conditions obtain. Many of the wealthy landowners have good gardens, but, in most cases, the labour for working the garden is stinted. After my experience in this colony, I consider there are not 20 head gardeners' positions in private places comparable with good situations in Britain.

I have endeavoured to describe the conditions a private gardener may expect when he comes here. Although the description is not as bright as the picture drawn for him in Britain, there is no reason why this letter should discourage him from coming here, where there are so many other avenues that lead to employment, where the man who is willing to work may be sure of wages that are better than those paid to the average gardener. *J. W. Blackburn, Gardener to the Hon. T. H. Payne, Leura, Toorak, Melbourne.*

SCOTLAND.

PHILADELPHUS MICROPHYLLUS.

Philadelphus microphyllus (see fig. 101) has not a good reputation either for hardiness or for floriferousness, but in some parts of Scotland it is both hardy and free-flowering. It produces its fragrant, white flowers in abundance at Poltalloch Gardens, where Mr. D. S. Melville, the gardener, has care of a number of choice shrubs. This part of Argyle is very mild, and suitable for tender species. In a South of Scotland garden also, that of Jas. Davidson, Esq., Summerville, Dumfries, there is a fine specimen of Philadelphus microphyllus which produces annually a splendid display of flowers. It is growing in an ordinary border, and is unprotected.

NORTH OF SCOTLAND COLLEGE OF AGRICULTURE.

The Scottish joint stock companies registered during the week ending March 16 includes the North of Scotland College of Agriculture (the word "Limited" is omitted by licence of the Board of Trade) to take over the work carried on by the Aberdeen and North of Scotland College of Agriculture, and to carry on a college for instruction in and the study and research

Fig. 101.—Philadelphus microphyllus: flowers white.

of agriculture, including farming, stock raising, forestry, arboriculture, estate and farm management, market gardening, horticulture, poultry keeping, bee keeping, veterinary science, and agricultural chemistry. The company is limited by guarantee.

APPLE CULTURE IN THE CLYDESIDE FRUIT FARMS.

Apples are largely cultivated as a commercial crop in the valley of the Clyde. The trees are usually grafted on old stocks, and yield crops of sound Apples, which bring high, though not exorbitant, prices. The varieties most in favour are Cambusnethan Pippin, Stirling Castle, Beauty of Moray, Ecklinville Seedling, Cellini, Fullwood, Norfolk Beefing, and Lord Suffield.

ABERDEEN FLORISTS AND MASTER GARDENERS.

As a development of the movement for higher wages for jobbing and other gardeners in Aberdeen, a proposal has been made to establish an association of florists and masters of the district employing jobbing gardeners. In pursuance of the proposal a largely attended meeting was held recently in Aberdeen, when it was unanimously decided to form such an association. A committee was appointed to draw up a constitution and frame suitable rules.

PAISLEY FLORIST SOCIETY.

This society is one of the oldest, if not the oldest, of all Scottish horticultural societies, having been established for about 130 years. From April until August fortnightly meetings are held, and the society holds three shows, one each in spring, summer, and autumn.

THE IRISH DEPARTMENT OF AGRICULTURE AND THE HORTICULTURAL TRADES ASSOCIATION.

The following correspondence has taken place between the Irish Department of Agriculture and the Horticultural Trades Association respecting the action of the Department in respect to the distribution of trees at low prices to land-owners and other occupiers:—

December 13, 1911.

The Rt. Hon. T. W. Russell, M.P.,
Department of Agriculture and Technical Instruction, Dublin.

Sir,—I am instructed by my Council to write drawing your attention to the very serious injury which is being done to the Nursery Trade in Ireland through the County Councils supplying Fruit trees, Forest trees, and even Ornamental trees at very low prices to land-owners and occupiers throughout the country.

If it were a matter of assisting the poorer and more ignorant part of the population to improve their surroundings no objection would be raised, but my Council understands from numerous complaints that this is not the case, but that the various County Councils are pushing the business in all directions. Members of the Nursery Trade complain that in view of the fact that they are compelled to make very heavy contributions to both Imperial taxation and local rates, and that they are large employers of labour, thus assisting to keep the people on the land, this ruinous competition is most unjust, and they have urged the Council of our Association to make a most vigorous protest and to earnestly request that steps may be taken to restrict the distribution of fruit trees and other nursery stock to those who are really in need of the assistance, which is now being offered to the public at large.

Trusting you will give this matter your kind and careful consideration,

I am, Sir,
For the Council,
Your obedient servant,
(Signed) Chas. E. Pearson.
Hon. Sec.

January 4, 1912.

Department of Agriculture and Technical Instruction, Dublin.

Dear Sirs,—With further reference to your letter of the 13th ultimo, relative to the sale of fruit trees, &c., through the County Committees of Agriculture in Ireland, I am asked by Mr. Russell to say that the statement in the first paragraph of your letter is not strictly accurate, for the County Committees do not as a rule supply fruit, forest, or ornamental trees to land-owners; their operation in this direction being mainly confined to small holders, cottagers and labourers.

In addition, it should be borne in mind that the County Committees of Agriculture who adopt this method of distributing trees always obtain competitive tenders from nurserymen in Ireland. The best tender, not necessarily the lowest, is accepted; and the Committee then proceeds to resell the trees to occupiers in the County at cost price plus carriage. It can scarcely be contended therefore that the Committees are in "ruinous competition" with nurserymen. Moreover, as trees are sold by the Committees at cost price, the buyers paying carriage, neither the rates nor the Department's funds are used for the purpose of reducing the cost of the trees to the purchasers, so that public funds are not used in competition with private enterprise. Indeed in some counties it has been found that farmers can themselves obtain trees at practically the same price as that at which the County Committees could sell them. In such counties the Committees have, accordingly, discontinued the practice of obtaining trees in bulk and selling them to occupiers in the County.

Another factor in the case which should not be lost sight of is, that this portion of the Department's scheme has been the means of largely increasing the sale of trees in Ireland. Over 600,000 trees were purchased by farmers in this manner last year, the greater proportion of which would probably not have been bought at all were it not for the activity of the County Committees.

Under all the circumstances Mr. Russell does not think that there is any ground for the apprehensions of your Association in the matter.

I am,
Yours faithfully,
(Signed) Herbert G. Smith.

Messrs. The Horticultural Trades' Association of Great Britain and Ireland.

Feb. 8, 1912.

The Rt. Hon. T. W. Russell, M.P.
Department of Agriculture and Technical Instruction, Dublin.

Sir,—I am instructed by my Council to reply to your letter of Jan. 4th, and to apologise for not doing so earlier, also to explain that this is owing partly to the intervals between the meetings of the Council and partly to time necessary to make fuller enquiries as to statements made and obtain replies from the various districts of the country affected.

The result of these enquiries is to fully confirm the statements made in my previous letter. Correspondents from all parts of the country state that these operations are *not* confined to cottagers and small holders. I enclose three lists for tender in which you will see that more than half the trees for which tenders are asked or orders solicited are totally unsuited for small holders, such as forest trees and more especially ornamental evergreen and flowering shrubs; and the question is put, "what use have cottagers for Cupressus, 4 to 5 feet, Laurels, Clematis, &c., &c.?"

A correspondent in the north gives names of well-to-do land-owners who have purchased their fruit trees through the Authority. Another in the south says his sales of fruit-trees have been reduced 90 per cent. by official competition, and that in his district the County Instructors are going round to *every gentleman's garden* and recommending them to buy their trees at the reduced rates offered. Another in the Dublin district writes: "The Agricultural Department's action in selling trees at reduced rates is hitting me very hard, and in many cases supplies have been sent to places where I had the prospect of

the order, and the persons were *moneyed people* in no need of reduction."

My Council takes strong exception to your statement that "it cannot be contended that the Committees are in ruinous competition with nurserymen." Your letter allows that the trees are bought at cost price and passed on plus carriage to the buyers. This means that the official machinery is employed to do away with the nurseryman's profit and his establishment charges for necessary office work, travellers, and other expenses. The opinion of all concerned is that the general extension of this system of supply, which is going on all over the country, is absolutely ruinous to the Nursery trade, and will result in throwing a very large number of deserving men out of employment owing to the curtailment of labour which is being rendered imperative.

As stated in my former letter, no objection is raised to assistance being given to small holders, labourers and others who really need it, but reports on all hands go to show that instructors are pushing business in all directions, and official powers and opportunities are being used to carry on a ruinous competition with a trade which deserves every consideration on the part of the authorities.

It is most earnestly hoped that you will take immediate steps to test the correctness of these statements and to put a check upon the misplaced energies of your officials.

For the Council,
(Signed) CHAS. E. PEARSON.
Hon. Secretary.

Department of Agriculture and Technical Instruction, Dublin.

Dear Sir,—Mr. T. W. Russell desires me to acknowledge the receipt of your letter of the 8th inst., with enclosure, which shall have his attention.

(Signed) H. G. SMITH.

C. E. Pearson, Esq.,
Lowdham, Nottingham.

February 23, 1912.

Department of Agriculture and Technical Instruction, Dublin.

Sir,—With further reference to your communication of the 8th instant, and previous correspondence, I am asked by Mr. Russell to say that he has nothing to add to the full statement of the Department's position in the matter given in my letter of the 4th ultimo, the correctness of which your Council seem practically to deny.

As already intimated, the various County Committees in Ireland arrange for the purchase of trees from nurserymen by tender in the open market, at the usual trade prices. Mr. Russell desired me to explain to you, in my previous letter, as a matter of courtesy, the arrangements in question: but I am now to remind your Council that what is done with the trees thus obtained in the open market by tender is a matter which concerns the Department and the County Committees alone.

(Signed) HERBERT G. SMITH.

The Honorary Secretary,
Horticultural Trades Association
of Great Britain and Ireland.

CATTLEYA DIRCE "WESTONBIRT VARIETY."

THE illustration in fig. 102 represents the pretty hybrid Cattleya shown by Lieut.-Col. Sir George L. Holford, K.C.V.O. (gr. Mr. H. G. Alexander), at the Royal Horticultural Society's meeting on March 19 last, when the Orchid Committee voted it an Award of Merit. This cross from C. Miss Harris "var. Vulcan" and C. Schilleriana is an improvement on the form known in gardens as Cattleya Vulcan, and one of the best of the numerous C. Schilleriana crosses. The sepals and petals are rosy-lilac, the lip veined and tinged with claret-purple, extending into the well-defined blush-white margin.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

TRIAL OF VIOLAS AT WISLEY.—A trial of Violas will be conducted at the Wisley Gardens during the season of 1912. It is hoped that a large number of varieties will be sent to the Superintendent, R.H.S. Gardens, Wisley, Ripley, Surrey, for this purpose that the trial of so important and popular a flower may be made as useful as possible. Six plants of each variety should be sent at once. *W. Wilks, Secretary.*

"WAKE-UP" MANCHESTER.—I purposely did not wish to push the North of England Horticultural Society unduly forward when I threw out the suggestion of a Northern Wisley for Manchester, but now that our Society has been mentioned, may I say that if Manchester and District horticulturists desire it, we shall be glad to run an exhibition there, provided, as now at Leeds, Bradford and Harrogate, a strong local management committee is formed. Anyone who has watched our tactics will have seen for themselves that we desire to be "true to name" —North of England. Therefore, we have on our council not only Professor Weiss, of Manchester University, but also Mr. H. Hicks, of Messrs. Dickson & Robinson. We have also on our council Col. J. Rutherford, M.P., who kindly acted as one of our delegates to the Liverpool Spring Show this week. Mr. R. P. Ker also represents Lancashire, as well as Mr. W. Bolton, of Warrington, who, as prospective chairman of our Orchid Committee, also represented us at Liverpool. Mr. Gratrix, of Manchester, is on our council, and is keenly interested in our welfare. As regards our work in Manchester, we have already, at the invitation of the Orchid Society, joined forces with them, and run a successful joint show—last February. I only bring forward all this to prove that we are working on a broad basis, and intend to cover "all the ground" if possible. But before we can hold an exhibition in Manchester we must be assured of the support of local horticulturists, and feel that we are wanted. I am perfectly certain the trade would help us to run a first-class exhibition in keeping with the traditions of Manchester. Money prizes, of course, we could not give, but, if they were desired, they could be taken in hand by the local management committee. I would suggest, however, that individuals give the prizes and not the committee. If four challenge cups can be easily obtained for our Harrogate Show the first year, surely Manchester will not be behindhand in this matter: in fact, cups to be won outright might also be forthcoming! I have said enough in detail. It remains, Mr. Editor, for others to take the matter up, and then hold a meeting of all interested. I suggest for discussion the holding of an early May show in 1913, also an October show in 1913, if Nottingham does not desire it. I notice Dr. Weiss mentions that Manchester University has grounds and greenhouses for experimental work, as well as being interested in Holme's Chapel work. If the N.E.H.S. were to hold a show or shows at Manchetser, which I feel sure our Council would agree to, providing the financial difficulties were faced by a strong local management committee, we should also aim at popularising the scientific work already being done locally by means of lectures at the shows. *Palatine* states that it is a great pity that the promoters of the N.E.H.S. did not enter into some arrangement with the Manchester Botanical Society before establishing a new society. I could say something on this point, but I refrain. Our policy is a non-local inclusive policy, and our aim and object is to promote and encourage horticulture all over the North. I see also that *Palatine* rightly suggests not only meetings and exhibitions but also publications. The N.E.H.S. *Monthly Magazine* is intended to supply the means of publishing our monthly lectures and generally spreading abroad useful information. It is not intended to be put on to the "market" in competition with the regular horticultural Press. But here is a way of doing good work within the society, and generally treating horticulture from the educational and scientific point of view. In conclusion I feel sure *Palatine's* idea of "amalgamation giving strength, economy, working facilities, and generally benefiting horticulture" is correct, but the N.E.H.S. cannot touch this matter as yet. All we could offer to do is to run exhibitions, with lectures, if we were invited to do so. *J. Bernard Hall.*

FIG. 102.—CATTLEYA DIRCE "WESTONBIRT VARIETY": FLOWERS ROSY-LILAC, VEINED WITH CLARET PURPLE.

(Received R.H.S. Award of Merit on the 19th ult.)

FAILURE OF STRAWBERRIES (see p. 208).—The failure of Mr. West's pot Strawberries was no doubt caused by red spider doing damage to the crowns last autumn. *G. H. H. W.*

Pot Strawberries.—We grow about one thousand plants of Strawberries in pots for early forcing. The runners are layered early in small pots, being transferred afterwards to 6-inch pots. They are well protected in frames during the winter. Our earliest batches this season were placed in a Peach-house and vinery early in January. The plants grew strongly, some of the flower-stems being 12 inches long. No manure was afforded until after the berries were set, when Le Fruiterer was applied alternately with liquid manure. The first fruits were ripe on March 16, and successional plants promise good results. The variety is Royal Sovereign. I have known a similar case to that described by *F. W.*, but the plants were not well protected from cold, and the trouble was attributed to frost injuring the roots. *Fruit Foreman, Ingestre Gardens, Stafford.*

———Mr. West did not state how he treated his pot plants of Royal Sovereign Strawberry after placing them on an ash bottom fully exposed to light and air. Did they remain standing out in the open all through the early part of the winter, exposed to the incessant rains, or were they stood in unheated frames? If they were allowed to remain in the open even until Christmas, it is possible that many of the roots were killed or badly injured by the excessive wet. Mr. West's predecessor invariably wintered the bulk of his pot Strawberry plants plunged in ashes. It would be interesting to learn whether the system practised at Syon House by the late John Woodbridge, and continued by Mr. G. Wythes, of stacking the pot plants several layers deep in ashes, is still adopted there, the plants being, of course, stacked on their sides. An objection to this practice is that in dry winters the soil in the pots becomes dry, causing the roots to suffer harm. No doubt plunging the pots in leaves in cold frames or turf pits, over which lights can be placed during heavy rains or cold weather, is the best method. *D.*

Early Flowers in Scotland.—Mr. Williamson's experience does not coincide with mine as to the earliest Snowdrop, although his garden is only distant from Monreith some 20 miles by crow flight. I do not know Galanthus Melvillei, to which he refers, nor have I any desire to make its acquaintance, for I have never seen any species or variety superior in beauty or equal in constitution to the common G. nivalis. The following are the dates on which I have noticed the first bloom during the last seven years:—1905-6, December 27; 1906-7, January 8; 1907-8, January 20; 1908-9, January 13; 1909-10, January 19; 1910-11, December 30; 1911-12, December 30. *Herbert Maxwell, Monreith.*

Dianthus callizonus.—I have been lucky in not experiencing the difficulty which Mr. Farrer says he has encountered with this beautiful Pink. It does not seem so avid of sunshine as D. neglectus and D. alpinus, making better growth on a west exposure than full south. I grow it on a retaining wall, but have never ventured to give it lime, acting on the belief that, while many plants from limestone thrive in a limeless soil, most of those from non-calcareous districts hate it. D. callizonus seems quite content with good loam, a little sand, and a good deal of grit. On the other hand, I followed the advice of Mr. J. A. Clark, in his useful little manual, *Alpine Plants*, and began several years ago to treat D. neglectus with a free allowance of lime rubbish. D. callizonus seeds as freely with me as D. neglectus, but their proximity in the garden destroys all guarantee of purity of race. *Herbert Maxwell, Monreith.*

Birds and Fruit Buds.—During the cold weather in January and the beginning of February, some kind of bird destroyed nearly all the buds on the Peach trees out-of-doors here. I am interested to know if any other gardener has suffered the same loss, and what kind of bird would be likely to do the mischief. It is the first time in my experience, which extends over 19 years, that such a thing has happened. There are numbers of sparrows, but not many bullfinches in the district. *G. S. Hatcher, Holfield Grange Gardens, Coggeshall, Essex.*

The Old Shirley Society.—The note on the Shirley and Freemantle Horticultural Society (see p. 187) interested me greatly. Probably, of all who associated themselves with the formation of that society in the mid 'sixties, my friend, Mr. B. Ladhams, and myself are the only members remaining. The first show was held in the month of August, and rain fell heavily all the day. Nothing daunted, we resolved to continue it for a second day, but that was very wet also. Still, we stuck to the society and the show, and it grew gradually, so much so in fact that when the exhibition was transferred to Whitedwood Park, it became both large and attractive. However, the society was forced to find other quarters for its annual display, and the show receipts became less and less. For a society to have held 46 annual exhibitions is something of which to be proud, for it shows that the initial labours were not in vain. *A. Dean.*

Chrysanthemum King of Plumes.—This beautiful variety is one of the best late sorts; having cultivated it for several years past I can testify to the cut blooms being splendid for table decorations. I enclose photographs showing a group of Chrysanthemums, comprised of King of Plumes (yellow), Mrs. Thompson (yellow), and Wm. Thompson (white). The three varieties continue to flower until February. I also send a photograph of plants of Begonia Gloire de Lorraine. *Arthur Fitt, Apethorpe Hall Gardens, Northamptonshire.* [We regret that the photographs are unsuitable for reproduction. Eds.]

Iris tuberosa.—This sweetly-attractive Iris is now in full flower, and has been in bloom since the middle of February. It is popularly known in this country as the Snake's-head Iris, but in Spain it goes by the name of La Vedovina or the Little Widow, on account of its dark-tinted flowers, with velvet-black falls and pale, apple-green standards. In the North of England there are constant complaints of its failure to bloom, but in South Devon and Cornwall it never fails to flower abundantly every year, and blossoms annually though grown under the most dissimilar conditions. In a certain Cornish garden it has grown for sixty years in a wood greatly overrun by Ivy, and the owner of the garden referred to very naturally came to the conclusion that the Iris required shade and shelter. However, in a Devon garden, it grows well and blooms freely in an exposed site, on a southern slope, in the full sunshine, and in light soil that becomes dust-dry in summer. Few appear to know this quaintly-pretty flower, and it is rarely met with in gardens, but no one who has once grown it would willingly be without it. Though it cannot be termed a showy flower, and is far more sombre in colour than such of its family as I. alata, I. persica, I. Histrio, I. histrioides, I. reticulata and others, it has a refined beauty of its own. The delicate blossoms have the additional merit of being sweet-scented, and are always welcome for indoor decoration, especially as in the south-west they appear so early in the year. It is a native of the Levant, whence it was introduced into this country in 1597. The species has become naturalized in some parts of South Devon, where it now grows wild in the hedges. The leaves, which are each about 3 feet in length, are quadrilateral in shape, with a distinct ridge at each corner, and the flowers, which measure about 3 inches across, are borne on footstalks about 18 inches in height. In this locality it seeds freely, and self-sown seedlings spring in quantities some yards away from the parent plants. These can be removed when in full growth, and do not appear to resent the transplantation. *Wyndham Fitzherbert.*

SCHEDULES RECEIVED.

Bolton Horticultural and Chrysanthemum Society.—The twenty-sixth exhibition of this society will take place on Friday and Saturday, November 15 and 16, in the Albert Hall, Bolton. Five silver challenge cups will be offered for competition; also the R.H.S. silver gilt medal, silver and bronze medals are offered. A gold medal will be offered for two pots of large-flowered Chrysanthemums. Secretary, Mr. George Corbett, Heaton Grange Gardens, Bolton.

Preston Horticultural and Industrial Society.—The fourteenth annual exhibition of this society will be held in the Vicarage Gardens, Preston, on Thursday, August 22. Secretary, Mr. A. J. Gaston, 170, Springfield Road, Preston, Brighton.

SOCIETIES.

ROYAL HORTICULTURAL.

March 26.—Owing to the proximity of Easter and the railway difficulties, the attendance at the fortnightly meeting on Tuesday last was not quite so large as at recent exhibitions, but there was no falling off in the exhibits. Tall sprays of flowering shrubs rising above the partitions of the tables gave a very pleasing appearance to the Hall. The principal subjects in the floral section were Roses, flowering shrubs, Carnations, Pelargoniums, and hardy plants. The Floral Committee granted eight Awards of Merit to novelties.

Orchids were shown well, and included a larger proportion of good novelties than usual. The Orchid Committee granted three First-class Certificates and five Awards of Merit. The Committee included Mr. F. Sanders, who received numerous congratulations on his recovery from a severe illness.

The Narcissus Committee awarded one First-class Certificate and two Awards of Merit.

The exhibits before the Fruit and Vegetable Committee were unimportant.

At the three o'clock meeting in the lecture-room a lecture on "Tender Plants for Warm Corners" was delivered by Mr. R. Irwin Lynch.

Floral Committee.

Present: George Paul, Esq. (in the Chair); and Messrs. C. T. Druery, J. Green, T. W. Turner, G. Reuthe, J. T. Bennett-Pöe, C. R. Fielder, Wm. Howe, C. Blick, J. Jennings, F. F. McLeod, R. C. Nevill, Chas. Dixon, H. J. Jones, Chas. E. Shea, W. P. Thomson, E. H. Jenkins, Wm. J. James, W. G. Baker, R. C. Notcutt, R. Hooper Pearson, G. Gordon, R. Wallace, J. Dickson, Jas Hudson, and W. B. Cranfield.

Messrs. R. & G. Cuthbert, Southgate Nurseries, Southgate, Middlesex, filled each corner at one end of the hall with groups of flowering shrubs. Tall standard Lilacs and Laburnums towering over a groundwork of dwarfer plants were very effective. This firm also filled a table with profusely-flowered plants of Lachenalia Nelsonii. (Silver-gilt Banksian Medal.)

Messrs. Wm. Cutbush & Son, Highgate, exhibited spring-flowering shrubs and plants, with a group of Carnations at one end of the staging. Plants of the well-known Rhododendron Pink Pearl were shown bearing large trusses, illustrating how well this variety bears gentle forcing. The old favourite R. fastuosum fl. pl. is another useful Rhododeadron for forcing into bloom. (Silver Flora Medai.)

Messrs. R. Gill & Sons, Falmouth, Cornwall, brought a splendid collection of their famous Rhododendrons. Such varieties as Gill's Triumph, Duke of Cornwall, and Shilsonii are quite dazzling in colour. Some sprays of Acacia juniperina, bearing quantities of fluffy yellow flowers, served to heighten the brightness of the fine Rhododendrons and Camellias. Messrs. Gill also exhibited an interesting little Primula, which they provisionally named P. Gillii. It was raised from seed collected in the Himalayas at an elevation of 12,000 feet. The plant, which is under 3 inches in height, bears purple, bell-shaped flowers in an umbel, with pure-white interiors. (Silver Flora Medal.)

Mr. L. R. Russell, The Richmond Nurseries, Surrey, filled a long table with a collection of flowering Clematises, Primula obconica hybrids, and such rockery subjects as Primula denticulata, seedling Auriculas, and Diosma capitata. (Silver Flora Medal.)

Messrs. J. Cheal & Sons, Crawley, Sussex, displayed a very attractive group of flowering trees and shrubs in large flower pots. The old-fashioned Kerria japonica plena was exceptionally well-flowered.

Messrs. Wm. Paul & Son, Waltham Cross, filled one corner of the hall with an interesting group of different kinds of Pyrus in full flower. The double variety of Pyrus angustifolia bore very large flowers, but the smaller, single-flowered P. Malus atrosanguinea, with numerous pink blossoms, was the more attractive.

Messrs. J. Piper & Son, Bishop's Road, Bayswater, London, W., contributed a very effective group of flowering shrubs, for which a Silver Flora Medal was awarded.

Messrs. Felton & Sons, Hanover Square, London, arranged large branches of forced Lilac in Japanese vases. (Bronze Flora Medal.)

Messrs. H. B. May & Sons, Upper Edmonton, again exhibited a variety of flowering plants. Clematises in 5-inch pots were bearing fine blooms. The centre of the group was occupied by a good batch of Rose Tausendschon.

Messrs. Geo. Mount & Sons, Canterbury, staged some exceedingly fine Roses. Those popular red varieties, Richmond and Liberty; the rich-yellow Lady Hillingdon; and the fine pink Mrs. George Shawyer attracted a deal of admiration.

Messrs. Frank Cant & Co., Colchester, also showed fine Roses. Several boxes contained meritorious blooms of Caroline Testout, Mrs. A. E. Coxhead, Lady Alice Stanley, and the Lyon Rose. (Silver Banksian Medal.)

Mr. George Prince, Longworth, Berkshire, staged so many fine Roses that one's thoughts flew summerwards. Juliet was shown in surprisingly good form. The delightful perfume and pleasing colour of this flower will ensure its popularity. In the boxes there were good blooms of Mrs. E. Mawley, Dean Hole, and Mrs. Longworth. (Silver Banksian Medal.)

Messrs. James Veitch & Sons, Ltd., Chelsea, exhibited numerous Cinerarias of different strains. The carmine-coloured Feltham Beauty is very bright, and of a dwarf habit. Intermediate Blue, when in the bud stage, belies its name; but when the flowers are fully expanded the appropriateness of the name is quite apparent. Matador—a charming flower—has an elusive shade of colour, which has been described as a "terra-cotta scarlet." On the opposite side of the gangway Messrs. Veitch showed a fine selection of Primula obconica hybrids, and a pan of the new Primula Knuthiana. (Silver Flora Medal.)

Messrs. H. Cannell & Sons, Swanley, Kent, again made a good show with Zonal Pelargoniums. (Silver Banksian Medal.)

Mr. H. J. Jones, Ryecroft, Lewisham, staged many vases containing fine trusses of single Zonal Pelargoniums, with bright colours, and of good form. (Silver Banksian Medal.)

Mr. James Douglas, Great Bookham, Surrey, staged a collection of his excellent Auriculas. Of the many good varieties shown, we especially noted Banshee (a large-flowered fancy), Glowworm (scarlet self), Chieftain (brown shades with yellow centre), Claud Halero (an immense flower, similar in colour to Chieftain), John Ridd (apricot self), and Sunshine (rich yellow with a white centre).

Miss Willmott, Warley, showed a very interesting collection of Primula viscosa hybrids.

Mr. H. Burnett, Guernsey, staged a very fine collection of Carnations. Bonfire has a fiery eye, and contrasted finely with the pink Gloriosa, and the old-clove-coloured Pluto. (Silver Banksian Medal.)

Messrs. Young & Co., Cheltenham, exhibited a collection of Carnations. A. S. Montgomery (a well-formed flower, of an uncommon rosy-mauve shade) and Irene (with fine blooms, on the border-line between pink and scarlet) pleased us greatly, as also did the Duchess of Devonshire variety. (Silver Banksian Medal.)

Messrs. Allwood Bros., Haywards Heath, Sussex, also showed fine Carnations, attractively arranged in quaint old jars.

Messrs. W. Wells & Co., Merstham, Surrey, showed a small collection of Carnations.

Messrs. Stuart Low & Co., Bush Hill Park, Middlesex, staged a large number of Carnations; several very good plants of Metrosideros floribunda; Hydrangea Mme. Moulliere, with large white trusses, and several Anthuriums bearing large spathes of different colours.

Messrs. Geo. Jackman & Son, Woking, Surrey, contributed hardy-flowering plants. The prostrate Conifer-like Veronica salicornioides was just assuming its bright golden colour, and a batch of Tulip Greigii made a fine piece of bright colour amongst the more sober Heaths. (Silver Banksian Medal.)

Mr. Maurice Prichard, Nurseryman, Christchurch, arranged a very tasteful rockery, in which the boulders were not too aggressive.

Mr. G. Reuthe, Keston, Kent, staged many plants and shrubs in flower. Primula rosea was very good so early in its season. Several Auriculas, especially Princess Ena, bore large velvety flowers. The pale blue Rhododendron intricatum made an interesting, albeit un-Rhododendron-like, shrub, in strong contrast with some cut blooms of the large-flowered hybrids. (Silver Banksian Medal.)

Messrs. Ware, Ltd., Feltham, Middlesex, exhibited hardy plants arranged in a rockery. A large clump of Lithospermum Heavenly Blue was prominent. The bright-flowered Saxifraga Bathoniensis, when in quantity, is a valuable lowly-growing plant. The dainty little Soldanella Clusii found a place in the exhibit, as also did the uncommon Ranunculus amplexicaule, which has large white petals and yellow stamens. (Silver Banksian Medal.)

Messrs. Whitelegg & Page, Chislehurst, Kent, arranged a neat rockery on a table in the annexe. There were only a few different kinds of plants employed in its decoration, but these made a good display—far better than would have been the case had there been more. (Bronze Flora Medal.)

Messrs. R. Wallace & Co., Colchester, arranged profusely-flowered herbaceous and Alpine plants, also Daphne Cneorum, Berberis, Cytisus, and a good group of Iris.

The Misses Hopkins, Mere Gardens, Shepperton-on-Thames, had a neat display of flowering rockery plants tastefully amongst suitable boulders.

Messrs. Bakers, Wolverhampton, arranged a small collection of Alpines in boxes of fibre. Phlox canadensis and P. Laphami Perry's variety, with their delicate Plumbago-like shade of blue, were very attractive. A group of Viola gracilis, with very large blue flowers, showed good culture.

The Guildford Hardy Plant Nursery Co. showed flowering shrubs and herbaceous plants.

Messrs. Thompson & Chapman, Bushey, Herts., set up a neat rockery, well furnished with suitable plants.

Messrs. John Peed & Son, West Norwood, London, S.E., arranged a rockery, in which the stones were a trifle too much in evidence.

Messrs. Wm. Fells & Son, Hitchin, Hertfordshire, included a pot plant of Echium fastuosum in an exhibit of rockery and herbaceous plants.

Mr. James Box, Lindfield, Sussex, showed hardy flowers. Scarlet Anemones made a very bright patch of colour.

Awards of Merit.

Camellia cuspidata.—A Chinese species, bearing small, single, white flowers, which have pale-yellow stamens. The large example exhibited was in the form of a pyramidal bush, and was very floriferous. The relatively narrow leaves are about 2 inches to 2½ inches long. The species was introduced by Wilson during his first visit to China, and it has proved perfectly hardy at Coombe Wood. Shown by Messrs. Jas. Veitch & Sons, Chelsea.

Viburnum Davidii.—A bushy shrub in which the foliage is rather more ornamental than the flowers. The latter are produced in the form of dense heads of small blossoms. Also shown by Messrs. Veitch.

Primula "Warleyensis."—Two pans of a dainty little Primula from China were shown by Miss Willmott. The plants were flowering in pans as pricked off from the seed-pan, and the mauve flowers were only about 2 inches high in umbels. The small, green leaves were about 1 inch long, with slightly serrate margins. The species has not been identified, but if it turns out to be new it will be known as Primula Warleyensis.

Rose Mrs. E. Alord.—This is a pink-coloured hybrid Tea variety, having some resemblance to Mme. Abel Chatenay and La France. Shown by Messrs. Lowe & Shawyer.

R. Mrs. C. Reed.—This is a charming hybrid Tea Rose, with the palest yellow shade showing in the outer petals, the inner petals—forming the centre of the flower—being a pretty pink. Shown by Messrs. Low & Shawyer.

Primula Juliæ.—This is a hardy Primula from the Caucasus. It has crenate, caudate, smooth leaves 1 inch long, on stems about 3 inches long, and purplish-mauve flowers, which are solitary in the same sense as P. vulgaris. The species was exhibited by Mr. Baker, of the Oxford Botanic Gardens, who states that the plant grows well out-of-doors in almost any situation.

P. Mrs. James Douglas.—This is one of the many seedlings of Primula intermedia raised by the late James Douglas. The variety is remarkable for its rich, purple flowers. Shown by Mr. Douglas, Great Bookham.

Pelargonium Ambrosea.—This is a pink-flowered Zonal-leaved Pelargonium, Each flower is 2 inches across, and the shade of pink is exceedingly pleasing, whilst the habit of the plants is sturdy and free-flowering. Shown by Mr. Philip Ladds, Swanley, Kent.

Narcissus Committee.

Present: E. Bowles, Esq. (in the Chair); Miss F. W. Currey, Messrs. J. T. Bennett-Poë, Alex. M. Wilson, G. W. Leak, J. Jacob, Herbert Smith, E. M. Crosfield, W. Goldring, P. D. Williams, J. D. Pearson, P. D. Barr, W. B. Cranfield, F. Barchard, C. Bourne, G. Reuthe, W. Poupart, Walter T. Ware, and C. H. Curtis (secretary).

The Rev. G. H. Engleheart, Dinton, Salisbury, exhibited a splendid collection of Narcissus. The flowers were shown under numbers, and also, as is usual with Mr. Engleheart's Narcissus, they were exceptionally fine. (Silver-gilt Flora Medal.)

Mr. Alex. M. Wilson, Shovell, Bridgwater, Somerset, exhibited some very fine Narcissi. Three varieties received awards, and several other good sorts were exhibited under numbers. Terra Ranee, Red Macaw, and Gadfly, to name only a few of the standard kinds shown, were excellent. (Silver-gilt Flora Medal.)

Messrs. Barr & Sons, Covent Garden, London, again showed many good blooms of Narcissi, the best being Pandora, Aurelia (richly-coloured, between Jonquilla and Monarch), Early Dawn (a large, white-trumpet Daffodil, with a distinct apricot margin), Bride of Lammermoor, and Rossetti. (Silver-gilt Flora Medal.)

Messrs. Wm. Cutbush & Son, Highgate, N., exhibited a very showy collection of Tulips, chiefly of the ordinary bedding varieties, the size and colour of the blooms denoted sound bulbs and good cultivation. (Silver-gilt Banksian Medal.)

Mr. C. Bourne, Simpson, Bletchley, brought a praiseworthy collection of Narcissus, bordered by Muscari (Grape Hyacinth), and Ferns in pots. Amongst the Narcissi several new seedlings occupied prominent places. Black Chief is a good Poetaz flower; Red Eve belongs to the parvicoronata section. Arquebus is a very fine bloom, and will find a permanent place in most collections. (Silver Flora Medal.)

Messrs. Cartwright & Goodwin, Ltd., Kidderminster, also staged many fine varieties. White Nectarine (a striking Leedsii flower with a yellow frill to its corona), Robert Southerell (a very bright-eyed Poetaz), Van Waveren's Giant (a huge trumpet variety), and the double Campanelle Jonquil are probably the pick of this firm's contribution. (Silver Flora Medal.)

Miss F. W. Currey, Lismore, Ireland, showed a large collection of exceedingly good Daffodils in very many varieties. The medio-coronata and the trumpet varieties were good, especially such kinds as Crœsus, Lucifer, Torch, and Flambeau. (Silver Flora Medal.)

Mr. R. H. Bath, Wisbech, arranged a good selection of Narcissi and Darwin Tulips. Amongst the Daffodils we noted Pearl of Kent, Cresset, Fire King, and Southern Star. The Tulips, which were growing in bowls of fibre, bore fine blooms of rich colour. (Silver Flora Medal.)

Messrs. J. R. Pearson & Sons, Lowdham, Notts., staged a collection of Daffodils containing the best standard varieties and many promising seedlings. (Silver Banksian Medal.)

Mr. Herbert Chapman, Rye, exhibited a large proportion of Poetaz varieties, such as Kingsley, Virgil, Ibis, Halo (which has a very wide eye), and many splendid home-raised seedlings. (Silver Banksian Medal.)

Messrs. James Carter & Co., Raynes Park, again arranged their exhibit in the form of a spring garden. The small fountain and pool surrounded by cool-looking grass bordered by many flowers of Tulips, Narcissus and Polyanthus made a pleasing contrast to the other exhibits.

Messrs. Robert Sydenham Limited set up a small collection of choice Narcissus. The large trumpet Potent and Mme. Plemp were very fine.

Two new varieties, Bert Ponting and Orange Poet, both have bright "eyes" and lemon-coloured perianths.

Messrs. James Veitch & Sons, Ltd., Chelsea, showed a representative collection of Narcissus. Amongst many fine varieties, Elvira, the recent hybrid between the Poet's Narcissus and Grand Monarque; Odorus rugulosus maximus, with rich colour; Golden Spur, and the large trumpet-flowered Mrs. H. J. Veitch were especially noteworthy.

AWARDS.

First-class Certificates.

Narcissus Cræsus.—A splendid bloom of the medio-coronata section. The widely-opened corona is of a fiery-orange colour.

Awards of Merit.

N. Killiecrankie.—A fine trumpet Daffodil with a pale perianth and a rich yellow trumpet.

N. Pedestal.—A large magno-coronata bloom, with a white perianth and rich yellow corona. A very fine flower. All three shown by Mr. Alex. M. Wilson.

Orchid Committee.

Present: J. Gurney Fowler, Esq. (in the Chair); and Messrs. Jas. O'Brien (hon. sec.), Harry J. Veitch, Gurney Wilson, R. A. Rolfe, R. G. Thwaites, F. Sander, F. M. Ogilvie, T. Armstrong, A. A. McBean, J. Charlesworth, W. H. Hatcher, J. E. Shill, A. Dye, H. G. Alexander, W. H. White, J. Wilson Potter, Clive Cookson, W. Bolton, C. J. Lucas, R. Brooman-White, de B. Crawshay, and J. S. Moss.

Messrs. Sander & Sons, St. Albans, were awarded a Silver-gilt Flora Medal for an extensive, well-arranged group of Orchids. A selection of fine forms of Cattleya Schröderæ were grouped together, and there were two batches of the scarlet Renanthera Imschootiana, a batch of showy Dendrobiums, together with white forms of D. nobile, D. Wardianum, Cattleya Trianæ, and, in the centre, a magnificent plant of Miltonia St. André with many spikes. The exhibit also included a selection of hybrid Odontoglossums, Lælio-Cattleyas, Odontiodas, and, among novelties, the pretty Cypripedium Roger Sander, which received an Award.

Messrs. Charlesworth & Co., Haywards Heath, were awarded a Silver Flora Medal for a select group composed principally of hybrids. Among those noted were varieties of Odontoglossum Jasper, O. ardentissimum, including the pure-white variety xanthotes; O. Lambeauianum, and a fine specimen of a good blotched O. crispum, and four flower spikes. The species included Odontoglossum coronarium brevifolium, O. nebulosum of the best type, Sarcochilus Hartmannii, S. Fitzgeraldii, and a choice plant of the hairy D. senile.

Messrs. Stuart Low & Co., Bush Hill Park, were awarded a Silver Flora Medal for an effective group, at one end of which was a selection of Cattleya Schröderæ, with flowers varying from nearly white to clear rose-pink, the disc of the labellum in one form being of a peculiar bronzy-orange shade. At the back of the group were several good plants of Oncidium sarcodes and O. Krameri, and, in front, a row of O. concolor. A specimen of Dendrobium chrysotoxum, bearing 10 spikes, and other Dendrobiums, equally well flowered, were noticed, as well as various Lælio-Cattleyas, Cymbidium insigne, C. Schröderianum, Polystachya paniculata, Eulophia lurida, and other uncommon species.

Messrs. Hassall & Co., Southgate, staged an effective group, for which a Silver Banksian Medal was awarded. The forms of Cattleya Schröderæ included a fine white variety, and a very distinct form, having blush-white flowers, with plum-coloured front to the lip. Odontoglossum percultum, Odontioda Cooksoniæ, the true Cattleya Trianæ Backhousiana, with fine purple feather on the petals, and Cymbidium eburneum were all shown well.

Messrs. J. & A. A. MacBean, Cooksbridge, staged a pretty group of splendidly-grown Odontoglossums and other Orchids, for which a Silver Banksian Medal was awarded. The centre of attraction was the new Lælio-Cattleya MacBeaniana, which received a First-class Certificate (see Awards). Grand varieties of Odontioda Charlesworthii, a very large red-flowered O. Bradshawiæ, Phaius Norman, some excellent Odontoglossums, the blue-lipped Zygopetalum Perrenoudii, good Cattleya Mossiæ, and C. Schröderæ were included in the collection.

R. G. Thwaites, Esq., Chessington, Streatham (gr. Mr. J. M. Black), was awarded a Silver Banksian Medal for a very bright group composed of various scarlet and red Odontiodas raised by the exhibitor, and including several crosses. He also showed varieties of Odontoglossum ardentissimum.

Lieut.-Col. Sir George L. Holford, Westonbirt (gr. Mr. H. G. Alexander), showed Cattleya Olaf, a pretty, light-coloured hybrid, and the new Odontoglossum His Majesty. (See Awards.)

Sir Trevor Lawrence, Bart., Burford, Dorking (gr. Mr. W. H. White), showed a selection of pretty Masdevallias, including forms of M. ignea, Lindenii, Henriettæ, Gelengiana, Shuttleworthii, Arminii, Shuttrayana, and Courtauldiana, also a basket of pretty yellow-flowered hybrid Dendrobiums.

Messrs. Armstrong & Brown, Tunbridge Wells, showed a finely-formed hybrid Cypripedium between C. Prewettii and C. Germaine Opoix. The fine colouring was of a sepia-brown tint, shaded with purple, which gave the flower a distinct appearance. The exhibitor also showed a fine specimen of Cœlogyne pandurata, bearing a dozen large, pale-green and black flowers on one spike.

De B. Crawshay, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), showed a good form of Odontoglossum Lambeauianum, with rose ground colour effectively blotched with reddish-brown.

Mr. E. V. Low, Vale Bridge, Haywards Heath, staged several rare Orchids, including Cattleya Trianæ Empress of India, a good white variety, with light violet marking on the lip, C. Schröderæ The Kaiser, blush-white, with a yellow throat, and the white C. Luddemanniana Stanleyi.

Arthur Legge, Esq., Homefield, Worthing (gr. Mr. Rolfe), showed four seedling forms of Dendrobium nobile of fine shape and colour.

F. M. Ogilvie, Esq., The Shrubbery, Oxford (gr. Mr. Balmforth), showed the handsome Brasso-Cattleya Cliftonii magnifica, the interesting albino Cypripedium Antigone, and other interesting Orchids.

Mrs. Norman Cookson, Oakwood, Wylam (gr. Mr. H. J. Chapman), showed the light-coloured Odontoglossum percultum pallidum, and O. crispum nigrum, a white variety with chocolate-purple blotches.

E. H. Davidson, Esq., Borlases, Twyford, exhibited a fine form of Lycaste Skinneri alba, of a clear white, with very broad segments.

Francis Wellesley, Esq., Westfield, Woking (gr. Mr. Hopkins), sent Cattleya Trianæ F. MacBean, a very large flower, white, with a pink flush, the front of the lip magenta-purple.

AWARDS.

First-class Certificates.

Cymbidium Pauwelsii "The Dell variety" (Lowianum × insigne), from Baron Bruno Schröder, The Dell, Egham (gr. Mr. J. E. Shill). A very beautiful Cymbidium, with flowers of good shape, cream-white, with faint purplish lines on the sepals and petals, and effective purple marking on the front of the lip. The spike was about 4 feet, bearing 20 blooms.

Lælio-Cattleya Trimyra (Trianæ × Myra), from Sir Trevor Lawrence, Bart., K.C.V.O., Burford (gr. Mr. W. H. White). One of the finest of yellow Orchids, the flowers being nearly equal to those of C. Trianæ, and of a clear yellow colour tinged with orange.

Lælio-Cattleya MacBeaniana (L. anceps Schröderiana × Cattleya Schröderæ).—By far the finest of L. anceps hybrids, the flowers being nearly as large as those of Cattleya Mendelii. Sepals and petals white, the latter nicely fringed; base of the lip white, with yellow disc, the front crimson-purple, a lighter tint forming the margins of the side lobes.

Awards of Merit.

Odontoglossum × His Majesty (parentage unrecorded), from Lieut.-Col. Sir George L. Holford, K.C.V.O. (gr. Mr. Alexander). Flowers large and of fine substance, all the segments equally broad, in colour milk-white, with large and well-displayed chocolate-purple blotches.

Cypripedium Roger Sander (Godefroyæ × glaucophyllum).—A very pretty and distinct flower, with cream-white ground, beautifully lined and veined with claret colour, the lip spotted rose-purple.

Lælio-Cattleya Orama (Dominiana × Bletchleyensis), from Messrs. Jas. Veitch & Sons, Chelsea. A very showy improvement on L.-C. Dominana. Sepals and petals deep purplish-rose, lip dark claret-purple.

Lælio-Cattleya Frederick Boyle "Veitch's variety" (L. anceps Sanderiana × C. Trianæ).—A very bright hybrid, with white sepals and petals tinged with pink, and bright rose-purple front to the lip, which has yellow in the tube.

Odontioda Cooksoniæ "Cobb's variety" (Odontoglossum ardentissimum × Cochlioda Noezliana), from Walter Cobb, Esq., Normanhurst, Rusper (gr. Mr. C. J. Salter). A showy, deep-red flower, with clear-white markings on the sepals and petals, and white front to the lip.

Fruit and Vegetable Committee.

Present: A. H. Pearson, Esq. (in the Chair); Messrs. J. Cheal, C. G. A. Nix, W. Bates, J. Willard, J. Davis, O. Thomas, E. Beckett, A. Dean, J. Harrison, A. Grubb, A. R. Allan, W. Poupart, and A. W. Metcalfe.

Excellent fruits of Northern Spy Apple were shown by the Hon. J. Ward, Hungerford. (gr. C. Beckett), for which a Cultural Commendation was awarded.

Messrs. Sutton & Sons, Reading, showed early hearting spring Cabbages. The centre of the group consisted of 40 firm, white hearts of the variety Harbinger. On one side of these were 20 good heads of April, and on the other a similar number of Sutton's Favourite. Flower of Spring, a larger Cabbage than either of the others shown, was displayed in small clumps.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

March 21.—At a meeting held on this date, *Silver-gilt Medals* were awarded to Z. A. Ward, Esq., Northenden (gr. Mr. Weatherby), for a well-staged group; and S. Gratrix, Esq., Whalley Range (gr. Mr. Brown), for an excellent group of Cattleyas and Odontoglossum crispum variety "Samuel Gratrix," to which a Cultural Certificate with a Bronze Medal to the gardener was granted.

Silver Medals were awarded to W. R. Lee, Esq., Heywood (gr. Mr. Branch), who staged an effective group, principally of Dendrobiums; Col. J. Rutherford, M.P., Blackburn (gr. Mr. Lupton); and J. McCartney, Esq., Bolton (gr. Mr. Holmes), for a nice group of Cattleyas.

A *Bronze Medal* was awarded to Rev. J. Crombleholme, Clayton-le-Moors (gr. Mr. Marshall), for Odontoglossums.

Other exhibitors were Mrs. S. Gratrix, Whalley Range; O. O. Wrigley, Esq., Bury (gr. Mr. Rogers); A. Warburton, Esq., Haslingden; C. Parker, Esq., Preston; H. Thorp, Esq., Middleton; H. Arthur, Esq., Blackburn; Messrs. Sander & Sons, St. Albans; Messrs. Charlesworth & Co., Haywards Heath; Messrs. A. J. Keeling & Sons, Bradford; and Messrs. Stuart Low & Co., Enfield.

AWARDS.

First-class Certificates.

Odontioda Charlesworthii "Ward's" variety, from Z. A. Ward, Esq.; *O. Schröderi* variety "Leeana," from W. R. Lee, Esq.; and *Cymbidium Parishii Sanderæ* "Rutherford's" variety, from Col. J. Rutherford.

Awards of Merit.

Lycaste variety "Susan," a natural hybrid, shown by Mrs. Gratrix. *Odontoglossum amabile* variety "Monarch" (O. a. Darkness × O. a. Beauty); *O. crispum* variety "Ethel"; *Odontioda splendens*; *Cypripedium The Chairman* (C. Fairrieanum × C. Goultenianum), all from Z. A. Ward, Esq. *Cattleya Suzanne Hye* "Gratrix's" variety, and *Cypripedium Prince Albert* variety "Alport Derby," both from S. Gratrix, Esq. *Lælio-Cattleya Bella alba* variety "Leeana"; *Odontoglossum Cobbiæ*; *Dendrobium nobile* variety "Leeana," from W. R. Lee, Esq. *Cymbidium Pauwelsii* (C. Lowianum concolor × C. insigne), from Col. J. Rutherford. *Odontoglossum Rossii* variety "Immaculatum," from H. Arthur, Esq.: and *Cattleya Schröderæ enfieldensis*, from Messrs. Stuart Low & Co.

The plant of Odontoglossum Delhi, which obtained a First-class Certificate at the meeting held on January 11, 1912, has been entered on the records of the Society as Odontoglossum Promereus var. "Delhi."

ROYAL SOCIETY OF EDINBURGH.

March 18.—The tenth ordinary meeting of the Royal Society for the present session took place in Edinburgh on this date, Dr. James Burgess, C.I.E., vice-president, in the chair.

A communication, prepared by Dr. W. T. Gordon, Edinburgh, was read by Professor James Geikie on "Rhetinangium Arberi, a New Fossil Stem from Pettycur." The newly-discovered fossil plant described under this name has several features which render the type important from an evolutionary standpoint. The specimens, of which three have so far been obtained, were derived from rocks of Lower Carboniferous age at Pettycur, Fife, and Edrom, Berwickshire. The Pettycur specimens are better preserved, and the anatomical description was therefore based on the stems and petioles from that locality. One important feature was the occurrence of resin ducts and sacs in practically every tissue in the stem—wood, inner cortex, and outer cortex—and the first part of the generic name denotes this characteristic. At the same time the monostelic axis and the general anatomy of that axis are distinctly of the Heterangium type. The generic name therefore represented two well-marked features of the stem. The specific name was given in honour of Dr. E. A. Newell Arber, who supervised the work of the author when in Cambridge. The affinities of this new plant were interesting, for, while it resembled Heterangium in many points, there were several characteristics which seemed to indicate some relation with Sutcliffia and the other coal measure Pteridosperms. But there was no genus with which it seemed more closely allied than Dr. Kidston's new genus, Stenomyclon. Indeed. Rhetinangium was a possible phyllogenetic link between the lower Pteridosperms as represented by Heterangium and the higher members of that group. If one might hazard a guess at one possible line of descent in that group, it would be Heterangium-Rhetinangium - Stenomyclon - Sutcliffia-Medullosa.

A communication on "The Sun as a Fog Producer" was made by Mr. A. Watt, of the Scottish Meteorological Society, on behalf of Dr. John Aitken, F.R.S., who was unable to be present.

LIVERPOOL HORTICULTURAL.

March 27, 28.—The spring exhibition of the above association was held on these dates. The exhibits were varied and beautiful, the principal subjects being hardy forced plants, Roses, Azaleas, Rhododendrons, Clematises, Lilacs, Liliums, and other bulbous plants. Banks of flowers arranged on either side of the secretary's office were greatly admired.

O. O. Wrigley, Esq., Bury (gr. Mr. E. Rogers), staged some 60 plants of Clivias in 9-inch pots, the plants having large heads of fine flowers in superb varieties.

Very fine specimen plants and a number of seedling Dendrobiums were shown by C. W. Carver, Esq., West Derby (gr. Mr. W. Hignett); plants of D. Ainsworthii and D. nobile were 5 feet in diameter.

Messrs. Bees, Ltd., Liverpool, arranged a charming rock-garden exhibit, which was surmounted by large floral designs.

Messrs. Mansell & Hatcher, Rawdon, Leeds, and Messrs. Charlesworth & Co., Haywards Heath, showed exhibits of Orchids, whilst Alpines were well represented from Messrs. Baker's, Wolverhampton, Conway's, Halifax, and Mr. G. Reuthe, Keston.

On this occasion a deputation of the North of England Horticultural Society conferred that society's awards on the more noteworthy exhibits.

In the class for six pots or pans of hardy herbaceous plants, distinct, the 1st prize was won by W. J. Lockett, Esq. (gr. Mr. E. R. Finch), who showed choice Daffodils, Spiræas, Solomon's Seal, and other subjects.

The most tastefully-arranged dinner table was exhibited by Mrs. T. A. Vlasto (gr. Mr. J. Armistead).

For 12 Hyacinths, A. Earle, Esq. (gr. Mr. Thomas Hitchman), secured the 1st award. This exhibitor also led for six pots of Hyacinths.

Mr. E. R. Finch was successful in the class for six pots of Hyacinths, three bulbs in each pot; and for three pans of Hyacinths, ten bulbs in each pan, Drs. Tisdale and Ingall (gr. Mr. G. Osborne) won the 1st prize.

In the class for six pots of Daffodils T. W. Wright, Esq. (gr. Mr. F. Atkin), excelled with excellent specimens; this exhibitor also had the winning dozen pots of single Tulips and the best six pots of double Tulips. Mr. E. R. Finch was placed 1st for six pots of single Tulips.

For six hybrid Amaryllis Miss McKean (gr. Mr. T. Rigg) was successful.

Mr. E. R. Finch proved the winner in the class for three greenhouse Azaleas, also for one stove plant in bloom with a good Anthurium.

For one greenhouse plant in bloom W. Tod, Esq. (gr. Mr. G. Eaton), won the 1st prize with a plant of Clivia.

In the class for two Orchids Mr. W. Hignett was placed 1st with fine specimens of Dendrobiums, and he excelled in the class for one Orchid with D. Ainsworthii; the 2nd award in this class was secured by Ald. W. H. Watts (gr. Mr. Frank Gilbert) with a fine plant of Angræcum sesquipedale having 16 flowers, which required a few more days to be at their best.

Mr. T. Hitchman led in the class for three Roses in pots, showing well-flowered Ramblers.

For three exotic Ferns J. W. Hughes, Esq. (gr. Mr. J. McColl), was awarded the 1st prize, having good plants of Polypodium subauriculatum and Nephrolepis Amerpolii.

Mr. T. Hitchman secured the 1st prize for three Azaleas, distinct. This exhibitor was also successful in the class for a specimen Azalea.

For three hardy Rhododendrons Mr. G. Eaton won with plants 7 feet in diameter, and Mr. T. Hitchman was 1st for the single specimen, having the variety Pink Pearl.

Mr. E. R. Finch was successful for four hardy forced plants, exhibiting fine specimens.

For two Palms or Cycads Mr. G. Osborne was 1st. This exhibitor was also successful for three Palms growing in 8-inch pots. For the best specimen Palm Mr. F. Atkin secured 1st honours with a fine Kentia.

Gold Medals were awarded by the association to C. W. Carver, Esq., who exhibited a choice selection of Dendrobiums; Mr. G. Reuthe, Keston, for a collection of Alpine plants and cut Camellias; Messrs. Charlesworth & Co., Haywards Heath, who staged Orchids; O. O. Wrigley, Esq. (gr. Mr. E. Rogers), for Clivias; Messrs. Mansell and Hatcher, Rawdon, for Orchids; Messrs. R. P. Ker & Sons, Liverpool, for Amaryllis; Messrs Bees. Ltd., Liverpool, who staged a rockery and floral design; and Messrs. Young & Co., Cheltenham, for Carnations.

Silver Medals to Mr. W. Rowlands for early-flowering Tulips; Messrs. Baker's, Wolverhampton, for Alpine plants; Messrs. H. B. May & Sons, Edmonton, for Ferns and Clematis, and Messrs. C. A. Young, Hatherley, for Carnations.

The North of England Horticultural Society made awards as follow:—

Gold Medals to O. O. Wrigley, Esq., for Clivias; Messrs. Mansell & Hatcher, Rawdon, Leeds, for Orchids; and C. W. Carver, Esq., for Dendrobiums. *Silver-gilt Medals* to Messrs. R. P. Ker & Sons for Amaryllis; Messrs. Young & Co. for Carnations; Messrs. Charlesworth & Co. for Orchids; and Mr. G. Reuthe for Alpines. *Silver Medals.*—Mr. Thomson, for Daffodils; Messrs. Baker for Alpines; and Messrs. H. B. May & Sons, Edmonton, for Ferns.

An Award of Merit was granted to the Liverpool Corporation for Giant Buttercups; and Cultural Certificates were awarded to Mr. F. Gilbert for Angræcum sesquipedale, and Mr. W. Hignett for Dendrobiums.

ROYAL METEOROLOGICAL.

March 20.—The monthly meeting of the above society was held on this date at the Institution of Civil Engineers, Great George Street, Westminster, S.W. The president, Dr. H. N. Dickson, occupied the chair.

Professor Otto Pettersson delivered a lecture on "The Connection between Hydrographical and Meteorological Phenomena." He began by saying that the Mediæval age was characterised by frequent violent climatic changes which seem to have culminated in the 13th and 14th centuries, when hot summers accompanied by droughts (which nearly dried up the rivers of Europe) alternated with cold summers and excessive rainfall. In winter violent storm floods occurred which entirely remoulded the coasts of the North Sea; or frost set in so severely that the Kattegat and the Skagerak were frozen. The lecturer showed that such phenomena may be ascribed to alterations in the oceanic circulation caused by the influence of the moon and the sun. Experiments carried on during the last four years at Bornoe in Sweden have shown that the inflow of the undercurrent from the North Sea into the Kattegat—which brings the herring shoals in winter to the Swedish coast—is oscillatory, the boundary surface of the deep water rising and sinking from 50 to 80 feet about twice a month. The phenomenon is governed by the moon's declination and proximity to the earth.

From astronomical data, Prof. Pettersson concludes that the influence both of the sun and of the moon upon the waters of the ocean in winter about the time of the solstice, must have been greater 600 to 700 years ago than at the present time.

TORQUAY DISTRICT GARDENERS'.

March 28.—This association's spring show was held on this date in the Torquay Bath Saloons more than a fortnight before the Cornwall Daffodil and Spring Flower Society's show at Truro, nevertheless it was the general comment that the exhibition was the best on record. So many entries were received that the large saloon was not extensive enough to contain them all, and another room had to be requisitioned. There was keen competition in all the classes. In addition to the individual exhibits there were many noteworthy collections, which made an array such as is rarely seen even in the favoured town of Torquay. Many of the sections of plants bore evidence of the most careful cultivation, Cyclamen being especially fine. A group of these plants shown, not for competition, by Mr. H. Greswolde-Williams was given an Award of Merit. Undoubtedly Hippeastrums (Amaryllis) were the feature of the show, two large groups 6 feet by 3 feet being of surpassing excellence. There were two fine exhibits in the class for a group of greenhouse and stove plants, Mrs. Tottenham winning 1st prize, including the Silver Challenge Cup, with a beautiful selection of Hippeastrums (Amaryllis), Cinerarias, Schizanthuses, Crotons, Zonal Pelargoniums, Spiræas and Deutzias. Col. Cary, who won the 2nd prize, had a group but little inferior, in which pink Spiræas were included. Three groups of Palms and Ferns were shown, Col. Cary winning the 1st prize with a beautiful exhibit. An exceptionally large and well-grown Azalea shown by Col. Cary in the class for a specimen plant was awarded the 1st prize, and the same exhibitor won the 1st prize for three specimens of Rhododendron indicum (Azalea indica) with excellent plants. In the class for 18 varieties of flowering shrubs, the 1st prize was won by the Hon. Helen Cubitt. The silver challenge cup offered for the best group of Hippeastrums was won by Mrs. J. Lyon with remarkably fine plants, the blooms being large and brilliant in colour. The Hon. Helen Cubitt won the silver cup presented by Messrs. Barr & Sons for the best group of Daffodil blooms.

The exhibits of Cinerarias were especially fine, the 1st prize collection was shown by Mrs. Hassall, the plants being excellently grown with very large flowers. Plants of Cineraria stellata, with which Col. Cary won the 1st prize in a class for three plants, were also exceptionally fine. Mrs. Gordon-Cumming won the 1st prize for six pots of Freesias with perfect examples in profuse flower. The 1st prize in the classes for six table plants was won by Col. Cary in a keen competition. Col. Cary also won the 1st prize for a collection of vegetables. The prize for 12 cut Roses was awarded to Mrs. Cogan. Exhibits of Narcissi were good, the 1st prizes for six pots of Narcissi and six pots of Polyanthus Narcissus respectively were won by Mr. F. Pershouse. There were also classes for Hyacinths, Tulips, Orchids, Primulas, Spiræas, Deutzias, Lily of the Valley, Mignonette, Polyanthus, Schizanthuses, Dielytra spectabilis, and Carnations.

Non-competitive Exhibits.

The Devon Rosery, Torquay, staged a large collection of pot Roses in full bloom, Erica lusitanica, Deutzias, Cytisus præcox, Arctotis aureola, Lopezia miniata, Manettia bicolor, double white Clematis Fortunei, Spiræa Thunbergii, S. prunifolia, and a collection of rock plants.

Messrs. ROBERT VEITCH & SON, Exeter, showed Rhododendron Smithii aureum, Erica mediterranea, Hydrangea Mme. E. Moullière, Prunus Parkmannii, P. pendula, P. triloba, Correas, Eriostemon linearifolium, Jasminum primulinum, Hibbertia dentata, Gerbera hybrida, Acacias, Exochorda Alberti macrantha, Osmanthus Delavayi, Cyrtomium Rochfordii (new), Eupatorium ionantha, Magnolia nigra, and Ericas.

Mr. W. B. SMALE, Torquay, showed Anthurium Andreanum, Spiræa japonica, Primula obconica Queen of Roses, Amaryllis, Clerodendron Balfouri, and a collection of Cinerarias.

Messrs. BARR & SONS, King Street, Covent Garden, staged a superb collection of Daffodils, among them being Vesuvius, Amazon, Sir Galahad, Ariadne, Queen Sophia, Blood Orange, Pedestal, Bloodstone, Sunbeam, Buttercup, Van Waveren's Giant, and Dante.

Messrs. BURRIDGE & SONS, Paignton, showed Rhododendrons (Azaleas) arranged with Palms and Ferns.

Mr. H. MAYNE, Torquay, staged Hyacinths, Tulips, Carnations, Hydrangeas, Acacias, Azaleas, Lilium longiflorum, Camellias, Primulas, Zonal Pelargoniums, Mignonette, Narcissi, and small Orange trees in fruit.

SOCIÉTÉ FRANÇAISE D'HORTICULTURE DE LONDRES.

MARCH 30.—The annual dinner of the members and friends of the French Horticultural Society of London took place on Saturday last at the Café Royal, Regent Street. Mr. N. N. Sherwood, V.M.H., presided over a large company.

The guests included Messrs. W. A. Bilney, Edward White, H. B. May, Thos, Bevan, E. F. Hawes, C. Harman Payne, C. H. Curtis, G. Monro, Junr., E. Sherwood, W. Sherwood, A. Watkins, Brian Wynne, G. J. Ingram, D. Ingamells, O. W. Hiehle, F. Hiehle, Gaskill, Tucker, J. McKerchar, T. Stevenson, Guillond, Ripard, Delanoue, Paris; Arthur Turner, and Lelasseur.

After dinner the Chairman proposed the healths of the King and the French President in a joint toast, which was heartily received. He next proposed the toast of the evening, "Prosperity to the French Horticultural Society of London," and gave a brief review of the aims and the work of the Society. He, the speaker, considered that there was nothing more miserable than for a young man to find himself landed in a foreign country without a single friend. Young French gardeners, however, who came to England were sure to find a friend in Mr. Schneider, the President of the Society. Mr. Sherwood invited the members to visit the seed grounds of his firm at Kelvedon during the coming summer, stating that he would do his best to ensure them a pleasant outing.

The Chairman then alluded to last year's meeting, which was somewhat clouded by the serious illness of Mr. Schneider. They all rejoiced to have him with them this year in renewed health, and he asked the company to join with him in toasting his health.

Mr. Schneider, responding, thanked the chairman on behalf of the Society and himself, for his kind remarks, also for his invitation to visit Kelvedon. Mr. Schneider said that the members were greatly indebted to Mr. Sherwood for his presence that evening, especially as he had hastened his return from the South of France in order to be with them. Mr. Schneider greatly regretted the absence of Mr. Harry Veitch, owing to indisposition.

Mr. Schneider then proposed "Prosperity to English Horticulture," to which Mr. Bilney replied. Mr. Bilney said that some years ago he attended a flower show in Paris, which, like everything French, was beautiful and artistic. A few days after his return to England he visited the Temple Show, where he saw produce of far finer quality, of which the effect was considerably marred by defective and inartistic staging. The difficulty under which exhibitors at the Temple Show always laboured would be avoided in May next, when the Royal International Show would be held at Chelsea, and he felt sure that on that occasion the English flowers would show to as great advantage as those of any other nation.

The toast of "The Chairman" was given by Mr. G. J. Ingram, who said that Mr. Sherwood's name was known and honoured throughout the world of horticulture, and in business circles both at home and abroad.

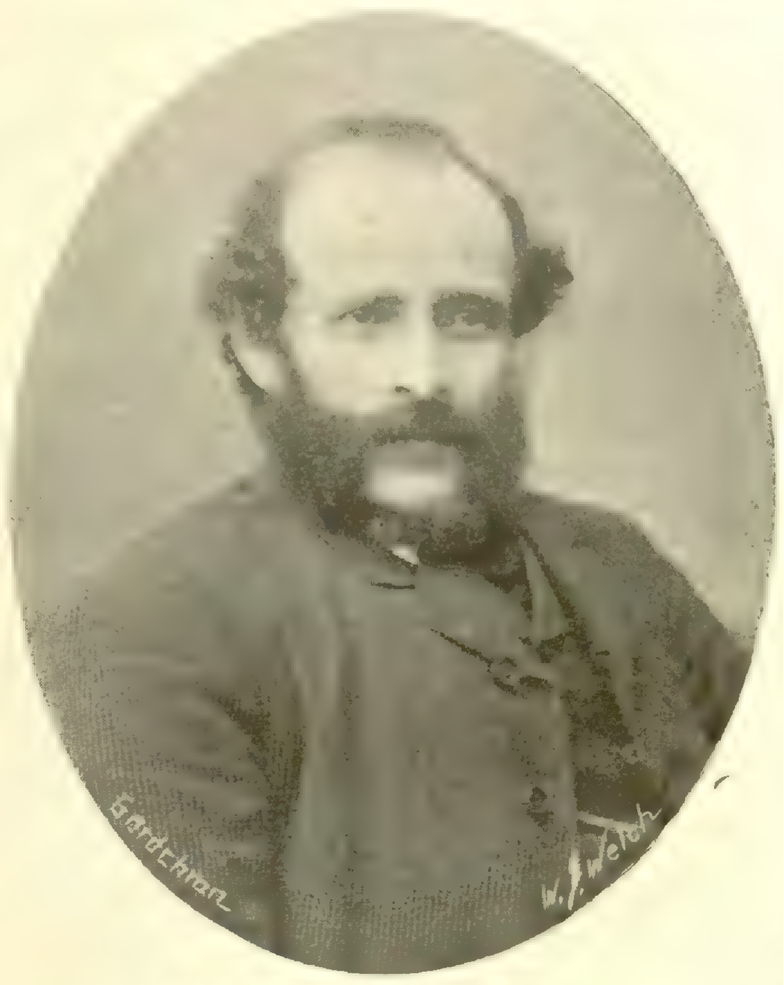
Mr. Gaskill next proposed "The Officers of the Society."

Replies were made by Messrs. Caspari, Hiehle and Ripard, Mr. Caspari concluding his remarks by referring to the services rendered to the Society by the Press, to which Mr. C. H. Curtis responded. Mr. Caspari then presented Mr. Schneider, in the name of the younger members of the Society, with a salad bowl.

An excellent musical programme was provided by the chairman, and the dinner was regarded as one of the most successful the Society has ever held.

Obituary.

WILLIAM GOW.—We regret to record the death of Mr. William Gow, gardener at Campmuir, near Coupar Angus, on the 26th ult., in his 91st year. Mr. Gow was a native of Coupar Angus. He served his apprenticeship in the gardens at Hallyburton, and obtained further experience at Hamilton Palace and several other establishments in the west of Scotland. In 1861, he was appointed by Lord Frederick Gordon to take charge of the gardens at Hallyburton, which was then undergoing extensive alterations. Those



THE LATE WILLIAM GOW.

who had the privilege of viewing his extensive ribbon borders and flower gardens in the height of the season were astonished at the excellent results he obtained. He continued in the service of Lord Gordon until that nobleman's death, then with the Marquis of Huntly until the place was sold. In 1881, Mr. Gow was appointed land steward and gardener to Peter Carmichael, Esq., of Arthurstone, in whose service he continued until the death of that gentleman in 1891. Retiring at that time, Mr. Gow went to live with his younger daughter, first at Belmont Castle and latterly at Campmuir. The end came suddenly, for he was out in his little garden on the evening previous to his death. The funeral took place in the churchyard of Kettins. Mr. Andrew Gow, superintendent of Craighton Cemetery, Govan, and two daughters survive of a family of seven children.

FRANCIS PENTLAND.—The death of Mr. Francis Pentland is recorded in the American papers. He was born in Edinburgh, in 1828, and after obtaining experience in gardening in this country, migrated to America. After working for a time for Mr. Robert Buist in Philadelphia, he moved to Cincinnati, taking with him the Victoria regia, a plant previously unknown in that locality. About 10 years later he founded at Lockland the business now known as the Bloomhurst Floral Company, from which he retired 14 years ago.

MARKETS.

COVENT GARDEN, April 2.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—EDS.]

Cut Flowers, &c.: Average Wholesale Prices.

	s.d.	s.d.
Arums (Richardias)	8	6–5 0
Azalea, doz. bnchs.	8	6–4 0
— mollis, p. bnch.	1	6–1 9
Camellias, per box of 18's and 24's	1	6–2 0
Carnations, p. doz. blooms, best American var.	1	6–1 9
— smaller, per doz bunches	10	0–15 0
— Carola, crimson, extra large	6	0 —
Eucharis, per doz.	3	0–3 6
Freesia refracta alba, per dozen bunches ...	1	3–1 6
Gardenias, per box of 15 & 18 blms.	2	6–3 6
Iris (Spanish), per doz. bunches:		
— white	15	0–18 0
— mauve, yellow and blue ..	18	0 21 0
Lilac, per bunch white	2	6–3 0
— mauve	3	0–3 6
Lilium auratum per bunch ...	4	0–5 0
— longiflorum, long, per doz.	3	6–4 0
— short, per doz.	3	0–3 6
— lancifolium alba, long ...	2	0–2 6
— — short ...	1	6–2 0
— speciosum rubrum, dz. blooms:		
— long	1	9–2 0
— short	0	9–1 0
Lily of the Valley, p. dz. bunches:		
— extra special ...	15	0–18 0
— special... ...	10	0–12 0
— ordinary ...	8	0 —
Marguerite, per doz. bunches:		
— Yellow... ...	2	0–2 6
Myosotis (Forget-me-not), p. dz. bunches ...	3	0–4 0
Narcissus, per doz. bunches:		
— Double Van Sion	1	0–1 6
— Emperor ...	2	0–2 6
— Empress ...	1	6–2 0
— Golden Spur...	1	0–1 6
— Poeticus ...	1	6–2 0

	s.d.	s.d.
Narcissus, per doz. bunches:		
— Princeps ...	1	0–1 3
— Sir Watkin ...	1	6–2 0
— Victoria ...	2	0–2 6
— Barrii	1	6–2 0
Orchids, Cattleya, per doz. ...	12	0 —
— Odontoglossum crispum ...	3	0–4 0
Pelargoniums, p. dz. bunches:		
— Double Scarlet	8	0–12 0
Primroses, per doz. bunches ...	1	3–1 6
Roses, 12 blooms,		
— Bridesmaid,	2	6–3 0
— C. Mermet ...	2	6–3 0
— General Jacqueminot ...	1	0–1 6
— Liberty ...	2	0–4 0
— Madame A. Chateney ...	2	0–4 0
— Niphetos ...	1	6–2 6
— Richmond ...	2	0–3 6
— Sunrise ...	1	0–1 6
— Lady Roberts	2	0–2 6
— Lady Hillingdon	2	0–2 6
— Franz Deegan	3	0–3 6
— Kaiserine ...	1	6–3 0
Spiræa (Astilbe) japonica, per. doz. bunches	4	0–6 0
Sweet Peas (white), pr. doz. bnchs.	2	0–2 6
Tulips, per bunch:		
— double pink ...	0	8–1 3
— — yellow ...	1	0–1 6
— — scarlet ...	1	3–1 6
— p. dz. bunches:		
— white	7	0–8 0
— yellow	6	0–7 0
— scarlet ...	6	0–8 0
— bronze	8	0–9 0
— pink	6	0–8 0
— Darwin, p. bch.:		
— pink	1	0–1 3
— mauve	1	3–1 6
— red	1	3–1 6
Violets, p. dz. bchs.	1	3–2 0
— Princess of Wales, per doz. bunches ...	3	0–4 0
— Parma	2	0–2 6
Wallflowers, per dozen bunches	2	0–2 6

Cut Foliage, &c.: Average Wholesale Prices.

	s.d.	s.d.
Adiantum Fern (Maidenhair), best, dz. bnchs.	7	0–8 0
Agrostis (Fairy Grass), per dz. bunches ...	2	0–4 0
Asparagus plumosus, long trails, pr. ½ doz.	1	6–2 0
— medium, doz. bunches ...	12	0–18 0
— Sprengeri ...	10	0 12 0
Carnation foliage, doz. bunches...	4	0 —

	s.d.	s.d.
Croton foliage, various, per dozen bunches ...	12	0–15 0
Cycas leaves, artificial, per doz.	3	0–12 0
Eulalia japonica, per bunch ...	1	0–1 6
Moss, per gross ...	6	0 —
Myrtle, dz. bchs. (English), small-leaved...	6	0 —
— French ...	1	0 —
Smilax, per bunch of 6 trails ...	1	6 —

Plants in Pots, &c.: Average Wholesale Prices.

	s.d.	s.d.
Acacia lineata, 48's, per dozen ...	18	0–21 0
Aralia Sieboldii, p. dozen	6	0–7 0
Araucaria excelsa, per dozen ...	18	0–21 0
Asparagus plumosus nanus, p.dz.	10	0–12 0
— Sprengeri ...	8	0–9 0
Aspidistra, p. dz., green	21	0–30 0
— variegated ...	30	0–60 0
Azaleas, per doz.	36	0–42 0
Boronia Megastigma, 48's, p. dz.	21	0–24 0
Cinerarias, pr. dz.	8	0–9 0
Cocos Weddeliana, per dozen:		
— 60's	6	0–12 0
— larger, each ...	2	6–10 6
Croton, per dozen	18	0–30 0
Cyperus alternifolius, per doz.	5	0–6 0
— laxus, per doz.	4	0–5 0
Daffodils, per doz.	6	0–8 0
Dracæna, green, per dozen ...	10	0–12 0
Ericas, per dozen:		
— Willmorei, 48's	15	0–18 0
— persoluta ...	27	0–30 0
Ferns, in thumbs, per 100... ...	8	0–12 0

	s.d.	s.d.
Ferns, in small and large 60's ...	12	0–20 0
— in 48's, doz. ...	6	0 —
— choicer, sorts per doz. ...	8	0–12 0
— in 32's, per dozen	10	0–18 0
Ficus elastica, per dozen	9	0–12 0
Genistas, 48's, per doz, ...	10	0–12 0
Geonoma gracilis, 60's, per dozen	6	0–8 0
— larger, each ...	2	6–7 6
Hyacinths white & clrd., p. dz. pots	10	0–12 0
Hydrangeas, white, 48's, per dozen	18	0 21 0
Kentia Belmoreana, per dozen	5	0–42 0
— Fosteriana, 60's, per dozen	4	0–6 0
— larger, per doz.	18	0 60 0
Latania borbonica, per dozen ...	12	0–30 0
Lilium longiflorum, p. doz.	20	0–24 0
— lancifolium rubrum in pots, per dozen ...	15	0–18 0
— lancifolium alba	15	0–18 0

Plants in Pots, &c.: Average Wholesale Prices *(Contd.)*.

	s.d. s.d.		s.d. s.d.
Marguerites, white, per dozen ...	8 0–10 0	Phœnix rupicola, each	2 6–21 0
Mignonette, 48's, per dozen	6 0– 8 0	Spiræa japonica, per dozen pots	10 0–12 0
Pandanus Veitchii, per dozen ...	36 0–48 0	— Pink	10 0–12 0

Fruit: Average Wholesale Prices.

	s.d. s.d.		s.d. s.d.
Apples (English cookers) bushel	6 0–12 0	Lemons:	
— Nova Scotian, per barrel ...	17 0–22 0	— Messina, p. case	7 6–17 0
— Californian Newtowns, pr. case	6 0– 8 0	Limes, per case ...	4 0 —
— (Canadian), per barrel	20 0 —	Mangoes, per doz.	6 0–10 0
— Oregon (Hood River), per case	16 0–18 6	Melons (Cape) ...	0 10–1 6
— American, per barrel	20 0–32 0	Nuts, Almonds, per bag	52 6 —
— Australian per case	14 6–25 0	Spanish, p sack	40 0 42 0
Bananas, bunch:		— Barcelona, bag	35 6–36 6
— Doubles ...	10 0 12 0	Nuts, Chestnuts, per bag ...	3 6–19 0
— No. 1 ,, ...	8 0 10 0	— Cocoanuts, 100	18 0–23 0
— Extra	10 0 12 0	— English Cobs per lb.... ...	0 3 —
— Giant ,, ...	14 0 18 0	— Walnuts (Naples) kiln dried, cwt. cases	54 0 —
— Loose, per dz.	0 6– 1 0	Oranges, Jamaica per case ...	9 0–10 0
— Red coloured...	5 6– 6 6	— Californian ...	15 0–16 0
— Jamaica Giants, per ton ...	£10–£12	— Denia, case ...	16 0–34 0
— Jamaica Ordinary, per box (9 doz.) ...	4 0– 5 0	— Valencia ...	10 0–12 0
Cranberries, per case (30 qts.)...	10 0–11 0	— Jafta, per case	9 6 —
— Cape Cod, per case (30 quarts)	9 6 —	— Blood, per case	8 0– 9 0
Dates (Tunis) doz. boxes	4 6– 5 6	— Mandarins, per box ...	0 6– 3 6
Grape Fruit, case:		— Bitter, per ½ chest	16 0–18 6
— 96's		— Seville Sour ½ chest ...	15 0–18 0
— 80's	14 0–20 0	Pears (Californian), per case ...	10 6 16 6
— 64's		— Glou Morceau	11 6–12 6
— 54's		— Easter Beurré	8 6 —
Grapes (Belgian), Gros Colman, per lb. ...	1 3– 2 0	— Winter Nelis	12 6–13 6
— Almeria, p. brl.	11 6–15 6	— (American) per barrel, 180 lbs.	25 0–26 0
Per dozen lbs.	4 0– 6 0	— cases	7 0 —
— (Cape) per case	4 0– 5 0	— (Cape)	4 0– 5 0
— ,, White...	5 0– 6 0	Pineapples, St. Michael ...	2 6– 5 0
— ,, Red ...	5 0– 7 0	Pines Cape), each	0 6– 0 9
Lemons:		Plums (Cape), per case	10 0–12 0
— (Naples), case	26 0–30 0	— Apple, per box	8 0–10 0
		Strawberries, p. lb.:	
		— A quality ...	5 0– 6 0
		— B quality ...	3 0– 4 0

Vegetables: Average Wholesale Prices.

	s.d. s.d.		s.d. s.d.
Artichokes (Globe), per dozen ...	3 0– 4 0	Leeks, per doz. ...	3 0– 3 6
— Jerusalem, per ½ bushel ...	1 0 —	Lettuce (French), per doz. ...	0 9– 1 3
Asparagus, Sprue..	0 10–1 0	Mint, per dozen bunches ...	2 6– 5 0
— Lauris ...	2 6– 3 6	Mushrooms, cultivated, p. lb. ...	0 7– 0 9
— Paris Green ...	3 0 —	Mustard and Cress, pr. dz. punnets	1 0– 1 6
— (English), per bundle	2 0– 3 0	Marrows, each ...	0 3– 1 0
Beans, Guernsey, Dwarf, per lb.	1 0– 1 3	Onions (Dutch) per bag	7 0– 7 6
— French, per packet, lb. ...	1 6– 1 9	— English ...	8 0– 9 0
Beetroot, p. bshl.:		— (Spanish), per case	9 0–10 0
— Long	2 6– 3 0	— Egyptian ...	8 0– 8 6
Broccoli, sprouting, per bag ...	3 0– 3 6	Parsley, ½ sieve ...	1 6 —
Celeriac, per doz.	2 6– 3 0	— per doz. bun.	2 6– 3 0
Cabbages (French) per dozen ...	2 6– 3 0	Parsnips, per bag	4 6– 5 0
— Cornish, p. dz.	2 0– 2 6	Peas (French) per pad	5 0– 6 0
Cauliflowers, p. dz.	3 0– 4 0	— (Guernsey), lb.	3 0– 3 6
— (Italian), p. pad	2 0– 3 0	Radishes (English), per dozen ...	1 3– 1 6
— (Cornish), per crate	10 0–14 0	Rhubarb, forced, per 12 bundles	0 8– 1 0
Celery, doz. bndls.	6 0–10 0	— Outdoor, per dozen	2 6 —
— (washed), per dozen bundles	7 0–10 0	Spinach, pr. bshl.	5 0– 6 0
Carrots (English), pr. doz. bun....	2 6– 3 0	Seakale, p. punnet	0 8–0 10
— per cwt. ...	3 6– 4 6	Tomatos (Canary Islands), per bundle... ...	10 0–14 0
— (washed) p. bag	4 0– 5 0	Turnips (English), per dz. bunches	2 6– 3 0
Chicory, per lb. ...	0 4 —	— bags (washed)	4 0– 4 6
Cucumbers, p. doz.	2 0– 4 0	— (unwashed) ...	3 0– 3 6
Endive, per dozen	2 0 —	Turnip Tops, per bag	1 6– 2 0
Greens, per bag ...	2 6– 3 6	Watercress, p. dz. bunches ...	0 4– 0 6
— Spring, p bag	5 6– 6 0		
Herbs (sweet), pkts., p. gross	7 0 —		
Horseradish, 12 bundles ...	10 0–14 0		

Remarks.—Last season's crop of English hothouse Grapes is exhausted, but Black Hamburgh, from the Worthing district, will shortly be available. The supplies of hothouse Strawberries are increasing, and, consequently, their prices continue to fall. Cape Grapes are much in evidence, and may be purchased at reasonable prices. Plums from the Cape are limited to the Kelsey variety, the supplies of which are shortening. There is a better demand for Cape Melons (green flesh), which is not surprising, considering their excellent flavour. Cape fruit received this week per s.s. "Edinburgh Castle" consisted of Grapes, Pears, Plums, Peaches, Melons, Pines and Mangos, in all about 27,000 packages. There have been received from the Canary Islands, per ss. "Cluny Castle," 2,213 bunches of Bananas, 2,366 packages of Tomatos, and 2,213 of Potatos. The first English-grown Tomatos of the season reached the market this week from the South Coast. Outdoor vegetables are a much shorter supply. Forced vegetables are fairly plentiful, and now include Peas. Forced Marrows are more plentiful.
E. H. K., Covent Garden, April 2, 1912.

Potatos.

	per cwt. s.d. s.d.		per cwt. s.d. s.d.
Kents—		**Lincolns**—	
Queen's	4 0– 4 6	Maincrops ...	4 0– 4 6
Up-to-Date ...	4 0 4 6	Blacklands ..	3 0– 3 3
Lincolns—		**Bedfords**—	
Up-to-Date ...	3 9– 4 6	Up-to-Date ...	3 9– 4 0
British Queen ...	3 9– 4 3	**Dunbars**—	
King Edward ...	4 0– 4 6	Up-to-Date ...	4 9– 5 3
Northern Star ..	2 9– 3 6	Maincrop ...	5 3– 5 6
Evergoods ...	3 0– 3 9		

New Potatos.

Tenerife	10 6 14 0	Algerian — ...	12 0–14 0

Remarks.—Trade remains quiet, and stocks in London are still very large, although best tubers are not plentiful. Prices are about the same as those of last week. *Edward J. Newborn, Covent Garden and St. Pancras, April 2, 1912.*

GARDENING APPOINTMENTS.

[*Correspondents are requested to write the names of persons and places as legibly as possible. No charge is made for these announcements, but if a small contribution is sent, to be placed in our collecting Box for the Gardeners' Orphan Fund, it will be thankfully received, and an acknowledgment made in these columns.*]

Mr. G. Hall, for the past 17 years Gardener to Lady Ashburton, Melchet Court, Hampshire, as Gardener to Herbert F. Smith, Esq., Didlington Hall, Norfolk.

Mr. Allan Brown, for the past 3 years Foreman at Melchet Court, Hampshire, as Gardener at the same place in succession to Mr. Hall.

Mr. C. Chipperfield, for the past 10 years Foreman at Chilston House, Tunbridge Wells, previously at Bently Priory, Great Stanmore, and Coombe House, Croydon, Surrey, as Gardener to Capt. Blunt, Huntleys, Tunbridge Wells.

Mr. J. Hepburn, at present in charge of the hardy flower garden in the Glasgow Botanic Garden, has been appointed Gardener to the Marquis of Ailsa, Culzean Castle, Ayr.

Mr. C. Ryde, for the past 8 years Gardener to G. Goodall, Esq., J.P., Pine Ridge, Farnham, Surrey, as Gardener to General Sir Wykeham and Lady Leigh Pemberton, Abbots Leigh, Haywards Heath, Sussex.

CATALOGUES RECEIVED.

J. Cheal & Sons, Ltd., Lowfield Nurseries, Crawley Sussex—Dahlias.
H. Cannell & Sons, Swanley, Kent—Plants.

FOREIGN.

B. Hammond Tracy, Wenham, Massachusetts, U.S.A.—Gladioli.

Answers to Correspondents.

Apple Scab and Mangels: *Domestic Economy.* It is too late to spray the Apple trees with the caustic alkali solution, but if the flower-buds on your trees are not too far advanced you might spray with the Bordeaux mixture (20 ounces copper sulphate and 12 ounces of quicklime to 10 gallons of water). If the flower-buds are fairly advanced, it would be advisable to wait till the fruits are nicely set and then spray in dull weather. It is usual to harvest Mangels before there has been much frost, say not more than from 4° to 6°, which cold they will stand, but more would be apt to damage them, particularly if they were soft through a damp autumn. If black at the time of damping they would be liable to rot, but if they are black only on the exterior when taking them out of the clamp they would be suitable for use.

Bilberry: *E. W. P.* The Bilberry, or Whortleberry (Vaccinium Myrtillus), grows wild in large numbers on Dartmoor, in Devonshire, and on the moors of Cornwall. In these counties the "Worts," or "Hurts," as the fruits are called, are gathered by women and children in the late summer and early autumn, and sold to dealers who forward them to the large markets. Great quantities are imported from Hamburg, and there is a large demand for them in the north and north Midlands. We do not know of any place where the Bilberry is cultivated; it grows naturally in peaty soils which are flooded during the winter months. The large-fruited Cranberry (Oxycoccus macrocarpus) grows wild on the American continent from Canada to Virginia in boggy heaths which are flooded in winter. It is said to be cultivated on poor land in New England, where the yield is estimated at 80 to 100 bushels per acre. Quantities of the fruits are sent to this and other European countries. Cranberry and Apple tarts are often recommended by the medical faculty as a specially wholesome food.

Cucumber Plants: *St. Michael's.* Cucumber plants may be removed to an unheated pit at once, but you would be more successful with them if you grew them in a frame on a hot-bed, or in a brick pit, filled with manure to within 15 inches of the glass, putting the soil on the top of this to plant in.

International Horticultural Exhibition: *A Devon Gardener.* We believe that efforts will be made to promote such railway facilities as you suggest in your letter. On behalf of the residents in Devonshire who desire to visit the Exhibition, inquiries have already been made to the railway companies by those interested in the Exhibition. Write to Mr. P. C. M. Veitch, The Royal Nurseries, Exeter, the honorary secretary for the county of Devonshire. He will give you any information at present available.

Names of Plants: *E. Hubbard.* 1, Picea morinda; 2, Rhododendron barbatum; 3, Skimmia japonica; 4, Acer rubrum; 5, Cornus Mas. —*Wood.* Leptotes (Tetramicra) bicolor.—*A. M.* 1, Dendrobium crassinode; 2, D. nobile; 3, D. Pierardii.—*J. H.* Smilax aspera.

Plants for Shade: *W. P.* You cannot expect plants to do well in soil under an Oak tree. Not only will there be very little light, but the plants will be subjected to drip from the branches in rainy weather, and the evils of drought when the conditions are dry. The most suitable carpeting plants are Ivy, Vinca, Hypericum, Euonymus radicans and Hypericum calycinum. Flowering plants may include Anemone japonica, Saxifraga umbrosa, and Hellebores. (See also p. 204 in the last issue.)

Sweet Peas: *J. O'D., Dundrum.* The following are the best 12 varieties in the list you send: Countess Spencer, Etta Dyke, King Edward Spencer, Princess Victoria, Masterpiece, John Ingman, Queen of Norway, Elsie Herbert, Flora Norton Spencer, Clara Curtis, Helen Grosvenor and George Stark. The seeds should be sown at once in deeply dug and well manured ground, preferably in two narrow drills 9 inches apart and about 2 to 3 inches deep; the latter depth if the soil is of a light texture. The seeds may be inserted at from 2 to 3 inches apart, thinning the seedlings required to produce exhibition flowers to 9 inches when they are about 6 inches high. The plants should be staked with good Hazel stakes when about 1 foot tall, using stakes 9 feet high if the soil is in a good condition. To obtain high quality flowers the shoots should be reduced to three to each plant. Hoe the ground once a week, adding a mulch of manure to the plants after they get well into bloom. During dry weather they should be afforded liquid manure from the farmyard or artificial manure in water according to their requirements. Remove all flower-spikes till just before they are required for exhibition.

Wages During Illness: *Yorkshireman.* An employer is not entitled to stop the wages of a servant who is temporarily incapacitated by ill-health.

Half-hardy Annuals: *J. O'D.* Half-hardy annuals should be sown at once in the open border, choosing a time when the soil is in a friable condition, as the small seeds should be covered with only very fine soil. You omitted to give the date of the exhibition.

Hyacinths with Several Spikes: *Anxious.* We have received other complaints of a similar nature. Owing to the exceptionally hot and dry summer of last year large bulbs of good quality were not plentiful, and many big bulbs of a loose texture were placed on the market, these having more than one embryonic flower-spike. The smaller and more compact bulbs gave the best results, as usual.

Communications Received.—E. S. R.—P. G. T.—A. M.—H. T. V.—E. J. W.—T. P. A.—A. D.—H. M., Godalming—R. T. G., Oxford—F. K.—L. G., Bruxelles—W. M.—C. H. C.—Messrs. H., Ltd.—A. I., Cupar Angus—H. C. L.—F. B.—W. K., Aberdeen—W. E. B., West Indies—G. H.—I. R.—O. T.—R. P. B.—J. O'B.—Primula—G. M. T.—R. S. & Son—L. N.—A. W. A.—R. A. M.—C. P., California—A. H.—B. & Sons—E. T.

THE GARDENERS' CHRONICLE

ESTABLISHED 1841

No. 3720

No. 1,320.—Vol. LI. {THIRD SERIES.} SATURDAY, APRIL 13, 1912. {Registered as a Newspaper. WITH SUPPLEMENT.} {PRICE 3d. POST-FREE, 3½d.

SUBSCRIPTION—Inland, 15/-; Foreign, 17/6 [22fr. 10c.] [$4 26c.] per annum. Entered at the New York Post Office as second-class matter.

Postal Address—41, Wellington Street, Covent Garden, W.C. Telegraphic Address—"Gardchron, London." Telephone—Gerrard, 1543.

☞ **For CONTENTS see page 233.**

Bedding Favourites.

WEBBS' BEDDING ASTER.—Rose, Dark Crimson, White, Purple, Pink, Light Blue, and mixed colours. Each, 1s. per packet. Collection of 6 distinct colours, separate, 3s., post free.

WEBBS' BEDDING STOCK. — Scarlet, Canary Yellow, Purple, Light Blue, White, Rose, and mixed colours. Each, 1s. per packet, post free. Collection of 6 distinct colours, separate, 3s., post free.—WEBB & SONS, The King's Seedsmen, Wordsley, Stourbridge.

THE BEST OF ALPINES, and new and old-fashioned Perennials, Rock Gardens, Borders, Water Gardens, and Wild Gardens designed and planted. Illustrated Catalogue (free).—THE GUILDFORD HARDY PLANT NURSERY, Guildford.

GREENHOUSE PAINTING & GLAZING "Vitrolite" superior to White Lead Paint, 9/- per gall. "Plastine" supersedes Putty, 16/- per cwt. Full particulars from W. CARSON & SONS, Grove Works, Battersea. Agents throughout the country.

THE Popularity of "XL ALL" Specialities increases every year. All gardeners proclaim that nothing equals these celebrated preparations. "XL ALL" NICOTINE VAPORISING COMPOUND, the gardeners' favourite Fumigant, both Liquid and Cake. "XL ALL" NICOTINE INSECTICIDE WASH for Syringing, Dipping and Dressing Fruit Trees and Plants; Mealy Bug, Scale, etc., cannot exist where this is used. "XL ALL" INSECTICIDE WASH B (*sine* Nicotine), best non-poisonous Wash on the Market. No licence required to sell this. Other preparations of great renown are:—"XL ALL" WEED KILLER, "XL ALL" FERTILISER, "XL ALL" ROSE MANURE. Richards' GREEN SUNSHADE, finest powder shading on the market, 1s. packet, does 100 feet of glass. Don't forget to ask your Nurseryman or Seedsman for my small pink list.—G. H. RICHARDS, Manufacturer, 234, Borough High Street, London, S.E.

LISSADELL ALPINE & HERBACEOUS PLANTS.—Write for our new illustrated and enlarged List, containing many beautiful novelties at moderate prices. Also List of Seeds collected from above in 1911.
J. A. COOPER, Lissadell (No. 2), Sligo, Ireland.

OSMUNDA for Orchids.—Consignments arrive fortnightly. 2s. 6d. per bushel; per bag, 8s. 6d. SANDER & SONS, St. Albans.

IRON & WIRE FENCING for GARDENS, Tree Guards, Gates, Arches, Espaliers, Rose Stakes, and Ornamental Garden Iron and Wire Work of every description. Send for Illustrated Catalogue, free.
BOULTON & PAUL, Ltd., Manufacturers, Norwich.

GISHURST COMPOUND is harmless in use; its soluble Sulphur, &c., has for 40 years cured Blights and Fungus on Plants, and is good for washing unhealthy dogs. Gishurstine keeps boots dry in all weathers: they will polish. Good for Harness.
Wholesale from—
PRICE'S PATENT CANDLE CO. Ltd., London.

BARR'S VEGETABLE AND FLOWER SEEDS of finest selected strains and tested growth. Descriptive Catalogue free.

BARR'S HARDY PERENNIALS, ALPINES, AQUATICS, CLIMBERS, ETC., FOR SPRING PLANTING. Descriptive Catalogue, with Cultural Notes, free.

BARR'S BEAUTIFUL LILIES, Gladioli, Cannas, Montbretias, Tigridias, etc., for Spring Planting. Special Catalogue free on application. BARR & SONS, 11, 12 & 13, King St., Covent Garden, London.

Sow Now.

SUTTON'S CHARMING ANNUALS. Beautiful colours; easily grown.
SUTTON'S FIREFLY CLARKIA, per packet, 1s., post free.
SUTTON'S EASTERN STAR CHRYSANTHEMUMS, per packet, 1s., post free.
SUTTON'S SELECTED SHIRLEY POPPY, per packet, 1s., post free.
SUTTON'S DOUBLE ROSE GODETIA, per packet, 1s., post free.

SUTTON & SONS, The King's Seedsmen, READING.

DOUGLAS'S CARNATIONS & PINKS, border and perpetual, are noted all over the world. 5 Gold Medals, R.H.S., 450 Medals and Cups. Newest and best varieties at most reasonable prices, all ready for planting or potting on. Finest hand fertilized seed only sold. Carnation and Picotee seed, all types, 1s. 6d. to 2s. 6d. packet. Auricula, Pink, Polyanthus, finest strain in existence, all 1911 fine crop, now ready for sowing. Send for catalogue, Edenside, Gt. Bookham.

BATH'S SELECT SEEDS.—New Illustrated Catalogue of Choice Vegetable and Flower Seeds, with full cultural notes, is now ready, and will be sent post free on application.
(Dept. A), R. H. BATH, Ltd., The Floral Farms, Wisbech.

FRUITING VINES IN POTS.—Muscat of Alexandria, and leading Market varieties. We make Vines a speciality.
G. COLEMAN, The Vineries, Burgess Hill, Sussex.

ALPINES & HERBACEOUS PLANTS, —Himalayan and other rare Rhododendrons, rare Shrubs, Construction of Rockeries. Catalogues ready.
G. REUTHE, Keston, Kent.

New Phloxes.

GUNN & SONS were Awarded a Silver Cup at the Great Show at Olympia. New Lists now ready. Address: Olton, Warwickshire.

BUNYARD'S CATALOGUES, free on application.
BORDER CARNATIONS, 50 varieties.
ROSES AND OTHER CLIMBERS, in Pots.
HERBACEOUS AND AQUATIC PLANTS for present planting.

GEORGE BUNYARD & CO., Ltd., Royal Nurseries, Maidstone. Established 1796.

DICKSONS Horticultural Manure & other high-class Fertilizers; also Dicksons Improved Mushroom Spawn. Priced Circulars free on application to DICKSONS, Royal Seed Warehouses & Nurseries, Chester

AUTO SHREDS FUMIGANT kills Leaf-mining maggot, insects in greenhouses, frames. For 1,000 cubic feet, 6d.; 10,000, 3s. 6d. No apparatus.
WM. DARLINGTON & SONS, Patentees, Hackney, N.E.

WALTERS & CO., Morland Rd., Croydon, Makers of Lath Roller Greenhouse Blinds; also Pinoleum, Scrims and Tiffany Blinds. Prices and samples free. Established 20 years.

HARRISON'S "RELIABLE" WEED KILLER.—Best and cheapest. See p. iv. this issue.

LANDSCAPE GARDENING.—W. INNES STUCKEY, Landscape Gardener, Piccadilly Mansions, Piccadilly Circus, W. (With the late Mr. H. E. Milner).

For Advertisement Charges see page v.

KELWAY'S "Manual of Horticulture" is the best of all Garden Books, 2s., post free. From ——, Esq., Northwood, Middlesex, September 28th, 1911: "I find that I have never forwarded 2s. for your lovely Catalogue you sent me some weeks since. It would be cheap at five times the price, and I sincerely regret the oversight."—KELWAY & SON, Langport, Somerset.

THE MODERN HERBACEOUS BORDER.—Full particulars and prices of Kelway Borders packed, arranged for planting, to flower in tasteful schemes of colour, from—KELWAY & SON, The Royal Horticulturists, Langport, Somerset. From Mrs.——, Ballintubbert, Athy. "The plants arrived safely yesterday morning, for which many thanks, but such a number; they are such strong, healthy plants, too. If you treat everybody as you have treated me, I cannot understand it. You must keep your establishment going for philanthropy, pure and simple."

NOW is the time to plant Kelway's Delphiniums—fine, bold upstanding plants with a wealth of bloom in all shades of blue and purple. They are from strong country-grown stocks, and flourish under almost all conditions. From ——, Worcester, Mass.: "Your Delphiniums have proved to be the finest we ever grew, and for variety of beautiful shades they cannot be excelled." Choice named collections, 15s., 24s., 34s., 56s. a dozen.—KELWAY & SON, The Royal Horticulturists, Langport, Somerset.

GARDEN PESTS.—Cross's "Clubicide" is the Gardeners' Insurance against damage by Eelworm, Wireworm, Slugs, Maggot, and all Disease Germs and Insect Pests. Kills all harmful Bacteria, reinvigorates the soil, stimulates plant life. In 1s. flasks and ½-gall. and 1 gall. drums. From all Seedsmen.
Sole Manufrs.: A. CROSS & SONS, Ltd., Glasgow.

WM. DUNCAN TUCKER & SONS, Ltd., 27, Cannon Street, London, E.C.; Works, Tottenham. Conservatories, Winter Gardens, Vineries, Peach-houses, Portable Buildings, etc. Catalogue gratis.

Roses and Herbaceous Plants.

GUNN & SONS were awarded the 25 Guinea Challenge Cup in each collection at the Leamington Show. Up-to-date List for each now ready. Address: Olton, Warwickshire.

COOPS, COOPS, for the season. The Keeper's Coop. Best on the market, 5s. 6d. each; 60s. per dozen, carriage paid. Runs, 2s. 6d. each extra. Send for list, showing numerous other designs.
BOULTON & PAUL, Ltd., Rose Lane Works, Norwich.

PERPETUAL FLOWERING CARNATIONS; strong, established plants in pots, from 4s. per doz., carriage paid; 20s. per 100, carriage forward; illustrated catalogue, describing 75 leading varieties with cultural hints, post free.—C. F. A. VAN DER SLUYS, F.R.H.S., Ramee, Guernsey.

CUTHBERT'S SPECIALITE MUSHROOM SPAWN.—NEW SPAWN NOW READY. We continue to receive the most gratifying testimonials as to the productiveness and good quality of our Spawn. Per bushel, 5s.—R. and G. CUTHBERT, Seed and Bulb Merchants, Southgate, Middlesex.

VERBENAS.—The best sorts are Miss Willmott (pink), Princess of Wales (deep blue), Queen of Whites, King of Scarlets, and Lovely Blue (light blue); clean, healthy, strong young plants; carriage paid; 10s. per 100, cash.—H. DUDDERIDGE, The Dorset Nurseries, Blandford.

GARDEN FERNS, 20s. 100.—Cyclamen, Genistas, Acacias, Ericas, Palms, Begonias, Crotons, Dracænas; catalogues free.—SMITH, London Fern Nurseries, Loughboro' Junction, London, S.W.

SALES BY AUCTION.

Wednesday next, April 17th, at 12 o'Clock.

New and rare Perennials, Herbaceous and Rock Plants in variety, Japanese Liliums, Gladiolus, Begonias, Tuberoses, Lily of Valley, Iris, Carnations, Pinks, &c.

At 1.30 o'Clock.—1,000 ROSES in large variety.

At 5 o'Clock.—28 SPECIMEN KENTIAS.

Also 100 lots of Ornamental and Decorative Palms and Plants, Rhododendrons, Dracænas, Standard Bays, &c., from Belgium.

MESSRS. PROTHEROE & MORRIS will SELL the above by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, E.C. On view morning of Sale and Catalogues had.

Wednesday next, April 17th, at One o'Clock.

Trade Sale of thousands of GLADIOLUS in variety, Single and Double Begonias, 2,500 erect-flowering and other Gloxinias, Cannas, Amaryllis, Hyacinthus Candicans, 2,000 WATSONIA ARDERNEI, 3,000 Tropæolum, Tuberosum, 30,000 BERLIN CROWNS LILY OF VALLEY, 3,000 Gladiolus "America," Bedding Begonias Worthiana and Bertini, also

JAPANESE LILIUMS,

viz.,

4,770 Lilium auratum, 500 L. a. Platyphyllum, 2,000 L. longiflorum eximium, 1,000 L. speciosum rubrum and album, 400 L. tigrinum Fortunei, 250 L. Hansoni, 500 L. tigrinum splendens, L. giganteum, Umbellatum, Pardalinum, and Szovitzianum, 750 clumps Japanese Iris Kæmpferi, 500 Davallia, Fern balls, and designs, &c.

A consignment of Liliums, Gladiolus, &c., from Holland, Phœnix rupicola and Latania borbonica Palm Seeds.

MESSRS. PROTHEROE & MORRIS will SELL the above by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, E.C. On view morning of Sale and Catalogues had.

Friday next, April 19th, at 12.45 o'Clock.

An importation received direct, comprising Cymbidium insigne and Cœlogynes, Mooreana and Lawrenceana, together with choice Sophro-Cattleyas, Brasso-Cattleyas, and Odontiodes, also Albinos and rare Hybrid Orchids and species, 500 lots of cool, intermediate, and hothouse Orchids in large variety. Orchids in flower and bud.

MESSRS. PROTHEROE & MORRIS will SELL the above by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, E.C. On view morning of Sale and Catalogues had.

Royal International Horticultural Exhibition, May, 1912.

Messrs. PROTHEROE & MORRIS beg to announce that they have arranged to hold a series of important Auction Sales of

RARE ORCHIDS

from many of the best known and finest collections in Great Britain and on the Continent, as well as from noted growers, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., during the period covered by the show as follows:—

Tuesday,	May 21st	Tuesday,	May 28th
Thursday,	,, 23rd	Wednesday,	,, 29th
Friday,	,, 24th	Thursday,	,, 30th

Friday, May 31st.

MESSRS. PROTHEROE & MORRIS will be pleased to forward Catalogues of these Sales as soon as published to any applicants. Central Sale Rooms, 67 and 68, Cheapside, E.C.

BUSINESSES FOR SALE, &c.

FOR SALE, through illness, old-established NURSERY SEED and FLORISTS' BUSINESS; eight-roomed house; spacious shop; 10 houses (heated); three acres; long lease; in centre of good residential town, 20 miles from London; all well stocked and in thorough working order; would suit partners.—Particulars, G. N., Box 21, 41, Wellington Street, Covent Garden, W.C.

SPLENDID LITTLE NURSERY BUSINESS for Sale as going concern, near one of the best riverside residential towns; 420 ft. run of glasshouse; pit and cold frames; potting and packing sheds; excellent water supply; well stocked with Tomatos, Chrysanthemums, and Geraniums; good eight-roomed house and two-roomed cottage let off; everything in excellent order; net rent £10; 18½ years unexpired lease.—C. N., Box 17, 41, Wellington Street, Covent Garden, W.C.

FOR SALE, the six-years' LEASE of a three-acre NURSERY; 300 ft. glass; good dwelling-house, sheds, &c.; market at door; 12 miles from London; good jobbing connection; everything as it stands, £450; shop in main street optional.—R. M. G., Box 2, 41, Wellington Street, Covent Garden, W.C.

GREENGROCER'S and FLORIST'S.—Exceptional opening in this block of shops; rent from £70. Boots', Sainsbury and Express Dairy Co. already open in this established market; population 150,000; immediate possession.—OWNER, 3, Walm Lane, Willesden Green, London, N.W.

GREENHOUSES, garden, one acre, convenient dwelling house, freehold, for SALE; 450 feet run glass, 100 lights; well stocked; specialities—Tomatos, Bedding Plants; excellent opportunity; satisfactory reasons.—WOODMANSEY, Cambridge Street, Bridlington.

GARDENERS AND OTHERS.—MARKET GARDEN, POULTRY FARM, &c.; splendid for beginner; nice home; good living obtained; rent low; strongly recommended; sale reasons. BASSIL, Reddish Farm House, Sonning Common, Reading.

WARWICKSHIRE. — Small NURSERY with five glasshouses to let, rent £24; stock £150 or at valuation; excellent market centre.—WARRINGTON BENNETT, Kenilworth.

FREEHOLD NURSERY and FLORIST BUSINESS for Sale; ¾ acre; chiefly Glasshouses; well-built and heated; town water; good opening for active man; immediate possession.—T., Avenue House, Crediton, Devon.

FOR SALE, a well-equipped NURSERY and FLORIST BUSINESS, situated in a busy neighbourhood, within easy reach of the London markets; good local trade; established 30 years; dwelling house on the nursery; price, including valuable lease, growing crops, outbuildings, 10 glasshouses, frames, lights, &c., and goodwill, £1,500; exceptional opportunity for a person wishing to secure a pleasant ready-money business.—For particulars, write to ESSEX, Box 22, 41, Wellington Street Covent Garden, W.C.

A LEASEHOLD NURSERY for SALE, under exceptional circumstances, within 20 miles of London; 3½ acres of land planted with good Apples and Pears; 1,275 feet of modern well-built houses (heated), with about 175 feet heated brick pits; well stocked; any reasonable offer accepted.—Particulars, apply to C. BIRTS, Esq., 5, Salter's Hall Court, Cannon Street, London, E.C.

NURSERY, old-established; same hands 27 years; main road; home trade; good residence.—G. R. LETCHFORD, Flora Nursery, Thurston Road, Lewisham.

FOR SALE.—REDLANDS NURSERY, Emsworth, Hants. SPLENDID OPPORTUNITY in Sunny Hampshire. I am now offering my Nursery at Emsworth, where for twelve years I have carried on an ever-increasing trade. I have divided the same in suitable lots for small buyers. Growers will find this an opportunity such as one rarely meets. Every facility will be given to beginners. They can have my assistance free for the season. Including one plot of houses, planted with tomatos, which always do well here; very little capital will be required to work this range. First comer can have my House to live in. Also Propagating Houses for growing Ferns, which are exceptionally well adapted; now stocked with the famous "Glory" Ferns. But stock need not be taken over; I can sell that readily myself.—A. A. FABIUS, Redlands Nursery, Emsworth.

PUBLISHERS' NOTICES.

ALPINE FLOWERS AND ROCK GARDENS. By Walter P. Wright. A practical book containing magnificent colour and half-tone plates of the flowers as they grow. The most beautiful book on the subject yet produced. 12s. 6d. net.
HEADLEY BROTHERS, Bishopsgate, London.

ROSES AND ROSE GARDENS. By Walter P. Wright. A companion volume to above. *The Sphere* says: "Buy the book this winter and you will have a fine rose garden next June and July." 12s. 6d. net. Write for illustrated booklet post free.
HEADLEY BROTHERS, Bishopsgate, London.

AMONG THE HILLS. By Reginald Farrer, being an account of the Author's wanderings in search of Alpine Flowers. Profusely illustrated in colour. "Mr. Farrer has won for himself a unique place among writers on Alpine Plants."—*The Gardeners' Chronicle.* 10s. 6d. net. Prospectus post free.
HEADLEY BROTHERS, Bishopsgate, London.

Present-Day Gardening.

Edited by R. HOOPER PEARSON, Managing Editor of the GARDENERS' CHRONICLE. Now Ready. Post free, **1/9** each.

Numerous Beautifully Coloured Plates are contained in Each Volume.

1.—**SWEET PEAS.** By HORACE J. WRIGHT, late Secretary and Chairman of the National Sweet Pea Society. With Chapter on "Sweet Peas for Exhibition," by THOS. STEVENSON.

2.—**PANSIES, VIOLAS, AND VIOLETS.** By WILLIAM CUTHBERTSON, J.P., and R. HOOPER PEARSON.

3.—**DAFFODILS.** By the Rev. J. JACOB.

4.—**ORCHIDS.** By JAMES O'BRIEN, V.M.H., Secretary of the Orchid Committee of the Royal Horticultural Society.

5.—**ROOT & STEM VEGETABLES.** By ALEXANDER DEAN, V.M.H., Chairman of the National Vegetable Society.

6.—**CARNATIONS & PINKS.** By T. H. COOK, Head Gardener at Sandringham; JAMES DOUGLAS, V.M.H., and J. F. McLEOD, Head Gardener to Mr. Pierpont Morgan. Contains 8 full-page coloured plates.

7.—**RHODODENDRONS & AZALEAS.** By W. WATSON, with preface by Sir F. W. MOORE, M.A. (the first popular volume published on this subject). Contains 8 full-page coloured plates.

8.—**LILIES.** By A. GROVE, F.L.S., with preface by H. J. ELWES, F.R.S. Contains 8 coloured plates.

9.—**APPLES & PEARS.** By GEORGE BUNYARD, V.M.H. Contains 8 coloured plates.

10.—**ROSES.** By H. R. DARLINGTON, with 8 full-page coloured plates. A double volume, price **2/10**, post free. Special presentation edition, with beautiful cover design, in cloth gilt, gilt top, price **3/10**, post free.

11.—**IRISES.** By W. R. DYKES, M.A., with preface by PROF. BAYLEY BALFOUR. 8 full-page coloured plates.

THE PUBLISHER,

"Gardeners' Chronicle" Offices, 41, Wellington St., Covent Garden, London, W.C.

PLANTS, &c., WANTED.

WANTED, large KENTIA PALMS, from 5 feet to 25 feet in height; large, well-coloured Dracænas and Crotons, also Aspidistras; for cash or exchange.—ROBERT GREEN (1911), LTD., 28, Crawford Street, London, W.

PLANTS, &c., FOR SALE.

PERPETUAL CARNATIONS.—Our 1912 Illustrated Catalogue free. Read our "Cultural Treatise," 1s.—YOUNG & CO., Carnation Specialists, Hatherley, Cheltenham.

FERNS! FERNS!!—Tree, Climbing, Basket, Stove, Greenhouse, and Garden Ferns; catalogues free.—SMITH, London Fern Nurseries, Loughboro' Junction, London, S.W.

CUT FLOWERS AND FOLIAGE.—A. W. REDFORD, Wholesale Bulb Grower, Stevenage, offers choice Daffodils, Narcissus, and Tulips in variety daily; boxes free; price lists forwarded on application.

TINY SEEDLINGS, for immediate pricking; Storrie's invincible strains as under.

CYCLAMEN, for winter and spring blooming; strong from boxes, 100 10s.; from 2-inch pots, 3s. doz.

AURICULA (Border), to bloom next spring; choice mixed, 3s. 6d.; super extra mixed, 5s. 6d. per 100.

POLYANTHUS, to bloom next spring; choice mixed, 4s. 6d.; super extra mixed, 5s. 6d. per 100.

EXCELSIOR ICELAND POPPIES, in superb art shades; bloom this summer; tiny seedlings, 3s.; advanced plants, 12s. 6d. per 100.

HOLLYHOCKS, Carnations, Pentstemons, Pansies, &c., Primula obconica, Gloxinia, &c. Write for catalogue.—STORRIE & STORRIE, Glencarse, Perthshire.

STREPTOCARPUS, giant flower, hybrid, extra strong, double Petunias, Coleus in brilliant colours, Lantanas, finest hybrids, and Hydrangeas; strong plants; 1s. 6d. doz., carriage paid.—KOERING, 110, Brockley Road, S.E.

GERANIUMS, very strong plants.—RASPAIL, 6s.; W. B. Gem, Hermoine, 8s.; Denmarks, H. Jacoby (true), 10s.; P. Crampel, 12s. per 100; MARGUERITES (white), 3s. 100; LOBELIA, E. William, AGERATUM (dwarf blue) from cuttings, 1s. 6d. 100, 15s. 1,000; CALCEOLARIAS Golden Gem, 2s. 100; 18s. 1,000; packed free; cash with order.—BURNESS BROS., Vineries, Catford, S.E.

CHRYSANTHEMUMS, early-flowering. BRONZE MASSE, HORACE MARTIN (yellow), CARRIE (golden), GOACHER'S CRIMSON, WHITE DESGRANGE; strong plants; 1s. per doz.; 5s. 100; carriage paid on orders of 2s. 6d.; cash with order.—FURNESS BROS., The Vineries, Catford, S.E.

THE
Gardeners' Chronicle
No. 1,320.—SATURDAY, April 13, 1912.

CONTENTS.

Barr Memorial Fund, the 241
Birds and fruit buds ... 246
Books, notices of—
A Book about Roses... 240
The Botanical Magazine 241
The Complete Gardener... 243
Publications received 243
Canada, the population of 243
Carnation Mrs. A. F. Dutton 244
Conifers at Dropmore, damage to 245
Coorg, note on the vegetation of 243
Daphne indica 245
Elms, British 234
Florists' flowers—
Chrysanthemum Golden King ... 234
The Tulip 234
Forest areas in Canada 241
International Horticultural Exhibition ... 242
Ireland, Government sale of trees in ... 246
Lambourne, Mr. John, appointment of ... 241
Law note 249
L.C.C. parks department, changes in the 241
Magnolia salicifolia ... 245
Manchester, horticulture in 246
Mushroom culture in France 241
Orchid notes and gleanings—
Lælio-Cattleya MacBeaniana ... 237
Orchids at Glebelands, South Woodford ... 237
Parks, London, school classes in the 241
Park Superintendents, American Association of... 242
Phlox, the herbaceous 233
Pollination of hardy fruits, observations and experiments on the 245
Pond-weed, to destroy 242
Poplar, the, in Italy ... 242
Primula Forrestii ... 240
Primula rosea 246
Railway grievances ... 244
Rainfall in a North Wales garden... ... 246
Rehmannia 246
Rhododendron Yodogawa 241
Rosary, the—
Caroline Testout and its sports 236
Rose Mme. Hector Leuilliot 245
Saxifraga kewensis ... 247
School gardens 246
Scotland, notes from ... 244
Silver-leaf disease ... 243
Societies—
Hailstorm Insurance Corporation ... 247
North of Scotland Hort. and Arboricultural 247
Nursery and Seed Trade Association... 248
Royal Caledonian Horticultural ... 248
Royal Horticultural... 241
(Scientific Committee) 247
Royal Hort. of Ireland 248
Royal Meteorological 241
Royal Scottish Arboricultural 247
Scottish Hort. ... 247
Women's Agric. and Hort. Union ... 242
Soil, treatment of barren 241
Strawberries, pot ... 245
Superphosphates, the world's consumption of 242
Tomato industry in Ontario, the 242
Week's work, the—
Flower garden, the ... 238
Fruits under glass ... 238
Hardy fruit garden ... 238
Kitchen garden, the... 239
Orchid houses, the ... 238
Plants under glass ... 239
Public parks and gardens 239

ILLUSTRATIONS.

Carnation Mrs. A. F. Dutton 244
Cups to be presented at the International Exhibition 243
Diploma of Honour of the International Horticultural Exhibition 242
Elm, Plot's 234
Lælio-Cattleya MacBeaniana 237
Primula Forrestii growing wild in China (Supplementary Illustration)
Saxifraga kewensis 247
Ulmus campestris variety viminalis 236
Ulmus Plotii 235

THE HERBACEOUS PHLOX.

WRITING of the herbaceous Phloxes in the *Gardeners' Chronicle* of December 9, 1911, the late James Douglas referred incidentally to the fine displays Messrs. Fraser, of Lea Bridge, made at the exhibitions half a century ago. Mention was made of the fact that "these famous nurserymen objected to the clumsy method of division as not likely to give the best results," an objection which I believe has been shared by all nurserymen who have excelled in the cultivation of these plants. The divided plant can never be equal to one raised from a cutting, albeit there are some varieties more prone than the majority to spread by means of stoloniferous shoots, which are thus enabled to provide useful material for planting for an almost indefinite period. Etna, Queen of Whites, and Mrs. E. Jenkins are notable instances of this. There are others, however, and in the newer Phloxes I fear they are in the majority, that seem incapable of producing stolons, the ground stools becoming old and woody at an early age. Such varieties as these must be increased by cuttings. Of this latter type there is no more conspicuous an example than Coquelicot, though it were an easy matter to name many similar ones.

In the production of stoloniferous shoots the character of the soil plays a part, since the varieties that produce them freely in light soils do so tardily, if at all, in soils of a heavy or clayey nature. Conversely, those varieties that produce stoloniferous shoots shyly, or not at all, when planted in light soils, are short-lived or impossible of cultivation when planted in heavy soils. Hence the cultivator should consider the Phlox in conjunction with the soil. Speaking generally, and from a somewhat diversified experience, I consider soils of a medium or even a light nature far superior to those containing much clay, for though the former become very dry in hot seasons, it is possible to afford water advantageously. On the contrary, most clay soils contract to such an extent as to render watering a futile operation. Few nurserymen of past decades have grown or exhibited herbaceous Phloxes to equal the late Robert Parker, of Tooting, yet the soil of the nursery was generally very light and sandy, the subsoil being composed of sand and gravel to a great depth. The Phlox beds were, however, quite near to large water tanks, and the beds were flooded two or three times each week in dry weather. In light soils, too, Phloxes are great surface-rooters, hence a mulch in conjunction with the waterings will be found of much benefit.

Adverting to the methods of propagation I have often wondered, seeing the fine results obtained, why so little use is made of autumn cuttings.

This method saves a great deal of time, the autumn-struck cuttings making plants fit for distribution early in the following year. Moreover, such cuttings root well in a shady frame in the open, hence should possess a special value for those amateurs who have not space in artificially-heated structures for such things. The plants, too, are raised from material usually discarded. A slight shortening of the flowering stems, after flowering, being all that is required to promote the requisite growth. The spring cuttings raised under glass by the nurseryman have a value of their own. Formerly it was the practice to pot up all the plants, and these being sent out in the hard, solid balls were frequently planted in the same condition, and proved incapable of succeeding well. Nowadays the nurseryman plants the young Phloxes in nursery beds, thereby saving himself the cost of pots, and also the labour of frequent waterings. Presently the purchaser gets a much larger and a far more satisfactory plant. This system of supplying plants from the open ground is, to my mind, a great gain, and if it diminishes the planting season by a few weeks in spring or summer, it insures the work being done in the proper season. Where pot plants of Phloxes are grown for conservatory decoration there is no method of propagation to equal that of the spring cutting, and young vigorous examples cultivated generously after the manner of Chrysanthemums, usually produce fine panicles of flower late in September, or even in October. Two or three decades ago, these border Phloxes were frequently employed as pot plants, while, to-day, despite their high decorative excellence they appear to be forgotten. That the method referred to is worth reviving no one with personal knowledge of the subject will deny.

The modern raiser has given us flowers of greatly increased size, in conjunction with brilliant or pure colouring. New shades of colour as evidenced in the varieties Iris, Violet, and Le Mahdi, have provided the group with increased diversity of colour and a wider sphere of usefulness. The modern varieties exhibit greater substance in the petals. Dwarfness, too, has been added in some varieties, though I question if in a plant to which we look for some of the finest flower pictures of the flower garden this may be accounted a gain in the truest sense. The greatest loss, a loss both to garden and greenhouse, is, in my opinion, the ignoring by the modern raiser of these plants of the latest flowering varieties of the race, like Virgo Maria which blossoms long after the majority are past. The trusses of these late flowering varieties are denser, more pyramidally inclined, and the flowers smaller. But the quality of lateness is worthy of wedlock with the finest strains in the hope that the union may span the gulf and extend the season of flowering as it has done in other classes of plants, though none more notably perhaps than the Narcissus. Then, to some extent, we have lost the well-shouldered, paniculate trusses of earlier days, and some varieties in particular, which, producing sublateral spikelets so freely, were alike valuable in the garden or in the cut state, have fallen out of cultivation. In the past, many a housewife has welcomed these well-foliaged bits of flower beauty late in the year, and would do so again if only they were forthcoming. In these directions there is still room for improvement, remembering that the herbaceous Phlox being above all things a garden subject it should be made to play its part to the fullest extent and for the longest possible season. *E. H. Jenkins.*

FLORISTS' FLOWERS.

THE TULIP.

During recent years both early and late varieties of Tulips have been freely cultivated in all classes of gardens, not only as beautiful features in the flower garden but for decorating the greenhouse and conservatory during the spring months. A few remarks from an old Tulip fancier may be useful.

The best time for planting depends to some extent on the district. Last season I began planting on November 9, as the day was fine and the ground in good condition, but in certain wet and cold districts the end of November, or even early in December, might be better. Some years ago I discussed this point with the late Mr. Samuel Barlow, of Stakehill, near Manchester and he had come to the conclusion that for his district late in November was the best time, as the roots were ready to push out at once. Apropos of this Mr. Joseph Jacob, writing recently in a contemporary, stated that he "planted a large number of Tulip bulbs the week before Christmas. The soil was more like lumpy, sticky mortar"; but he adds "I have never had a better display of bloom than I had from these bulbs the following spring." Much, of course, depends on how the bulbs have been kept. I advise early purchase of the bulbs, for the trade may be obliged to keep their bulbs in large quantities in ordinary houses until they become mouldy, owing to decay setting in. The old florists stored them in cabinets, and in a dry room. I store them in bags in a dry room or in flower pots.

The introduction of what are termed Cottage and Darwin Tulips has been the means of popularising this flower, as they are certainly of a more vigorous constitution than the old bizarres and bybloemens. In my early gardening years, in the 'fifties, the Tulip had begun to decline in public favour. Mr. Groom, of Clapham Rise, printed a catalogue in 1854, in which three varieties were priced at 100 guineas and others as high as 50, 20, and 10 guineas. Mr. Groom planted 200,000 bulbs of these show Tulips. They were planted in beds, seven bulbs in a row; but all these choice bulbs had to be sold by auction in 1855, and the highest price obtained was £6 to £7 sterling for a row of seven, with the offsets. A time of depression set in, but the cult of the show Tulip was kept alive by the annual exhibitions at Manchester.

For a brilliant display in the hardy flower garden, the show Tulips cannot compete with the Cottage and the Darwins. The masses of colour, where hundreds are planted in beds, one colour in a bed, are unsurpassed and unsurpassable; but these can only be obtained in large gardens or public parks. The owner of a small garden who does all, or nearly all, the work himself, obtains his pleasure by a close examination of his flowers, and, if he possesses a trained eye, by observing the beauties of the flamed and feathered bizarres and bybloemens with the clear, pure yellow and white bases to the cups, so different from the blueysooty bases of the others. One cannot be expected to realise and admire the inherent beauty of a flamed and feathered Tulip at a glance. It requires close and careful study, such as was formerly bestowed upon them by the patient hand-loom weavers of Lancashire.

There are three classes of show Tulips, Bizarres, Bybloemens and Roses. Among the Rose class some have scarlet markings. These three classes are again divided into flamed and feathered sections. A feathered flower has the colour finely pencilled around the margin, whereas the flamed type has a flame of colour in the centre of each petal in addition. In olden times considerable pains was taken to prepare the beds for these aristocrats of the Tulip world; but, like the more-hardy self-coloured varieties, they are capable of succeeding well in ordinary garden soil. Seedlings from these show Tulips are almost invariably in the self-coloured state when they first flower. After an uncertain period they break into flame or feather. The show Tulips are certainly not so hardy as the others, and in cold, wet districts they require protection in spring from frosts. The usual way is to have hoops over the beds, and throw mats over them; but glass lights, when they can be spared, are better; and the lights can be used to protect the blossoms also. The lights have to be raised on wooden supports about 4 feet above the surface of the bed, and some scrim canvas may be nailed round the sides and ends to break the force of the wind. Heavy rains and winds greatly injure the blossoms.

Pot Culture.—All classes of Tulips may be grown in flower pots, and may be flowered satisfactorily. The main point is to allow the bulbs to root freely before they are placed either in the greenhouse or forcing house. Three bulbs should be planted in 6-inch flower pots, placing the crown of the bulb just below the surface of the soil. The compost I have found most suitable is three parts good decayed loam, one part decayed manure, and one part leaf-mould, with a good sprinkling of white sand. As soon as they are potted, plunge the pots well over the rims in

Fig. 104.—Plot's elm.
Reproduced from Plot's *Natural History of Oxfordshire.*

cocoa-nut fibre refuse or leaf-mould, and let them remain out-of-doors until roots are well formed. I do not force them early, but let them remain until early in the year, when they are taken into the greenhouse or heated pit and placed near the roof-glass. Most of the failures in forcing Tulips is caused by not allowing the bulbs to form roots before placing them in heat. *J. Douglas.*

CHRYSANTHEMUM GOLDEN KING.

Among the many new varieties of Chrysanthemums noted last autumn no variety impressed me more favourably than Golden King, a really fine acquisition to the Incurved section. As exhibited by Messrs. W. Wells & Co. on November 21 last, it had all the good qualities necessary to make a first-class exhibition flower. It somewhat reminded me of the old variety Globe d'Or, this as much owing to the touch of bronze in the outer petals as to the shape of the flower, but it is altogether larger and heavier than this good old sort, much richer in colour, and more pointed in the petals. An entry in my note-book gives America as the country in which the variety originated. It has received a First-class Certificate from the National Chrysanthemum Society and an Award of Merit from the R.H.S. *T. Stevenson.*

BRITISH ELMS.

(Concluded from p. 217.)

The Real Plot's Elm.

Miller's sixth and last Elm is his Ulmus minor; and it is founded on "Ulmus minor folio-angusto-glabro." No reference is given to the original description and author; and it is to Mr. Druce that we are indebted for ascertaining this interesting fact. Mr. Druce points out that the original reference is to be found in Plot's *Natural History of Oxfordshire*, p. 158, and t. x., fig. 1, facing p. 212 (1677). Plot states that the leaves of this Elm are narrow and have "a peculiar kind of pointed ending." His illustration (reproduced in fig. 104) shows this character. It is on this Elm that Mr. Druce, acting under some misapprehension, founds his U. Plotii. Specimens of the latter plant (reproduced in fig. 105) sent out by Mr. Druce lack the character mentioned by Plot. The only Elm I have been able to trace which agrees with the real Plot's Elm is a specimen (reproduced in fig. 106) by Lindley, from the garden of the Horticultural Society, preserved in Herb. Univ. Cantab., and named by him "U. campestris viminalis." The name U. campestris var. viminalis appears in Loudon's *Arboret.*, iii, p. 1,376 (1856). Loudon states that "it was raised in 1817, by Mr. Masters"; but if the tree is a "sport" or a hybrid, it may have been "raised" on other occasions also. The Elm has a very curious leaf, and is placed by Loudon among the "ornamental or curious" varieties, where one would expect to find nurserymen's "sports." Readers may judge for themselves by a study of the three figures whether or not the real Plot's Elm agrees more with U. Plotii Druce or U. campestris var. viminalis Loudon. Plot's Elm (U. angusto-folio-glabro) does not appear to have been taken up by the early botanists: I could find no specimen of it in the British Museum; and the only reference to it in literature which I have come across is one by Ray in his *Historia Plantarum*, ii, p. 1,426 (1688), where it is placed as a variety of U. folio-glabro Goodyer (= U. nitens Moench). Until more is known about it, it can scarcely be admitted as a member of the British flora; and it is accordingly omitted from the key at the end of this article.

The Cornish Elm (U. stricta Lindl.).

The remaining Elms to be here mentioned were not described, so far as I am aware, by any of the early English herbalists or botanists, but occur in Loudon's *Arboretum*, iii. (1838).

The Cornish Elm may be distinguished at a glance by its pyramidal shape, its fastigiate branches, and its narrow leaves which are bent inwards on the midrib. It was named U. stricta by Lindley in his *Synopsis*, p. 227 (1829), and U. campestris var. cornubiensis by Loudon *Arboret.*, iii, p. 1,376 (1838). Loudon followed earlier authorities (e.g., Aiton and Hudson) in regarding the Cornish Elm as allied to the Small-leaved Elm, which was what Loudon meant by his U. campestris. Doubtless, the local distribution of the Cornish Elm accounts for its not being noticed by the early writers, for the tree is only abundant in western Cornwall. As an isolated and more or less rare tree, however, it occurs elsewhere, as in Devonshire, Dorset, Hampshire, Middlesex, Essex, Cambridgeshire, Huntingdonshire, Oxfordshire, Buckinghamshire, and Northamptonshire. In Cornwall, it usually occurs in hedgerows.

The Jersey Elm (U. stricta var. sarniensis Moss).

The Jersey Elm is very closely related to the Cornish Elm, from which it is to be distinguished by its much broader and flatter leaves, and by its branches ascending at not quite so acute an angle. It is the U. campestris var. sarniensis Loudon *Arboret.*, iii, p. 1,376 (1838). As Loudon's U. campestris is the Small-leaved Elm, and as the Jersey Elm is much more closely

allied to the Cornish Elm than to this, I have been obliged to place the variety under U. stricta. Jersey Elms in the Royal Gardens at Kew are labelled "Wheatleyi"; but I suspect this is a mere *nomen*, whilst the name sarniensis was given a definite status by Loudon. The tree is perhaps limited to the South of England, and is probably not indigenous. It is commonly planted, along with Cornish Elms, in the avenues and boulevards of the Channel Islands and some of the towns, e.g., Southampton and Portsmouth, of the south coast.

FIG. 105.—ULMUS PLOTII DRUCE, FROM A PHOTOGRAPH OF A TYPE-SPECIMEN ISSUED BY MR. DRUCE.

(The line represents a scale of one inch.)

The Huntingdon Elm (U. glabra Huds. × nitens Mœnch—(B) × U. vegeta).

The Huntingdon Elm, like the preceding variety, is also, I think, not indigenous; but it is being rapidly supplied from nursery gardens at the present time. It is more a plant of public parks and open spaces than of hedgerows; and it never, I believe, occurs in woods. It is very abundant in and near Cambridge. It grows very rapidly: it has usually a short bole and a large crown, and long primary branches which ascend at a very sharp angle in young trees; but the branches become more spreading in age. Smaller branches descend sharply from the lower main branches. The leaves are large and petioled, and smooth and polished above.

The tree produces fertile seeds in abundance; and, judging from Mr. Henry's observations on Elm seedlings, the plant would appear to be a hybrid. No certain evidence of its parentage has been adduced; but, from its characters, one judges it to be one of the many forms of U. glabra Huds. × nitens Mœnch.

Elm Seedlings.

It has long been known that the seeds of many Elm trees produced seedlings whose characters differ from those of the tree which bore them. Martyn (*Gardeners' and Botanists' Dictionary*, 1807) and Loudon (*Arboretum*, vol. iii, 1838) both emphasised this fact; and the matter has recently been re-investigated in the light of more modern knowledge by Mr. A. Henry, Reader in Forestry at the University of Cambridge.

The early interpretation of the phenomenon was that plants which yielded mixed seedlings were not good species; and doubtless this erroneous view has had a great deal to do with the reduction by botanists of British Elms to two or even to one species. The conclusion is discredited by the knowledge which has recently been obtained as a result of careful and accurate experiments by Mendelian workers. It is now known that a "pure line" may yield seeds which produce mixed seedlings if it is pollinated either by another "pure line" or by a hybrid. Hence it is now necessary, before it can be said that a particular plant whose origin is not definitely known is a hybrid, to self-pollinate the plants, and only use the seeds which have been obtained by this means. If such seeds throw mixed seedlings, then it may be regarded as established that the plant which produced them is a hybrid. Even then, however, there is no proof of the parentage of the hybrid. To obtain that it is necessary to produce the hybrid in question by cross-pollinating known plants. No account of any such experiments, so far as I am aware, has ever been published with regard to Elms.

Suberosity in Elms.

Elms are well known to produce, on occasion, a great excess of corky tissue, and this "suberosity" has been responsible for some of the confusion in Elms. Many botanists have named suberous plants U. suberosa or U. campestris var. suberosa; but such names, if founded on the presence of suberous bark alone, should be rejected as being founded on an abnormality which may occur in any of our Elms, except the Wych Elm (U. glabra Huds.). The different Elms produce suberosity in different degrees: it is common, for example, in the Dutch Elm (× U. hollandica), and rare in the Huntingdón Elm (× U. vegeta). The suberosity is commonest on the young branches produced from adventitious buds low down on the trunk, and on suckers. The cause of this suberosity is a matter for investigation by the plant pathologist rather than the systematist. It is interesting that all our Elms which produce suberous bark also have suckers.

Rough-leaved and Smooth-leaved Elms.

Another matter which has caused confusion is the smoothness or roughness of the upper surface of leaves of Elms. In the Wych Elm (U. glabra Huds.) and the English Elm (U. campestris L.) all the leaves are invariably rough above; but the remaining Elms are usually described as having leaves which are smooth above. This, however, only applies to leaves which are produced in spring on young branchlets of the main branches. These, in the key which follows, are termed normal leaves. It does not apply to leaves formed on suckers, or on twigs produced from adventitious buds low down on the trunk, or on coppiced or cropped shoots, or on seedlings, or even on the new shoots produced in summer on the main branches: all these leaves are invariably rough above. This, I believe, has never been pointed out before; and, in assessing the value of old descriptions, it is sometimes necessary to reject all references to the smoothness or roughness of Elm leaves. It is very interesting, too, that the leaves of the summer shoots fall before the normal leaves, often a week or ten days before them.

Size of Elm Leaves.

Finally, the size of Elm leaves has led to confusion through not allowing for the variability in each species or variety or hybrid. Of course, on every shoot the size of Elm leaves varies enormously (cf. fig. 105); and, in the following key, descriptions of Elm leaves refer only to the terminal leaves of each branch (unless otherwise stated). In addition to that, however, it is not unusual to find in each species some individuals which produce much smaller leaves than the rest. Very often the small-leaved examples are old or decrepit trees; but this is not always the case. However, by allowing for the kind of variation pointed out in this and the previous paragraph, it is possible to identify any British Elm by its normal leaves alone; and I have no doubt, if proper attention were paid to sucker-leaves, &c., Elms could also be identified by these. It is,

however, necessary in identifying Elms by means of leaves to know which kind of leaf is under observation—whether a normal leaf, or a sucker-leaf, and so on—and to compare it only with the corresponding kind of leaf.

KEY AND CONSPECTUS OF BRITISH ELMS.

In the following conspectus an asterisk (*) in front of the name indicates that the tree is not indigenous in the British Isles, a dagger (†) that the tree is doubtfully indigenous. The Wych Elm (U. glabra Hudson) is indigenous throughout the British Isles (except, perhaps, in East Anglia); and U. nitens Mœnch and U. sativa Miller are indigenous in South-eastern England

II.

Tree very tall at maturity; bole long, straight; lower branches§ wide-spreading; crown large; samara small (about ½ inch long), suborbicular; laminæ always hairy or rough above, of the terminal leaves rather large (about 3½ inches long and 2 broad) and acute-acuminate, of the remaining leaves of each branchlet shorter, suborbicular; petioles about ⅓ inch long, hairy). † U. campestris L.

Normal leaves smooth or glabrous above. III.

III.

Samaræ and laminæ of the terminal leaves as broad as or nearly as broad as those of the Wych

FIG. 106.—ULMUS CAMPESTRIS VARIETY VIMINALIS LOUDON.

From a photograph of a specimen in Cambridge University Herbarium, by Lindley.

(The line represents a scale of one inch.)

and in the Eastern Midlands. U. sativa Miller is also possibly indigenous in Hampshire and Glamorganshire; L. and × U. hollandica seems to be indigenous in a wood in western Cambridgeshire, and no doubt elsewhere.

I.

Tree without suckers and without suberous bark; branches usually more or less arched; crown of tree large; stamens usually five or six, rarely four or seven; samara large (about 1 inch long), seed in the centre; laminæ always rough above and acuminate, of the terminal leaves large (about 5 inches long and nearly 3 broad), almost sessile. U. glabra Hudson.

Tree with suckers; bark suberous or not; stamens usually four; seed usually between centre of samara and the notch. II.

Elm (U. glabra Hudson); position of seed variable. IV (Hybrid Elms).

Samaræ and laminæ of the terminal leaves much narrower than in the Wych Elm (U. glabra Hudson); seed between centre of samara and the notch. V.

IV.

Bole usually short; lower branches wide-spreading and usually very long; crown very large; laminæ acute, of the terminal leaves about 4 inches long; petioles nearly ½ inch long, hairy. U. glabra × nitens—(a) × U. hollandica.

Bole usually short; all the main branches of young trees ascending at a very acute angle; crown very large; laminæ acute-acuminate, of the terminal leaves about 5 inches long; petioles about ½ inch long, usually hairy. *U. glabra × nitens—(b) × U. vegeta.

§ The lower branches of hedgerow trees are usually lopped; and thus the typical habit is destroyed. In some districts, e.g., in Brittany, the branches are lopped almost from foot to crown; and then the precise determination of the tree is a matter of difficulty.

V.

Tree tall at maturity; bole long, straight; lower branches wide-spreading; crown rather large; samara small, rather less than ½ inch broad, obovate; laminæ acute or acuminate, very smooth and shiny above, of the terminal leaves about 3½ to 4½ inches long and about 2 broad; petiole about ½ inch long, glabrous at maturity. U. nitens Mœnch.

Tree small; laminæ of the terminal leaves short, less than 2¾ inches long. VI.

VI.

Tree not pyramidal; lower branches wide-spreading; crown usually small, sometimes rather large when the upper branches of old trees are very tortuous; winter buds usually smaller than in any other Elm; this and U. stricta are the last Elms to come into flower; samara small, narrower than in any other British Elm, being only about 3-10ths inch wide, oblong-elliptical; laminæ acute or subobtuse, never acuminate, of the terminal leaves about 2 to 2¾ inches long or even shorter, and about 1¼ to 1½ broad; petiole about ⅛ inch long, usually rather hairy and rough. U. sativa Miller.

Tree pyramidal; branches fastigiate or subfastigiate. VII.

VII.

Branches fastigiate; samaræ about ½ inch wide, slightly obovate; laminæ about as broad as in U. sativa Mill., each half bent inwards or upwards on the midrib (when fresh), subcoriaceous; petiole as in U. sativa Mill. †U. stricta Lindley.

Branches subfastigiate; laminæ flat, broader (about 1⅝ to 1¾ inch broad) than in U. stricta Lindley. *U. stricta var. sarniensis Moss. *C. E. Moss, D.Sc.*

THE ROSARY.

CAROLINE TESTOUT AND ITS SPORTS.

THE variety Mme. Caroline Testout, although raised and put into commerce over 20 years ago, is still one of the most popular garden Roses, holding its own as a favourite, despite an annual accession of new varieties. Its suitability for culture in almost any garden; its refined and delicate colouring and its delicious fragrance are qualities that explain its popularity. Mme. Caroline Testout has given us several sports, amongst which are Admiral Dewey (Taylor, 1899), a silvery-pink Rose of somewhat variable colouring, and James Ferguson (Ferguson, 1910), a flesh-pink variety which received a Silver-gilt Medal from the National Rose Society. This latter variety appears to be almost similar to a sport of German origin named Oberbürgermeister Dr. Trœndlin (E. Kaiser, 1904), but as my experience of James Ferguson has been limited to one season only, and a hot, trying one at that, I do not care to be emphatic upon this point. The pure-white sport from this famous Rose, which Messrs. Dobbie are offering this season under the name of White Caroline Testout, is similar to the parent in every point but colour. It is pure white and very fragrant. Here, in Mid-Lothian, under trial last summer, it did exceedingly well, and it will fill a place among the Hybrid Teas that is at present vacant. There is an opening for a reliable, fragrant Rose in that section, and White Caroline Testout seems destined to occupy this position. White Killarney, also the asexual offspring of another popular garden Rose, is a beautiful and refined member of this class. Although White Caroline Testout has not yet been thoroughly tested under glass for pot culture, it has, so far, realised expectations, and it may be considered quite suitable for this purpose. This sport is of Continental origin, having occurred a year or two ago in the nursery of a small grower of Roses in Holland. *George M. Taylor, Mid-Lothian.*

ORCHID NOTES AND GLEANINGS.

ORCHIDS AT GLEBELANDS, SOUTH WOODFORD.

Although Glebelands is situated in a densely-populated London district, the fine collection of Orchids in the gardens of J. Gurney Fowler, Esq. (gr. Mr. J. Davis), compares favourably in point of vigour and floriferousness with any other in this country. Odontoglossums, it was formerly held, could not be grown to perfection unless in the open country, but these plants were especially fine on the occasion of a recent visit. The spacious house built for Odontoglossums some years ago will shortly present a grand sight, as there are many hundreds of flower-spikes in the bud stage. At present there are some specially fine forms of O. crispum in bloom, including rare blotched forms, for which the collection is noted, especially O. c. Carmania, O. c. Mrs. J. McBean, O. c. Fowlerianum, and O. c. Solum. A speciality of the collection is the handsome O. Smithii (Rossii rubescens × crispo-Harryanum), which was well in flower a fortnight ago. The fine O. Jeanette (Rossii rubescens × amabile) was also blooming splendidly. Among other good plants were noted Odontoglossum Arnoldianum (a fine dark flower), O. Europa (with flowers of a decided violet tint and having a white margin), O. Memoria Lily Newmann (to which the R.H.S. Award of Merit was recently granted), a well-marked O. Jasper with rose-coloured ground, O. Wilckeanum "Fowler's variety" bearing two fine spikes, O. Adrianæ "variety F. K. Sander," some good plants of O. ardentissimum, O. eximium, and O. Pescatorei, among which the blotched variety Charlesworthii was expanding its flowers. O. harvengtense, O. illustre in several varieties, and O. luteo-purpureum Vuylstekei were conspicuous amongst other cool-house species. A specially-bright orange-scarlet Ada aurantiaca was bearing a dozen spikes. Some plants of Masdevallia, including the pretty M. Chestertonii, were especially fine, also several large specimens of Oncidium macranthum and O. Edwardii. Amongst the bright-red Odontiodas, O. Charlesworthii and O. Keighleyensis "Fowler's variety" were most attractive. Cymbidium Woodhamsianum, with a stout spike of large flowers; C. Lowianum "Fir Grange variety," and another fine form bearing 28 flowers on a single spike; C. grandiflorum, the unique Odontocidium Fowlerianum and Maxillaria Sanderiana were all noteworthy. These beautiful Orchids were growing in a large cool-house, in which also, with other seedling Odontoglossums, were several plants of a promising cross between Odontoglossum Thompsonii and O. Wilckeanum Miss Louisa Fowler just showing their flowers.

Fig. 107.—Lælio-Cattleya Macbeaniana (C. Schröderæ × Lælia anceps Schröderiana).
(Received R.H.S. First-class Certificate on the 2nd inst.)

The range of intermediate houses contained a fine selection of Cattleyas, Lælias, and Lælio-Cattleyas. Those observed in flower included Cattleya Trianæ and C. Schröderæ, the best in each section being C. Trianæ "J. Gurney Fowler," a perfect flower, having a very bright magenta-crimson lip, with much dark yellow at the base; and C. Schröderæ "Louisa," which was equally good in form, and quite distinct in colour from other varieties. C. Cecilia had showy flowers with a claret-coloured lip; C. Octave Doin appeared to advantage, a batch of seedlings from this plant being about to flower. On the central stage a large specimen of Sobralia Holfordii had many blooms, deeper in colour, and larger than those of C. macrantha, whilst the pure-white form was on the point of making a good display.

The back wall of a lean-to range of houses was clad with trailing Epidendrums such as E. O'Brienianum and E. Boundii. There was also a collection of varieties of Lælia anceps. These plants formerly gave much trouble at Glebelands, but, suspended from the roof of the house, they now grow into sturdy specimens. The inner division of this range contains Angræcums, Aërides, Saccolabiums, and specimens of Vandas and Dendrobiums, some of which were in flower. Suspended from the highest point of the roof were two noble plants of Eulophiella Peetersiana, reputedly a difficult plant to cultivate, but which thrives luxuriantly at Glebelands, where it is increased by division. E. Elizabethæ also thrives well in the collection, a specimen of the original importation being in the possession of Mr. Fowler.

In the Cypripedium houses a point of interest was a batch of C. Leeanum J. Gurney Fowler, which is unapproached in its class. At first it seemed to be a difficult subject to cultivate, for it grew feebly for several years, but afterwards it exhibited extraordinary vigour and grew so well, that the plant was propagated by division. In flower was a large form of C. Victor, also good specimens of C. aureum, including virginale, Œdippe, and Surprise; C. Fowlerianum, a large, dark flower; C. Olivia, two fine plants of C. Beeckmanii, C. Penelope, C. Daisy Barclay, which has grown to be a fine specimen; C. Dicksonianum, a little-known hybrid with an attractive display of carmine-rose in its white dorsal sepal; and some new hybrids.

The next house contained a batch of the showy and fragrant Bifrenaria Harrisoniæ and a complete collection of Anguloas. A. Cliftonii and most of the other plants were developing their flowers. A few plants of a batch of Zygopetalum were in flower, the showiest being Z. Perrenoudii, having a large, deep-blue lip. Miltonia Warscewiczii thrives well at Glebelands, some of the specimens were in flower, and others in the bud stage. A cool range contained a good selection of varieties of Cypripedium insigne, one side of a house being filled with yellow forms.

A collection of varieties of Miltonia vexillaria, M. Bleuana, and other Miltonias is accommodated in one of the cool-houses, where they seem to assume a dwarfer habit than when grown in the intermediate house. I also observed a good selection of hybrids of Sophronitis grandiflora, with Sophro-Cattleya Saxa in bloom; and some handsome hybrids of Brassavola Digbyana, a few of which were in bloom including the rare Brasso-Lælio-Cattleya Fowleri.

Adjoining the Orchid houses are several span-roofed structures containing Selaginellas. All the available species and varieties are grown, the trailing kinds being arranged on tall rustic stands and the dwarf-growing varieties on conical mounds. *J. O'B.*

LÆLIO-CATTLEYA MACBEANIANA.

Our illustration (fig. 107) represents a flower of this fine hybrid which secured a First-class Certificate at the Royal Horticultural Society's meeting on April 2. The flowers are almost pure white with a yellow disc and crimson-purple front to the lip. It is the finest hybrid of Lælia anceps at present known.

The Week's Work.

THE ORCHID HOUSES.

By J. COLLIER, Gardener to Sir JEREMIAH COLMAN, Bart., Gatton Park, Surrey.

CŒLOGYNE.—Plants of Cœlogyne cristata and its varieties, having been afforded a short season of rest after flowering, are developing fresh growth, and should be repotted or top-dressed as may be deemed necessary. Those plants that have sufficient root room, and the compost in a good condition, may be top-dressed with fresh material. This work will afford a favourable opportunity to peg down to the compost such portions of the plants as may be projecting over the sides of the receptacles, always directing the shoots towards the centre of the plant. Plants that require repotting should have the old compost shaken from the roots and the back pseudo-bulbs removed, leaving only four behind the leading growth. A number of these leading shoots may be placed together, more or less, according to the size of the specimens desired. Where a considerable number of plants are grown, it is advisable to pot a portion of the stock each season, as a period of two years is required for the plants to become sufficiently established to flower well. Pans are the best receptacles, and they should be half filled with clean crocks for drainage purposes, covering the crocks with a thin layer of Sphagnum-moss. The compost may consist of good fibrous loam, peat, and Sphagnum-moss in equal parts, the various materials being broken rather roughly and mixed with a quantity of crushed crocks. In potting, arrange the compost so that the centre of the plant is higher than the edges of the pan, and direct the young growths to the middle of the plant, pressing the materials moderately firm. Cœlogynes thrive best in an intermediate temperature. After they have been potted, the plants should be afforded a shady position and watered once well. The compost may then be allowed to become dry before being again watered, but the atmosphere must be kept moist by syringing between the pan and spraying the plants overhead. The pseudo-bulbs that are removed will, if placed in pans with a little Sphagnum-moss, soon break into growth, and may be used to increase the stock.

ANGULOA.—Such Anguloas as A. Clowesii, A. eburnea, A. dubia, A. Ruckeri, A. uniflora, and the rare and beautiful A. Cliftonii are pushing forth new roots, and should be repotted. Use a similar compost to that advised for Cœlogynes. Anguloas are best grown in pots which should be well drained, placing the plants just below the rims of the receptacles. They grow best in a light position in the Cattleya house. Water the plants sparingly after repotting, and afford moisture with great caution until the young growths are well advanced, when they may receive liberal quantities of moisture. See that no water lodges in the centres of the young growths, as this is a frequent cause of damping. When the young leaves are well developed the plants may be syringed frequently overhead.

MAXILLARIA.—Certain species of Maxillaria, including M. venusta, M. candida, M. picta, M. Turneri, M. striata, M. nigrescens, and M. Mooreana are becoming active at the roots, and plants that require fresh rooting material should be attended to in this respect. Those mentioned are best grown in pots and pans filled with a compost consisting of A1 fibre and Osmunda fibre in equal proportions, with a small quantity of Sphagnum-moss cut up rather short and a liberal amount of crushed crocks. The pans or pots should be well drained, and the rooting materials pressed firmly. When the plants are potted they should be placed in a shady position, and watered very carefully, pouring the water around the edges of the pots so that it may not lodge in the young growths. Such species as M. Sanderiana and M. Lindenii, that flower at this season of the year are best grown in teak-wood baskets, as the flower-spikes sometimes push downward through the bottom of the receptacle. For this reason Fern-rhizome should be used for drainage instead of crocks. These two species, also M. fucata, M. leucaimata, and M. Hubschii, should not be potted until after they have passed out of flower. All the species named are best grown in the intermediate house.

THE HARDY FRUIT GARDEN.

By F. JORDAN, Gardener to Lady NUNBURNHOLME, Warter Priory, Yorkshire.

APRICOTS.—The soil of fruit-borders is sufficiently moist for the roots of the trees, and water will probably not be required for some weeks longer; but where the ground is light or sandy, or the walls are furnished with broad copings, the borders should be examined shortly to ascertain if additional moisture is needed. Many failures amongst Apricots may be attributed to insufficient water at the roots, and newly-planted trees especially must be kept well watered. A good watering will do no harm, always provided the borders are well drained. Apply a mulch after watering, unless the weather is dull and cold, when its application should be deferred until the weather is more genial. Apricots are the first trees requiring disbudding, but this operation must not be done so severely as in the case of Peach trees, Remove first all shoots that are at the back of the tree, foreright shoots and others in unsuitable positions. Spurs may be induced to form by pinching shoots that are not required for extension to three or four leaves, but whenever possible allow spurs to form naturally. Avoid a severe thinning of the shoots at one time. Commence the thinning at the top of the tree and work downwards, repeating the operation at intervals of a few days until the work is completed. Only by a careful study of the different habits and peculiarities of each kind of tree can disbudding and pinching be carried out successfully, the object being to avoid using the knife severely in winter pruning. In thinning the fruits remove first those that are likely to grow deformed through pressing against the wall and the wires, leaving plenty of fruits for a future thinning, as many will fall at the stoning stage. The material used to protect the trees from frost should be removed whenever the weather is favourable, but it should still be kept in readiness for use until danger from frost is over.

APHIS.—Aphis generally become most troublesome just as the trees are passing out of flower. Owing to the mild weather the growth of the trees is two or three weeks in advance of an average season. A sudden change to east winds would cause a check to growth, and greatly favour attacks of aphis. This pest is troublesome at all seasons when the plants are growing actively, but they are specially in evidence during cold weather in spring. More failures in fruit growing may be attributed to aphis attacks than to any other cause. Crippled curled shoots and leaves at this season are often due to a neglect of winter spraying. There are many excellent washes on the market suitable for spraying fruit trees, including quassia extract, V2 fluid, and paraffin emulsion. Prevention is better than cure, and very little harm is done by spraying the trees with either of the insecticides mentioned, even when the trees are in flower. By spraying early a weak solution will check aphis, but, once the pest is established, stronger measures are necessary. The remarks on spraying apply to all fruit trees likely to be attacked by aphis.

FRUITS UNDER GLASS.

By E. HARRISS, Fruit Foreman, The Royal Gardens, Windsor.

MID-SEASON VINES.—The stopping and training of the shoots of mid-season vines should be attended to as soon as they are large enough. Vines growing close to the glass will need constant and careful attention in this matter till the shoots are eventually secured to the trellis. This work should, if possible, be done during the latter part of the day, or when the weather is dull, as there is not so much danger of breaking the young growths then as when the sun is shining fully on the vinery. The surplus bunches should be removed as soon as the berries have set. If the roots are in need of moisture, lightly fork up the surface of the border, and give a thorough watering with diluted liquid manure very slightly warmed. The work of thinning the berries should be pushed on as quickly as possible, as the fruits swell very quickly. There is a danger, if the berries become crowded before thinning, of the Grapes being disfigured by rubbing, and the work also takes much longer.

LATE MUSCAT VINES.—Before the Muscat vines flower, the borders should be examined to see if the roots are in need of moisture. Should water be necessary, first sprinkle the surface of the border with a suitable artificial fertiliser. This should then be washed into the ground with tepid water. Do any necessary stopping of the shoots before the vines flower, as it is not good practice to do this work whilst the bunches are setting. The tying of the shoots should be deferred till the berries have set, unless they are touching the glass, in which case they should only be drawn clear of the glass, and secured to the trellis with a neat piece of raffia. The berries appear to set better when close to the light. During the flowering stage, the temperature should be kept as equable as possible, therefore the ventilators should be carefully regulated during changeable weather. Keep the atmosphere dry till the flowering stage is passed. Any pot plants present in the vinery should be removed. In some districts it is a difficult matter to get Muscat Grapes to set freely. Where this is the case, it is an excellent plan to have a house of Black Hamburgh or some other free-setting variety in flower at the same time as the Muscats. The pollen from the Black Hamburgh may be collected on large sheets of paper, and the Muscat flowers pollinated with it by means of a rabbit's tail. When it can be seen that the berries are set, and are swelling freely, the border should receive another good watering, using diluted liquid manure. When cutting off the surplus bunches, it may be necessary to sacrifice some of the largest bunches which have failed to set their berries sufficiently to make well-shaped specimens. As a rule, the medium-sized bunches set best, and these should be left to form the crop, as they will keep better and be of much greater service for ordinary purposes than the larger ones. Attend to the thinning as soon as the berries are large enough. Some of the bunches may be improved by carefully looping up the shoulders; but this must be done by an experienced workman. The operator must keep his scissors clean whilst thinning, as neglect in this matter will result in the berries being badly marked. Before the border is again watered, it should be mulched with a layer of rich, farmyard manure, and the manurial properties washed into the soil with tepid water. Keep a sharp look-out for red spider, and should this pest be detected, sponge the leaves with a weak solution of soft soap and sulphur. A little flowers of sulphur sprinkled on the pipes occasionally when they are very hot will keep down this pest. Later on, when the sun becomes more powerful, it may be necessary to shade the glass to prevent scorching of the foliage. A little slaked lime in water syringed over the glass will provide sufficient shade.

THE FLOWER GARDEN.

By J. G. WESTON, Gardener to Lady NORTHCOTE, Eastwell Park, Kent.

MIGNONETTE.—Plants of Mignonette grown in pots from seed sown early in the year should be planted out in a sheltered corner to flower early. The plants grow best in a rich loam, and the soil should be made thoroughly firm before planting. Plants that have already furnished a supply of blossoms indoors may also be planted out. If afforded a small quantity of artificial manure, they will soon develop plenty of fresh flower-spikes. Keep a sharp look-out for slugs, which are very fond of Mignonette: a dusting of soot will act as a deterrent to this insect pest. Seed should be sown in the open garden at intervals during the next few months, thus ensuring a succession of flowers till the plants are cut down by frost. Reliable varieties are Machet, Bismarck, Giant White, Giant Crimson, and Miles's Hybrid Spiral.

VIOLAS AND PANSIES.—Plants of Viola and Pansy that were propagated from cuttings last autumn and wintered in frames, should be planted in their permanent quarters at once. Owing to the extreme heat and drought of last summer, suitable shoots for making cuttings were very scarce in most gardens. Both the Pansy and Viola thrive best in a cool, deep soil

containing plenty of manure that was incorporated when the ground was trenched. In the warmer parts of the country, and especially where the soil is light and shallow, a somewhat shaded position should be chosen, so that the plants will not be exposed to full sunshine during the hottest part of the day. The beds having been trenched and manured during the winter, will simply require forking over lightly and levelling. Plant firmly. The distances at which they are put apart must depend upon whether the plants are required solely to furnish the bed, or as a carpeting for other subjects. Violas make a suitable groundwork for Roses and other tall-growing plants, or for edgings to beds in the formal flower-garden. Violas and Pansies may be raised quickly from seed sown in January, but the plants must be grown without experiencing a check. After hardening the seedlings gradually, they should be planted out the first opportunity, so that they may become established before dry weather sets in.

Bedding Lobelia. — Seedlings of Lobelia compacta should be pricked out into boxes or frames before they become drawn. When they have become established and are growing freely, their tops may be cut off with a knife to induce them to grow bushy and sturdy. Lobelia gracilis is a particularly graceful plant, and valuable as an edging to vases and hanging baskets on verandahs and similar positions. The light blue flowers, hanging in graceful clusters, appear to great advantage against white stone vases.

General Work.—Grass is growing rapidly and lawns require to be mowed frequently. There is no saving in labour and the lawn itself is injured by allowing too long an interval to elapse before mowing. Tennis and croquet lawns require almost daily attention, including continuous rolling, especially after showers, to ensure a firm and level surface. Trim the verges frequently with the edging shears, as neglect of such small details tends to give the garden an untidy appearance. Vegetation in this district is in an exceptionally forward condition, the growth of Roses, ornamental trees, and flowering shrubs being much more forward than usual. Seedlings of some of the hardier flowering plants, such as Golden Pyrethrum, Mimulus, Cacalia coccinea, Centaureas (Cornflowers), Commelina cœlestis, and Matricaria eximia, may be transplanted in the open borders, affording the plants slight protection during cold nights. This will afford more space in the frames for tender plants. Pentstemons, Antirrhinums, and East Lothian Stocks should be hardened preparatory to planting them in the beds and borders when the weather is favourable at the end of this month. Good, hardy plants set out-of-doors early in the spring give much better results than those grown in much heat and planted later, when drying winds are apt to prevail.

PLANTS UNDER GLASS.

By Thomas Stevenson, Gardener to E. Mocatta, Esq., Woburn Place, Addlestone, Surrey.

Shading Glasshouses. — At this season shade must be provided for certain plants, and if blinds are employed these should be overhauled and placed in position at once. I do not favour the shading of plants more than can be helped; but when they are in bloom and immediately after they have been potted, slight shade is a great advantage. It is, therefore, a convenience to have blinds fixed to all plant houses, even if it is not necessary to use them often. There are a few stove plants, including Codiæum (Croton), Acalypha and Phyllanthus that benefit by exposure to full sunshine all through the summer and develop finer colours in consequence. Others, such as Dracæna, Dieffenbachia, Aralia and Panax, grow all the better if afforded a light shading during the hottest part of the day, for though many of them are capable of withstanding the effects of strong sunshine, the colour and size of their foliage are enhanced by judicious shading. Many cool-house plants, such as Carnations, Begonias and Fuchsias, may not require shading for some time to come, but this will depend very much on the position of the house. Palm houses and ferneries may, with advantage, have the roof-glass coated outside with a mixture of starch and whitening, which will provide sufficient shade without excluding too much light. This form of shading is cheap, easily applied, and will last the season through if used when freshly mixed. It is easily and quickly removed with a soft brush when moistened. It should be prepared carefully as follows: Mix 2 lbs. of ordinary starch with sufficient cold water to dissolve it to the consistency of thin cream, making sure that all the particles are dissolved. Then add sufficient boiling water to turn or clear it, keeping it stirred one way whilst adding the water. To this should be added about 4 lbs. of whitening, also mixed in sufficient warm water to make it of the consistency of cream, pouring it into the starch very gently and stirring all the time. Precaution in stirring is very necessary, as the starch would otherwise curdle during the process of mixing, when the mixture would be of little use. The quantities given are sufficient to make from two to three gallons of shading material, sufficient to cover a large area of glass. It should be applied very thinly with a distemper brush and, if stippled over immediately afterwards with an ordinary hand brush, the coating will present a tidy appearance, and give the glass from the inside the appearance of ordinary frosted glass.

Euphorbia jacquiniæflora and E. pulcherrima.—Plants of these species of Euphorbia may be cut down to within 6 or 8 inches of the ground level and introduced into a little heat. After their rest they should quickly throw up a batch of sturdy shoots suitable for cuttings. The shoots should be taken off when about 3 inches in length and inserted singly in thumb-pots in a very light compost consisting of peat, loam, leaf-mould and sand. Plunge the pots in the propagating frame. To prevent the cut surfaces "bleeding," the cuttings should be inserted in a pan of fine, dry sand immediately they are taken off. Place them directly afterwards in the cutting pots prepared beforehand to receive them. Cuttings of later batches of E. jacquiniæflora may be inserted three in a pot, and repotted when necessary.

THE KITCHEN GARDEN.

By Edwin Beckett, Gardener to the Hon. Vicary Gibbs, Aldenham House, Hertfordshire.

Salsify. — The best time to sow seeds of Salsify is from the middle to the end of April, and, as in the case of tap-rooted vegetables generally, the ground for their cultivation should be free from fresh manure, but well worked. Sow the seeds thinly in shallow drills drawn at 15 inches apart. When the seedlings are well above the ground thin them partially and again finally, allowing the best plants to remain at 12 inches apart.

Mushrooms. - Continue to form new Mushroom beds for successional supplies. Whilst the materials are being got together the mass should be turned regularly to allow the rank gases to escape. In doing this avoid placing the manure in a shed exposed to the winds and sunshine or the materials will become dried and almost useless. Make the bed thoroughly firm, and wait until the heat declines before inserting the spawn. Insert pieces of spawn, each about as large as a hen's egg, at about 1 foot apart and 3 or 4 inches deep. Press the manure back firmly and then place a layer of soil on the bed to prevent undue evaporation of moisture. Finally place a little clean straw over the bed, which must be removed, however, before the Mushrooms appear. Keep a sharp look-out for slugs and woodlice, which must be destroyed if detected. Dispense with fire-heat whenever possible and keep the surroundings of the house moist. Beds that have been in continuous bearing for some time past will be greatly benefited by a good watering with liquid manure suitably diluted.

Parsley.—Seedlings of Parsley raised during February and subsequently transplanted into boxes will need hardening, preparatory to planting out permanently, towards the end of this month. Make another sowing of Parsley out-of-doors during April, raking the ground to a fine tilth and drawing shallow drills at 1 foot apart.

Hoeing.—Take advantage of dry weather to work the Dutch hoe freely amongst the growing crops, especially of Spinach, Peas, Broad Beans and herbs, applying a dusting of soot before commencing to hoe. Frequent stirrings of the soil will be favourable to the growth of the crops, and will check weeds. Spring Cabbages should be given the same treatment, but in their case a dusting of nitrate of soda should be applied at the base of the plants.

PUBLIC PARKS AND GARDENS.

By Chief Officer.

The Uses of Ferro-concrete in Parks. —During the last few years the discovery of what is known as "ferro-concrete"—or, as it is sometimes called by different makers, "Reinforced" concrete—has made it possible to employ cement concrete in a variety of different ways that were at one time thought to be quite out of the question. The result is not only that many structures are nowadays built with ferro-concrete, but they are erected at very much less cost than they could have been under ordinary circumstances with other materials. Briefly stated, ferro-concrete is just ordinary cement concrete very considerably strengthened by the addition of iron, steel or wire rods, which are embedded in it. Concrete—and, for that matter, stone or brick—while having great strength in so far as compression is concerned, has very little power to resist tension. In like manner, concrete is naturally of a very brittle character, and is quite unable to resist jars or blows. The addition of iron or steel, as described, gives to cement concrete the very qualities it lacks, and enables structures composed of this material to withstand both tension and the effects of severe impacts.

Necessity for Care.—Needless to say, the reinforcing material must not be laid in the concrete in a haphazard manner, otherwise it will prove to be valueless. The iron rods must always be so placed as to be near the face where the greatest tension is felt, namely, at the point nearest the earth. The nearer the iron is to that face the greater is the strength it adds to the structure—indeed, only enough concrete should come between it and the air to prevent it from rusting. This rarely exceeds 1½ inch, and, therefore, it follows that in the construction of ferro-concrete the gravel used must not be of a greater size than 1 inch in diameter. From experience, too, it has been found that the concrete should never be weaker in quality than that made of one part cement, two parts sand, and four parts of gravel.

Special Objects.—Ferro-concrete is admirably adapted for use in parks in the construction of light bridges, conveniences, shelters, floors of bandstands, slabs for the protection of the sides of streams, ponds or lakes, and numerous other purposes. Those who have had any experience in building rustic bridges must admit that when these are made of wood they are, as a rule, an absolute waste of money in that their construction is most expensive, and their life so very short. Iron bridges, too, cost a good deal in their upkeep, and unless a large sum of money is expended in the first place on their construction, they never appear appropriate in a park. A reinforced concrete bridge may be made in such a way as to appear more or less in keeping with its surroundings, is cheap to construct, and afterwards costs but little to keep in repair. In the case of bandstands, unless there are some means of keeping the wooden floors from the effects of the weather, their maintenance becomes a very expensive item within the course of a few years. Floors made of ferro-concrete, on the contrary, never require any attention, and answer the purpose equally as well as wooden ones.

Disinclination to Grant Loans.—Unfortunately, the Local Government Board—like most other Government departments—is extremely conservative in its ways, and up to the present time is rather prone to look askance at the use of ferro-concrete, and as a consequence the Board is rather diffident about advancing loans for carrying out work of this description. No doubt, as time goes on and the department becomes satisfied as to the durability of ferro-concrete, this prejudice will be removed, and no difficulty will be experienced in getting the necessary loans sanctioned for the erection of structures composed of this most useful material.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, *as well as specimens of plants for naming, should be addressed to the* **EDITORS, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Special Notice to Correspondents.—*The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.*

Local News.—*Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.*

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, APRIL 16—
Royal Hort. Soc. meet and Daffodil Sh. (2 days). (Lecture by Prof. Henslow on "Darwin as Ecologist.") Shrewsbury Spring Fl. Sh.

WEDNESDAY, APRIL 17—
Royal Hort. Soc. Exam. of School Teachers. Royal Hort. Soc. of Ireland Spring Sh. (2 days). Royal Meteorological Soc. meet.

THURSDAY, APRIL 18—
Ipswich Daffodil and Spring Fl. Sh. Linnean Soc. meet. Manchester Orchid Soc. meet. Devon Daffodil and Spring Fl. Sh. (2 days).

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—47°5.

ACTUAL TEMPERATURES:—

LONDON.—*Wednesday, April 10* (6 P.M.): Max. 51°; Min. 41°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—*Thursday, April 11* (10 A.M.): Bar. 29·8°; Temp. 51°; *Weather*—Sunshine.

PROVINCES.—*Wednesday, April 10:* Max. 50° Cornwall; Min. 40° York.

SALES FOR THE ENSUING WEEK.

WEDNESDAY—
Herbaceous and Border Plants, Lilies and other Hardy Bulbs at 12; Roses at 1.30; Palms and Plants at 5; Trade Sale of Japanese Lilies and Miscellaneous Bulbs at 1; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

FRIDAY—
Choice Imported and Established Orchids, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.45.

A Book About Roses.*

"How charming it would be to have an hour's table talk with some of our old rosarians. I am with them . . . in spirit many a time, honouring their memories, and always regarding them with a thankful, filial love. I like to think of them among their Roses as I wander among my own, mindful how much of my happiness I owe, humanly speaking, to their skill and enterprise, remembering them as we rosarians of to-day would fain be remembered hereafter." So wrote Dean Hole many years before he became a dean, in his *Book about Roses*, and many of us would doubtless echo his sentiment. But few are the rosarians of the past who have left to their sons and daughters of to-day such cheerful and delightful "table talk" as can be found in the writings of the great Dean, in the reading and re-reading whereof we may in truth seem to be in converse with an old rosarian, to sit with him and his gardener friends in his garden house or potting-shed, and stroll with him in imagination as, armed with a cigar, lest he should meet an aphis, he wandered round his Roses of a summer evening.

Dean Hole published during his lifetime several books, all more or less of the nature of personal recollections. There was *A Book about the Garden and the Gardener*, *Memories*, another on *Our Gardens*, and *A Little Tour in Ireland*, but chiefly and above all *A Book about Roses*. The Rose book almost immediately became something like a classic. Edition after edition was brought out during the author's lifetime, so that in the preface to one of the later editions he was able to write in 1901: "I am thankful to know in my old age that I have been privileged to promote that love of a garden which never fails to make our lives more happy." We have here alike the secret of his success and the idea that inspired all he wrote. He cared nothing for the orderly arrangement of the genus or for any study of the scientific classification of the Rose.

But the love of his subject is paramount, and he never wearies of repeating it. "A poor man who loves the flower may walk about in March with a Rose in his coat, while Dives, who only likes, may be Roseless under all his vitreous domes," and he would quote "Old Izaak": "Have but a love of it, and I'll warrant you."

But the intense love of the beautiful in flower or garden, essential as he conceived it to success in the cultivation of his favourite flower, was by no means to stop there, or to be followed merely for the purpose of an esoteric delight; it had to him a wider mission, and from a very different point of view he shared with William Morris a profound conviction of the importance of its humanising and civilising influence in raising the thoughts and ennobling the ideals of all classes of the community and so powerfully contributing to the growth of the national well-being.

Notwithstanding the deep purpose underlying all he wrote, there is nothing of the sermon in Dean Hole's little book. It is brimful of anecdote and amusing comment. The author is constantly led off into all sorts of unexpected digressions, and the book contains not a dull page from cover to cover. With all this Dean Hole has given us what is even more important—an admirable treatise on how to grow and how to show the Rose. In some respects, no doubt, Rose culture has progressed since he wrote. There has come the rise of the decorative Rose as an exhibition flower, the greater wealth of display in our autumn gardens, an enormous number of new varieties of Roses, some of which have displaced those he loved as established favourites. We have probably an increase in the number and variety of the insects and diseases which attack our plants, and it may be we have discovered improved methods of counteracting their evil influence. We have improved the mechanical devices for protecting and displaying the flowers. Perhaps some may think we have in some respects improved on his methods of cultivation. But these are small matters, and, however much they may be prized by the expert, are for the most part merely details of management of secondary importance. The general principles of Rose-growing, as of gardening, have changed little, nor are they very likely to do so, and his book is still of value as one of the best guides to the amateur rosarian.

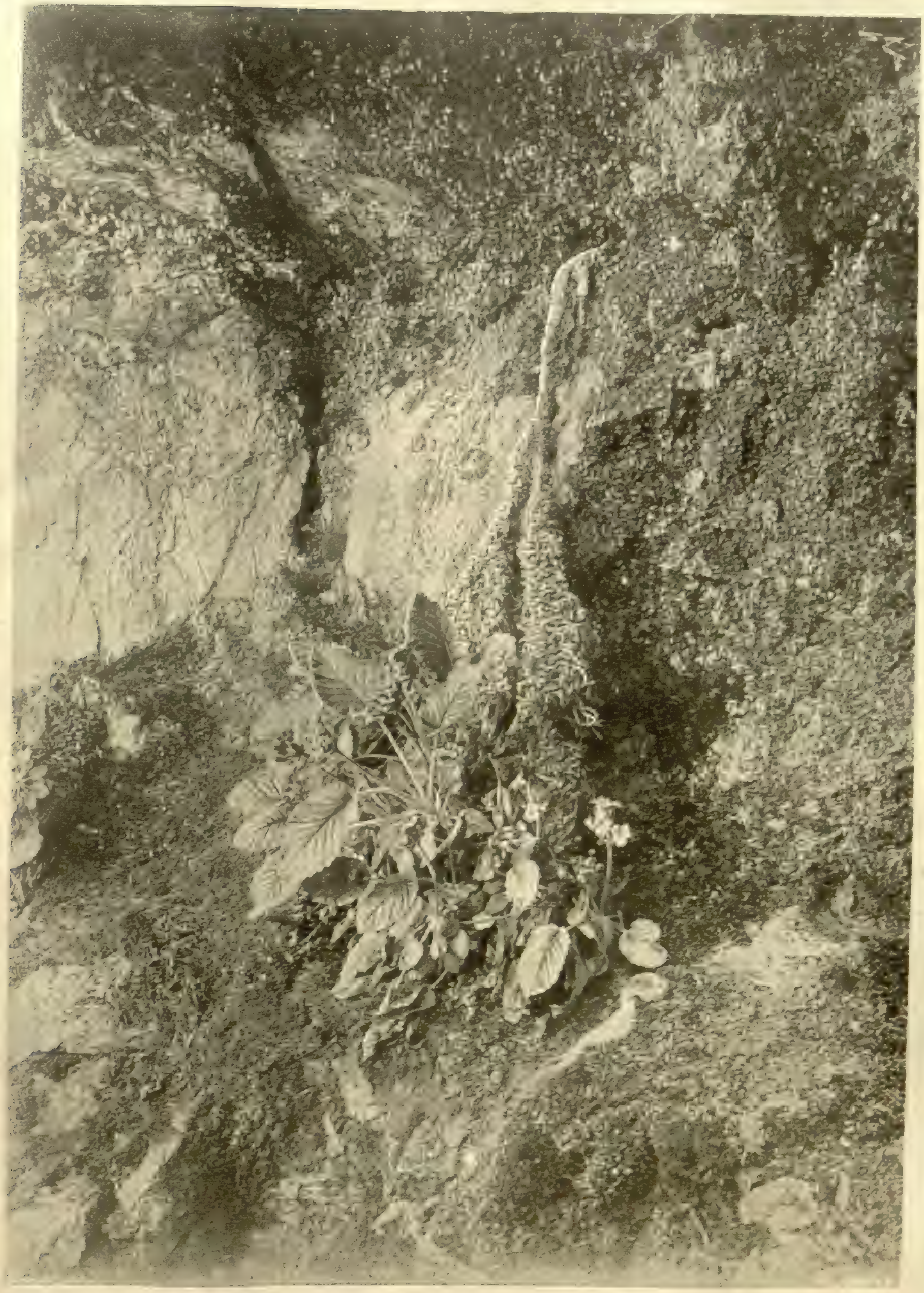
We may therefore be grateful to Dr. A. H. Williams for presenting us with a new edition of this delightful book, and we may applaud his wisdom in giving us the book entire, so far as we have seen, in precisely the form the author left it. We cannot but feel that any alteration of the text must have endangered that feeling of personal converse with the Dean we experience in reading his book, and that would be fatal. Dr. Williams has, however, added a chapter on "Progress" and an Appendix giving us lists and selections of modern Roses. The chapter on Progress is concise, and sufficiently and clearly sets forth the matters of detail which, perhaps, the Dean might now, had he lived, have wished to incorporate in his book.

We are not sure that we possess quite the faith in the powers of modern washes and sprays that Dr. Williams seems to feel, but they are undoubtedly of great service when used carefully and systematically, and he tells us of all that it is necessary to know on this subject.

The lists of Roses in the Appendix have been prepared carefully and well. Those relating to the Multiflora Roses and Wichuraianas are particularly worth consideration. Dr. Williams has made a special study of these classes, and perhaps we have no amateur writer who could deal with them with greater knowledge. He has proposed a new division of the Multifloras into Multiflora semi-scandens (perpetual-flowering) and rambling Multifloras. From the gardener's point of view, this will, no doubt, be extremely convenient, but we trust that if it be adopted, a more simple and euphonious attribute than "semi-scandens" may be discovered to define the first division. The last few sheets seem to have been somewhat carelessly revised before going to press, for there are numerous mistakes of spelling which might have been avoided.

OUR SUPPLEMENTARY ILLUSTRATION.—Primula Forrestii was described and figured in the *Gardeners' Chronicle* for May 1, 1909. We now illustrate an aged specimen growing wild in Yunnan, China, which shows the remarkable development of the root-stock, characteristic of the species. The persistent caudex is covered for two-thirds of its length with the induviæ of older foliage, and, at the apex, these form a dense, matted mass, with the fresh foliage and flowers arising from the centre. Mr. FORREST estimates that some of the root-stocks persist for 100 years. The plant grows on the face of perpendicular cliffs, and is swayed by the wind, causing the rock, in some instances, to become scored to a depth of fully 1 inch. The flowers are yellow, and the young foliage is covered on the under surface with a golden farina. The species received a First-class Certificate when exhibited by Messrs. BEES LTD., at a meeting of the Royal Horticultural Society held on April 20, 1909.

* *A Book about Roses*, by S. Reynolds Hole. New edition, with an additional chapter and lists of Roses, by Dr. A. H. Williams.



Photograph by George Forrest.

PRIMULA FORRESTII IN ITS CHINESE HABITAT, SHOWING THE ELONGATED ROOTSTOCK CHARACTERISTIC OF THE SPECIES.

Printed by Temple Press Ltd., London, E.C.

Royal Horticultural Society.—The next meeting of the Committees of this Society will take place on Tuesday, the 16th inst. At 3 p.m. a lecture on "Darwin as Ecologist" will be delivered by Rev. Prof. G. Henslow, M.A., V.M.H. The competitive Daffodil show, to be opened on Tuesday at the R.H.S. Hall, will continue for two days.

Royal Meteorological Society.—A meeting of this Society will be held at the Institution of Civil Engineers, Great George Street, Westminster, on the 17th inst., when papers will be read by J. E. Clark, B.A., and R. H. Hooker, M.A., on the "Report on the Phenological Observations for 1911," and R. G. K. Lempfert, M.A., and W. Braby, B.A., on "A Method of Summarising Anemograms."

Appointment from Kew. Mr. John Lambourne, a member of the gardening staff of the Royal Botanic Gardens, Kew, has been appointed by the Secretary of State for the Colonies Assistant Superintendent of Government Plantations in the Federated Malay States.

School Classes in the London Parks.—Subject to the concurrence of the Parks and Open Spaces Committee, a class of children from the girls' department of the Poole's Park (London County Council) school is to be conducted in Finsbury Park from the middle of April to the end of October. Last year the Parks Committee offered to assist the Education Committee in carrying out a scheme for the utilisation of parks and open spaces for class purposes, and a start is now to be made at Finsbury Park, where every facility is available for nature study, simple practical geography, practical arithmetic, measuring, and games.

"Botanical Magazine."—The issue for April contains illustrations and descriptions of the following plants:—

Schomburgkia Lueddemanii, tab. 8427.—This Orchid is interesting as having re-appeared in gardens after having been lost sight of for half a century. A plant, reported to have been received originally from Venezuela, was purchased for the Kew collection at a sale in London in 1908. It flowered for the first time at Kew in 1911, and was identified with S. Lueddemanii of Prillieux. In common with other Schomburgkias, the plant needs considerable heat and exposure to direct sunshine when making its growth, but following this stage the roots should be kept dry for a few weeks.

Magnolia Kobus, tab. 8428.—This plant formed the subject of the Supplementary Illustration in *Gardeners' Chronicle*, April 29, 1905, when Professor Sargent's description of the species, as given in the *Florists' Flora of Japan*, was published in the accompanying text. M. Kobus is nearly related to M. stellata and M. salicifolia, which latter species was illustrated in our issue for last week (see fig. 99).

Agave protuberans, tab. 8429.—Agave protuberans is one of the numerous species introduced to gardens by the late Max Leichtlin. The foliage is spotted with dark brown, the usual terminal spine found in most species being absent. The scape grows about 2 feet high, the flowers being solitary on the swollen nodes of the rachis. The perianth segments are greenish, finely blotched with purple. The plant is a native of Mexico, and requires the protection of a greenhouse in this country.

Daphne retusa, tab. 8430.—We are indebted to Mr. E. H. Wilson for the introduction of this pretty shrub from Western Szechuan, China. Plants growing in the Coombe Wood Nursery of Messrs. James Veitch & Son supplied the material for the *Botanical Magazine* plate. The flowers are white tinted with rose or violet, and are produced in May.

Campanula arvatica, tab. 8431.—This is the plant figured and described in *Gardeners' Chronicle*, September 23, 1911, fig. 104, as Campanula acutangula. The plant was named C. arvatica more than a century ago, but was afterwards lost sight of, and on its re-discovery was named C. acutangula. But C. arvatica has right of priority, and C. acutangula must be regarded as a synonym. The species is endemic in Northern Spain, and flowers in July; unfortunately plants have not proved hardy in Kew Gardens.

Peter Barr Memorial Fund.—In 1910 numerous Daffodil lovers expressed a desire to see a fund raised for the purpose of commemorating the life and work of the late Mr. Peter Barr, V.M.H. The members of the Royal Horticultural Society's Narcissus and Floral Committees considered the matter, and the proposals most favoured were the institution of a Peter Barr Memorial Medal and the provision of a fund for the maintenance of an orphan through the medium of the Royal Gardeners' Orphan Fund. To give effect to these proposals, Messrs. J. T. Bennett-Poë, M.A., V.M.H., William Cuthbertson, J.P., R. Hooper Pearson, Wm. Poupart, Chas. E. Shea, Walter T. Ware, and the Rev. J. Jacob were elected to form an executive committee, with Mr. Wm. Marshall, V.M.H., as chairman; Mr. H. B. May, V.M.H., as treasurer; and Mr. Chas. H. Curtis as hon. secretary. Donations have been received from all parts of the world where Daffodils are grown, and for these the committee wish to tender their thanks. At a meeting held on Tuesday, April 2, the committee closed the fund, which, with £3 7s. 1d. interest, amounted to £389 15s. 5d. Receipt books, stationery, printing, and postage amounted to £3 1s. 7d., and the silver-gilt Peter Barr memorial cup (which does not involve the creation of a trust, as an annual medal would have done) cost £39 17s. 6d., leaving a balance of £266 16s. 4d., which has been handed over to the Royal Gardeners' Orphan Fund. The handsome cup, designed and made by Messrs. Elkington, will "be awarded annually in connection with work among Daffodils." The honour of holding it for the first year will belong to the Rev. G. H. Engleheart, V.M.H. The cup will be presented to Mr. Engleheart at 11.30 a.m. on April 16, in the No. 3 room at the Royal Horticultural Hall. Although the fund is closed, the committee will meet annually for the purpose of awarding the cup in accordance with the original suggestion.

Changes in the London Parks Department.—A number of changes in the staff of the London County Council's Parks Department have been rendered necessary by the forthcoming retirement of Mr. G. F. Barnes, the second officer of the department. As regards the position of second officer, it is proposed to appoint, at a salary of £500 a year, Mr. F. W. Parker, the principal clerk of the department, who is at present in receipt of a salary of £400 a year. The Establishment Committee report that Mr. Parker is possessed of organising ability and technical qualifications, which make him specially fitted for the position. As regards the position of principal clerk, it is proposed to promote Mr. D. Mottram, an assistant in the first class, at the commencing salary of £300 a year, rising by annual increments of £25 to £400 a year. For the consequential vacancy in the first class, it is proposed to appoint Mr. E. T. Powel, an assistant in the second class. The attention of the Establishment Committee has been drawn to the need for strengthening the technical staff of the department. In the past the second officer, in addition to the duties appertaining properly to his position as deputy to the chief officer in all matters, has had the direct control of the technical branch, but the committee are advised that this arrangement does not secure the most efficient administration of the work of the department. The committee therefore propose that an additional senior assistant should be appointed to act as head of the technical branch. This officer, however, will be in place of an assistant in the second class, so that no numerical addition to the staff would in effect be made.

Forest Areas in Canada.—The recent setting apart of the Rocky Mountains Forest Reserve calls renewed attention to the series of national parks and forest reserves formed with commendable foresight by the Canadian Government in the mountain districts of Alberta and British Columbia. During the session of the Dominion Parliament of 1911, a new Forest Reserves and Parks Act was passed, covering no fewer than 24 parks and reserves with an area of 16,760,640 acres or nearly 30,000 square miles. These hold within their wide boundaries some of the world's grandest scenery, and conserve the sources of the great rivers which lie in the snowfields and glaciers of the continental watershed. The largest are the Rocky Mountains Park, Banff, with an area of 1,800 square miles, the Yoho National Park of 560 square miles, Glacier Park 468 square miles and Jasper Park 1,000 square miles.

Rhododendron Yodogawa.—This Rhododendron, introduced recently from Japan, receives high praise from Mr. Kunert in the pages of *Die Gartenwelt*. It has proved hardy enough to withstand the severe frosts of January and February (in Germany), though it may require some shelter in very cold places. It grows well in exposed and also in half-shaded positions, and bears masses of delicate lilac-coloured blossoms. R. Yodogawa has proved very useful for table and vase decoration.

Mushroom Growing in France.—France is the great centre for the production of Mushrooms, and it is estimated that the yield exceeds 6,000 tons per annum and brings in a return of considerably over a quarter of a million pounds sterling. According to an article on the subject in the *Bulletin* of the Bureau of Agricultural Intelligence, the disused stone-quarries, chalk-pits, and gypsum-quarries in the neighbourhood of large towns are used on a vast scale for Mushroom cultivation. Thus, in the neighbourhood of Paris alone, over 1,500 hands are employed in the industry, and the daily output at the height of the season amounts to 25 tons. After Paris and the "canning factories," England is the chief market for French Mushrooms, though they travel in refrigerators so far as the United States.

Treatment of Barren Soil.—The Board of Agriculture has arranged for the continuation of the experiments carried on privately for many years by Mr. Elliot at Clifton-on-Bowmont. The soil is poor, very stony, and liable to deteriorate unless skilfully managed. Owing to its dryness, it suffers severely from drought; it can, in fact, by no ordinary system of farming be made profitable. Mr. Elliot's method was to plough up the herbage and to sow a new lot of plants capable of resisting drought; after many trials a mixture was devised suited to the conditions, and also bringing in profit. It contains Cocksfoot, Fescue, tall Oat Grass, and such drought-resisting plants as Yarrow, Kidney Vetch, Chicory, and Burnet. After four or five years this mixture can be followed by arable crops.

ROYAL INTERNATIONAL HORTICULTURAL EXHIBITION.—In fig. 108 we reproduce the design of the Diploma of Honour to be awarded to exhibitors and others at this exhibition.

———The cup illustrated in fig. 109 has been presented through the local secretary, Mr. THOMAS HUMPHREYS, by subscribers in Warwickshire for award at the International Exhibition. The design of the cup is in the Queen Anne period, and the arms of the county are inscribed on one side.

———Messrs. SUTTON & SONS' Cup (see fig. 110) will be awarded for the most meritorious exhibit of vegetables in classes 394, 395, 396 and 397, reserved for market gardeners and amateurs.

AMERICAN ASSOCIATION OF PARK SUPERINTENDENTS.—The next annual meeting of the members of this association will be held on August 12, 13 and 14, at Boston, with Copley Square Hotel as headquarters. The proceedings will include an inspection of the Boston Park System, visits to Arnold Arboretum, country estates in Brookline, Newton and Wellesley, Middlesex Falls, Revere Beach Boulevard and North Shore drive to Beverly. Among the subjects for discussion at the meeting will be "Park Accounts," "The Influence of Parkway Construction on Property Values," "Chinese and Siberian Plants," "Botanical Nomenclature," "Street Trees," "Roads," and "Organisation of Park Boards."

WOMEN'S AGRICULTURAL & HORTICULTURAL INTERNATIONAL UNION.—The fourth annual dinner of the members and friends of the Women's Agricultural and Horticultural International Union will take place at the Imperial Restaurant, Regent Street, on the 30th inst. The speakers include Miss W. BRENCHLEY, D.Sc., on "Agricultural Experiments;" Mr. CHRISTOPHER TURNOR on "Agricultural Education;" Mrs. FITZGIBBON (British Columbia) on "Opportunities for Trained Women there and in Vancouver;" Mr. EDWARD BROWN, N.P.O., on "Poultry Industries in our Colonies;" Miss J. S. TURNER on "The Work of the Union," and Mr. CHITTENDEN, on "Horticultural Education." The secretary is Miss ELLA GILL, 45 (sixth floor), Queen Anne's Chambers, London.

THE POPLAR IN ITALY.—Wood pulp made from the common Poplar is excellent for the manufacture of paper, being white, soft, and free from resinous substances. In Italy, where the timber is used for a variety of purposes, it is considered that by the afforestation of waste and unproductive lands, a good return for the capital expended might be obtained by the manufacture of pulp from Poplar trees. According to the *Journal of the Royal Society of Arts* a systematic cultivation of this tree, on the best lines of forestry practice, is being strongly urged by many of the principal local agricultural societies. In consequence of the high price of wood-pulp in Italy, and in order to render themselves independent to some extent of foreign supply, a few of the leading firms have set an example by establishing their own plantations. The results of their experiments have been most satisfactory. In one case a return of 15 per cent. on the outlay is said to have been obtained. A leading firm of paper makers, with works near Milan, a few years ago established important plantations of Poplars in the valley of the Ticino, where, being subject to floods, and with a stony and gravelly soil, the land is of little value for agricultural purposes. Several thousand trees are planted here every year, and in the course of a few years these plantations, it is expected, will furnish an abundant supply of raw material for paper making.

NATIONAL HORTICULTURAL SOCIETY OF FRANCE.—The annual list of the members of this French society embraces no fewer than 240 pages. It contains a report of the annual meeting of the society and the council's report for 1911, also lists of the committees, names of the members in the various grades, corresponding societies at home and abroad, and a classification of members according to the departments.

THE TOMATO INDUSTRY IN ONTARIO.—The popularity of the Tomato knows no limit, and its cultivation is increasing enormously not only in the United States but also in Canada. Thus, in the State of Ontario the area under Tomatos, which was 800 acres in 1891, increased ten-fold in eight years, and the number of bushels of fruit paid for by the canning factories increased in the same time from 132,000 to 1,400,000. The growers received for the former crop $26,000 and for the latter $386,000. That the crop is profitable is indicated by the table of cost of production, published in *Bulletin* 196 (on Tomatos) of the Ontario Department of Agriculture. The price of the crop per acre is estimated at $110, and the cost of production $67.50, leaving a margin of profit of $42.50. On the other hand it is found that a considerable element of risk attaches to the crop which is notoriously dependent on seasonal conditions. Thus, it is found that whereas in favourable conditions the Tomato develops from seed to ripe fruit stage in 85 120 days, in cloudy weather and with low temperatures it takes from 150-175 days. Most of the seed used in Canada is imported from America. The varieties used are Erlianna and Chalk's Jewel.

THE WORLD'S CONSUMPTION OF SUPERPHOSPHATES.—According to the estimate of Mr. STAHL (*Bull.* de la Soc. d'Encouragement pour l'Industrie Nat., 115) the world uses annually about ten million tons of superphosphates. Of the phosphates required for the production of this amount of superphosphates, 500,000 tons are supplied by France and Belgium, over two million tons by North America, upwards of 1½ million tons by Algeria and Tunis, and 800,000 tons by Australasia and other countries.

POND-WEED AND COPPER SULPHATE.—In the current issue of the *Kew Bulletin* Mr. W. J. BEAN gives particulars of the destruction of algæ or "weed" in ponds in Kew Gardens by the use of copper sulphate. Owing to the water of the lake at Kew being pumped for garden purposes (including the watering of Ferns and other low types of vegetation) it is considered inadvisable to use copper sulphate there, but it is employed with advantage in the smaller ponds. The proportion used is 1 part copper sulphate to anywhere from 750.000 to 1,000,000 parts of water. It is first necessary to ascertain, approximately at least, the cubic contents of the water to be treated. The sulphate of copper should be obtained in a pulverised state, placed in a porous bag, and dragged through the water until dissolved. It does not matter how the sulphate is distributed so long as it is done thoroughly. It may be dissolved previously and sprayed evenly over the surface, provided no Water Lilies or other aquatic phanerogams are in growth. It may be mentioned that a cubic foot of water weighs about 62½ lbs. During the last two summers a striking example of the effective use of copper sulphate has been provided in St. James's Park. Previously, it had been a costly and troublesome matter to keep the water there presentable in hot weather by employing men in boats to remove the weed with rakes, &c. The copper sulphate treatment was adopted, with the result, we learn, that at a much less expenditure in money and labour it can now be kept practically free from weed. A fact of considerable interest has also been reported by the Superintendent. The ponds are cleaned out triennially and the surplus fish disposed of. In recent years it has been found that many of the fish were badly attacked by fungus, so much so that it became doubtful whether it was advisable to transfer them to other waters. We learn that at the last cleaning out the fish were quite free from fungoid disease and remarkably clean and silvery. This is of especial interest, because one of the doubtful matters about the use of copper sulphate in water was its effect on fish. It has been found in America that certain delicate species were affected, but usually when a considerably stronger application was used than that mentioned.

FIG. 108.—ROYAL INTERNATIONAL HORTICULTURAL EXHIBITION. DESIGN FOR DIPLOMA (REDUCED).

Population of Canada.—According to the revised figures of the Canadian census totals, the increase in the rural population for 10 years was 555,065, and in urban districts the increase was 1,278,147, bringing the total population of Canada up to 7,204,527 as against 5,371,315 in 1901.

Silver-leaf Disease.—An account of researches on this disease by Mr. F. T. Brooks appears in a recent number of the *Journal of Agricultural Science*. The author succeeded in inducing silver-leaf in Plum trees by inoculating them with mycelium of Stereum purpureum which had been grown in pure culture from spores; in a few cases the same phenomenon was also produced by inoculation of branches of healthy Plum trees with the spores of this fungus. These results confirm the view of Professor Percival and Mr. Spencer Pickering that this fungus is the cause of the disease. It will be remembered that these authorities caused the production of silver-leaf in fruit trees by inoculating them with pieces of the natural sporophores of Stereum purpureum. Mr. Brooks adds that, although it would be rash to say that this fungus is the only cause of silver-leaf, he also cannot avoid the conclusion that it is the agent chiefly responsible for the trouble caused by the malady in the fruit-growing districts of this country. Details of the prevalence of the disease in the fruit plantations of Cambridgeshire are given in the course of the paper, and emphasis is laid upon the desirability of cutting out and burning branches of affected trees that have begun to die back; badly affected trees should be completely destroyed. Mention is made of the fact that after trouble has been taken to uproot dying trees, they are sometimes left in the plantation sufficiently long to allow of the development of the fructifications of the fungus. In one plantation a fence was found to be made of portions of dead Plum trees on which the fructifications of Stereum purpureum were developing in enormous numbers. Such practices should be avoided if a check is to be put upon the spread of this disease, which certainly seems to become more widespread year by year.

Publications Received.—***Verzeichnis der Mitglieder der Deutschen Gartenbau-Gesellschaft.*** (Berlin, Invaliden-Strasse 42: Deutsche Gartenbau-Gesellschaft.)

COORG.

Coorg is a native state that was taken by the British at the request of the people, because of oppressive government. Many tales are told of the peculiarly atrocious way in which the last king harried his subjects. Nested in a group of mountains at the top of the Western Ghauts, at an elevation of from 3,000 to 4,000 feet and clothed in dense masses of forest, the trees of which are covered with Orchids and other epiphytes, Coorg is a happy hunting ground for the botanist. Yet it is still largely unexplored by the collector. For gardening, the climate is ideal. The country is fairly well watered, with a sufficiency of sun to bring many of the flowers to perfection, yet cool enough for the healthy growth of the many gorgeous garden flowers which have been from time to time collected from all parts of the world by settlers in the South Indian mountains. The natives are a warlike and independent race, and the country is shut in by a series of impassable mountain barriers, which have enabled the Coorgs successfully to resist the onslaughts of the various conquerors of the peninsula. The inhabitants have always been thoroughly friendly to the British, and, much to their advantage, several parts of the country having been extensively settled by European planters. Coffee is the main crop, and, while this staple has practically died out of Ceylon and most parts of South India, the planters of Coorg and Southern Mysore are well-to-do and prosperous. But they have their troubles here as elsewhere. It is in Coorg that the Lantana has reached its maximum growth,

Fig. 109.—Royal International Horticultural Exhibition.

(Cup presented by the County of Warwickshire.)

(See p. 242.)

forming "excellent cover for elephants." In spite of energetic action, many parts have been completely overrun by the pest, and it has become a serious question whether forest conservancy can be continued unless the Lantana be destroyed. Recently a scare has been created by the rapid increase of the Sensitive plant (Mimosa pudica). This comparatively humble plant is provided with excellent means of reproduction. It readily shoots when cut down,

Fig. 110.—Royal International Horticultural Exhibition.

(Cup presented by Messrs. Sutton & Sons.)

(See p. 242.)

and has enormous seeding powers, the seeds having been noted as keeping good for so long as 60 years. The pods are lomentaceous, that is, they break up into separate pieces, each with one seed, and are armed with hooked prickles, which render it very easy for the plant to be scattered over the country by straying cattle. It is feared that the limited natural grazing will soon be completely destroyed by the Sensitive plant. Beside these pests, there are several species of Loranthus, which infest the forest trees, especially the shade trees in the coffee estates. The Red Cedar, for instance, is always selected by a particular species of Loranthus and heavily parasitised. On looking over the forest it can be readily picked out at a great distance by the masses of yellowish parasite on its upper branches. Whereas the Sensitive plant takes up the roadsides and scrambles up the banks to 5 feet, Lantana clambers up the trees to 25 or 30 feet, and the Loranthus has its home in the sunlit topmost branches. Some attempts at destroying the Sensitive plant have led to curious results. For instance, when the plant is dug up and burnt, the immediate effect is an enormous growth of seedlings, which cover the ground to the exclusion of all other vegetation. Probably the best means for getting rid of it will turn out to be spraying with sodium arsenite, as the leaves are very sensitive to this poison, and close up and wither in a very short time after an application. *C. A. Barber.*

NOTICES OF BOOKS.

The Complete Gardener.*

There has been no *Complete Gardener* since George London and Henry Wise gave to the world of Dutch William's day an abbreviated translation (with remarks) of one of Quintiney's books. The title is all-embracing, but whereas that of the 17th century was confined to fruits and vegetables, this of to-day leaves untouched, however slightly in some instances, no phase of gardening. The volume is 2¾ inches thick, and though it might be assumed that a space so liberal would invite prolixity, the author cannot be accused of that failing. On the contrary, he provides a large amount of teaching, sound and otherwise, according to the dogmatic leaning of the reader. The style is not so dull as the lucubrations of the professional who ventures into print, nor so sparkling as the glorified periods of the gardening English of the literary amateur when he relates his experiences, but smooth and pleasant to read all the same.

The chapters on Hardy Border Flowers, on Annuals, on Roses, on Carnations, on Sweet Peas, and on Favourite Bulbs, are perhaps the more important. There is a series of good tables annexed to some of the chapters, from which those seeking advice may see at a glance the whole details connected with each plant. One of the most exhaustive of these tables relates to colour, but probably it is the least satisfactory of all. We know how difficult it is to describe exactly certain colour tones, yellow and pink, for instance. The golden and orange shades of the former, and the bluey-pinks of the latter, it seems impossible to get two people to agree as to how they should be described. Nothing is so difficult in practice as to match flower colours, and I should not like to attempt "Vivid vermilion and dark blue—separated here and there by groups of garden variegated shrubs and plants," especially when Chelone barbata is named as a vermilion, and Campanulas Van Houttei and turbinata and Lupinus polyphyllus as dark blue. The value of white and cream, as Mr. Thomas remarks, is great in colour mingling, but their enforced use does not represent the highest altitudes that can be reached in colour schemes.

Here and there occur remarks that are misleading. We are told that "Only in the South and South Midlands can the Peach be grown out-of-doors with hope of success." Those who know are well aware that no finer out-door Peaches are produced than in Scotland. Two

* *The Complete Gardener.* by H. H. Thomas assisted by experts. (London: Cassell & Co., Ltd.) 1912. Price 10s. 6d. net.

miles from where I write, in the gardens of Sir David Baird, Newbyth, Mr. Thomson grows fruit which is perhaps unsurpassed anywhere. Choisya ternata is hardier than a Laurel, so is Azara microphylla, doing well as a small tree in the North, in Wales, and elsewhere, but Mr. Thomas regards these as only partially hardy. But these are small matters. Vegetables are fully treated by Mr. Owen Thomas; and there is a chapter on Orchids, by Mr. W. Truelove; another on Pests and Diseases, by Mr. C. A. Ealand, M.A., F.L.S.; and on Artificial Manures, by Mr. Vincent H. Kirkham, B.Sc. In the chapter on Pests it is stated that "all kinds of scale should be treated *in winter* with caustic alkali wash, composed of 2 lbs. caustic soda and 10 gallons of water," which seems rather sweeping advice. For mealy bug on Vines the "stems, after scraping, may be painted with methylated spirit, and more delicate plants may be carefully painted with diluted camphorated spirits of wine." There is a want of unanimity in Mr. Owen Thomas's methods of culture, in which artificial manures are scarcely referred to, and the chapter by Mr. Kirkham, in which their employment is urged as of the greatest importance. The difference can only be explained from the latter treating the matter theoretically. Such a thing as trenching as a cultural means of the greatest utility being ignored, while the more practical Mr. Thomas places it in the front. Those who grow Leeks may be pleased to know, on the authority of Mr. Kirkham, that they require no nitrogenous manures; whether they will believe it is another story. Notwithstanding these and other slight drawbacks, the volume contains an enormous amount of reliable matter. Some of the illustrations are very good indeed, but, on the whole, they are not so good as the letterpress. *R. P. Brotherston.*

SCOTLAND.

SCOTTISH HORTICULTURAL ASSOCIATION.

THIS association has just issued its *Transactions* for the session of 1911, together with the schedule of prizes to be offered at the Chrysanthemum Show. The *Transactions* record the proceedings of the association for the session and the text of some valuable and interesting papers read at the meetings. The schedule of prizes for the show to be held in the Waverley Market, Edinburgh, on November 14, 15 and 16 includes classes for other horticultural produce of the season, in addition to those for Chrysanthemums. A new feature is the offer of medals for Edinburgh and Leith Villa Gardens and Window Garden Displays, entries for which must be lodged with the secretary not later than July 1. The secretary is Mr. A. D. Richardson.

CARNATION MRS. A. F. DUTTON.

WE are indebted to Mr. A. F. Dutton, Iver, Buckinghamshire, for the opportunity of illustrating the new variety of perpetual-flowering Carnation Mrs. A. F. Dutton. This variety, a sport from White Perfection, is a pleasing shade of rose-pink; at the exhibition of the Perpetual-flowering Carnation Society, on March 21 and 22, it was adjudged the finest of its colour, being placed before even such beautiful varieties as Windsor and Rose-pink Enchantress. Mr. Dutton informs us that the new variety is even more free in blooming than White Perfection, and the habit of growth is superior. A large collection of varieties, including choice blooms of Mrs. A. F. Dutton, was shown by Mr. Dutton at the exhibition in a non-competitive group, which gained the large Silver-gilt Medal of the Society.

RAILWAY GRIEVANCES.

FROM the numerous enquiries which have been directed to the writer during the last 12 months it is evident that the average agriculturist is under the impression that the railway companies have been given monopolistic powers, and that he—the agriculturist—as an employer of these carriers has no alternative but to grin and bear any anomaly which may exist. But that this is not so, and that there exists machinery for the adjustment of any grievance against the railway companies, will be seen from what follows. It is proposed in this article to tell, first, what is the nature of this machinery; what has already been accomplished by means of it; and how the reader may use it to effect the removal of any imposition from which he may be suffering.

FIG. 111.—CARNATION MRS. A. F. DUTTON: A ROSE-PINK VARIETY.

REDUCTION OF RATES SECURED.

To begin with, then, it must be explained that by section 31 of the Railway and Canal Traffic Act, 1888, it is provided that:

(1) "Whenever any person receiving, or sending, or desiring to send goods by any railway is of the opinion that the railway company is charging him an unfair or an unreasonable rate of charge, or is in any other respect treating him in an oppressive or an unreasonable manner, such person may complain to the Board of Trade.

(2) "The Board of Trade, if they think that there is reasonable ground for complaint, may thereupon call upon the railway company for an explanation, and endeavour to settle amicably the differences between the complainant and the railway company."

And Mr. G. G. Bullmore, of Newquay, complained to the Board of Trade under this section, to the effect that the rate of 58s. 9d. per ton charged by the railway company for carriage of agricultural seed from Elsham to Newquay exceeded the sum of the local rates of 33s. 4d. per ton from Elsham to London, and 23s. 7d. per ton from Paddington to Newquay station, together with a sum of 1s. 6d. per ton allowed for delivery in Newquay. The result of this was that the companies concerned arranged to reduce the rate complained of to 52s. 6d. per ton, or, in other words, gave complainant a concession of 6s. 3d. per ton.

Messrs. Bennis & Sons, of Limerick, complained in the same way that the rate of 1d. per lb. was charged by several railway companies for carriage of Apples by passenger train from the South of Ireland to places in England south of a line from Bristol to London, whereas to other parts of Great Britain the rate was only $\frac{5}{8}$d. per lb. The result of this complaint was that the companies agreed to charge the traffic in question at the rate of 6s. per cwt., as desired by the applicants.

The Cheshire Milk Producers' Association complained that, owing to a dispute between the two railway companies concerned, the milk consigned from Rosset to Lime Street station, Liverpool, was being charged by one railway company at the rate of $\frac{1}{2}$d. per gallon for carriage to Chester, and $\frac{3}{4}$d. per gallon by another railway company from Chester to Liverpool, making a total rate of $1\frac{1}{4}$d. per gallon, whereas formerly this traffic was carried at a through rate of $\frac{3}{4}$d. per gallon. Here, again, the Board of Trade took the matter up, with the result that the company agreed that the milk traffic in question should be booked through from Liverpool at the usual lower rate.

SPECIAL RATES SECURED.

Mr. E. M. Evans, of Llanybyther, complained as to the rate of 11s. per ton charged on feeding stuffs and artificial manure conveyed from Cardiff to Llanybyther, stating that this was unfair when compared with the corresponding rate of 8s. per ton to Newcastle Emlyn—a greater

distance by three miles. The result of this was that the railway company put into operation a rate of 9s. 9d. per ton from Cardiff to Llanybyther for both grain and packed manure passing in truck loads of five tons and upwards; or, stated in another way, gave the complainant a reduction of 1s. 3d. per ton.

Mr. John Hogg, of Horton, in his complaint stated that the rate of 1¼d. charged for new milk sent from Horton to Liverpool was unfair in view of the corresponding rate of 1d. per gallon from Crosby Garret, a station situated further away. In this case the railway company reduced the rate to 1d. per gallon as requested.

Miscellaneous Applications.

Messrs. C. Barnett & Sons, of Henley, stated in their complaint that the charge made for the carriage of a bundle of sacks from London Docks to Brentford was excessive, and upon investigation by the Board of Trade it was found that a mistake had been made by the railway company, who thereupon refunded the overcharge which they had made.

Messrs. A. M. Livingstone, of Lurgan, complained that a bundle of fruit trees, despatched from Maidstone to Lurgan on December 17, was not delivered until the 23rd, and was carried viâ Liverpool and Belfast instead of viâ Holyhead and Greenore as directed. Upon investigation, it was discovered that the consignment had been incorrectly invoiced by the forwarding company, and to settle the matter the carriage charge of 3s. 11d. was refunded to the complainants.

The Berks. and Adjoining Counties Dairy Farmers' Association took up a case on behalf of one of its members, and said that the railway company declined to pay compensation for the loss of milk caused through two churns being upset at Westbourne Park station. The company, after replying that the traffic was consigned under owners' risk conditions, and that there were no grounds for entertaining the claim for the value of milk (inasmuch as the loss resulted from the accident), agreed in the circumstances to refund the amount which had been paid for conveyance.

Your Particular Case.

Now, take your own case. We will suppose that your grievance is that you are charged an exorbitant rate for the carriage of your Cucumbers from Fareham to London. You submit your application this way, as another trader actually did under the same circumstances:—

"The Assistant Secretary, Railway Dept., Board of Trade, Whitehall Gardens, London, S.W.

"Dear Sir,—

"The Railway and Canal Traffic Act, 1888, section 31.

"I beg to seek your assistance in securing equitable treatment at the hands of the . . . . Railway Co.

"At present the said company is charging me at the rate of 2s. 10½d. per cwt. for the carriage of Cucumbers by passenger train from Fareham to London, but I submit that the rate should be 1s. 10½d., which is the rate quoted for fruit in Division 3 of the perishable scale.

"I shall be glad if you will be good enough to go into the matter with the railway company concerned, and favour me with your report at your convenience.

"Yours faithfully,

"A Gardener."

A copy of your complaint will be submitted to the railway company or companies concerned by the Board of Trade, a copy of their reply sent you by the same intermediary, and so on, until the matter is finally disposed of. And your only expense will be the postage of your letters, as the services of the Board of Trade are, of course, free of all cost to you as a railway trader. *George B. Lissenden.*

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

Damage to Conifers at Dropmore. — During a north-west gale on the night of the 8th inst., the fine specimen of Pinus rigida in the pinetum here was blown down. In falling, a tree of Tsuga Brunoniana was irreparably damaged; this was a fine example of the beautiful Hemlock Fir, and was planted in 1847. The tree of Pinus rigida had reached a height of 83 feet and was in a perfect condition of health. *Chas. Page, Dropmore Gardens, Maidenhead.*

Pot Strawberries (see pp. 208, 227) —I was interested in Mr. West's note on the failure of his forced Strawberries. I had a similar trouble last year after a wet season, so that I do not think it can be attributed to the crowns being over-ripened. I had then what I considered a fine batch of nearly 1,000 layers, but the plants did not respond to forcing, and many plants were discarded. Those that did fruit gave poor results. I thought perhaps our stock had deteriorated, so this year we bought 800 runners of Royal Sovereign, but unfortunately they were very poor specimens, and to make matters worse were delayed on the railway, owing to the strike. The variety Royal Sovereign appears to be worn out: I cannot attribute the failure to any other cause. *C. H. Branson, Blythewood Gardens, Maidenhead.*

———We do not grow such a large number of Strawberries as Mr. West, but most of my experience in Strawberry forcing was obtained in the South of England in market as well as private gardens. Mr. West is probably correct in assuming that the plants were over-ripened, and the only way to prevent this another season is by delaying the final potting until the middle of August, or by potting into long 7-inch pots instead of 6-inch pots, as is usually done. Did the mature foliage show a reddish tinge on the under-side and margins at the end of the season? If so, the plants were affected with a fungus disease which prevails in dry weather and preys upon the young foliage during the forcing season, causing stunted growth. The Bordeaux mixture is the remedy for this disease. *H. Arnold, The Gardens, Carron Hall, Carron, By Falkirk.*

Daphne indica.—This beautiful Daphne has been in flower since the middle of February. Over the greater portion of the British Isles it is treated as a greenhouse plant, but it is very generally grown in the open in the south-west, where it bears its deliciously-scented blossoms in mid-winter, often commencing to expand its blooms as early as December, and frequently continuing to flower until April. Specimens may often be met with growing in bush form in front of warm walls, and many of these have attained a large size, some being as much as 6 feet in height and as much through. There are three varieties: one, the commonest, bearing purplish-red flowers, the second white blossoms tinged with crimson on the reverse, and the third pure white. Of these, the last is to be preferred. The flowers of all are delightfully fragrant, and a single cluster will scent a room. It is no uncommon thing to cut 20 bloom-clusters in a single day from a good-sized bush. There is also a variegated form of this Daphne, which is quite as hardy as the type. The plant is evergreen and bears dark, shining, green leaves about 4 inches in length and 1 inch in breadth. Plants should, if possible, be secured growing on their own roots, but, unfortunately, it is one of the subjects that suffers from the grafting craze, the stock generally used being the Spurge Laurel (Daphne laureola) or D. Mezereum. D. indica, however, strikes readily from cuttings and layers are easily procured from well-established bushes. It is fairly hardy, as a plant in this garden has lately been subjected to 12° of frost, which killed numbers of tender plants, yet not a leaf was injured. This species is sometimes held to be synonymous with D. odora, but in Nicholson's *Dictionary of Gardening* the two are given as distinct, and the dates of their introduction are stated to be D. odora, 1771, and D. indica, 1800. If they are one and the same plant, D. indica is certainly the more general appellation. *Wyndham Fitzherbert.*

Magnolia salicifolia. — Having just seen your note and figure of this plant (see p. 223) it may be of interest to record the fact that the same tree has flowered here this year for the first time, although it is only quite a small plant. It is growing against a wall. As you say all Magnolias are flowering well and M. conspicua has never borne so many blossoms before, the same may be said of M. Soulangeana, which is now just coming out. *Robert Woodward, Jun., Arley Castle, near Bewdley.*

Hybrid Tea Rose Mme. Hector Leuilliot. — In "Random Thoughts on Pruning" (pp. 196 and 197), your correspondent *White Rose* refers to Mme. Hector Leuilliot as an example of a Rose that requires some experiment so far as pruning is concerned before a correct method is discovered, and, in concluding his article, he states that this variety would seem to require management after the fashion of the Noisettes. I was glad to note such an observation from so able an authority, because I had long formed the opinion that this beautiful Rose was a derivative in some way from Maréchal Niel. Its resemblance to Maréchal Niel in the wood and spines is strongly marked. It is possible that Pradel's fine old Rose was one of the parents, but only Mons. Pernet Ducher can make any authoritative statement on the subject. *George M. Taylor, Mid-Lothian.*

Observations and Experiments in Reference to the Pollination of Hardy Fruits.—Will any fruit-growers or botanists help in making observations on the following plants:—1. Note the order of blossoming of the best market varieties of Cherries, including Early Rivers, Waterloo, Knight's Early Black, Black Eagle, Frogmore Early Bigarreau, Bigarreau or Amber, Old Black Heart, Kentish Biggarreau, Florence, Napoleon and Turk. 2. Is the following approximately the order of flowering of the following Plums?—*Early*—Grand Duke, Monarch, Old Greengage, Black Diamond, Cox's Emperor, Cheshire Damson; *mid flowering*—Bradley's King of Damsons, Victoria, Coe's Golden Drop, Jefferson, Prince Englebert; *late flowering*—Rivers's Early Prolific, Sultan, Czar, Oullin's Golden Gage, Pond's Seedling, Pershore. 3. Is the following approximately the order of flowering of Pears?—*Early flowering*—Beurré Clairgeau, Duchesse d'Angoulême, Beurré Diel, Marguerite Marrillat, Jargonelle, Williams's Bon Chrêtien; *mid flowering*—Beurré Hardy, Doyenné Boussoch, Beurré Giffard, Catillac, Pitmaston Duchess, Dr. Jules Guyot; *late flowering*—Clapp's Favourite, Triomphe de Vienne, Souvenir du Congrès, Doyenné du Comice, Marie Louise d'Uccle, Durondeau. 4. Is the following the approximate order of flowering of the commoner market Apples?—*Early flowering*—Bismarck, Golden Spire, Baumann's Red Winter Reinette, Stirling Castle, Bramley's Seedling; *mid flowering*—Duchess's Favourite, Gladstone, Cox's Orange Pippin, Beauty of Bath, Worcester Pearmain; Lane's Prince Albert, King of the Pippins; *late flowering*—Gascoyne's Scarlet, Dumelow's Seedling, Blenheim Pippin, Royal Jubilee. 5. What other varieties of Pear are self-fertile beside Conference, Durondeau, Duchesse d'Angoulême, Colmar d'été? 6. What other varieties of Apples are self-fertile besides Stirling Castle, Lord Grosvenor, Early Victoria, Gladstone, King of the Pippins, Lord Derby, Irish Peach, White Transparent, Newton Wonder, Ecklinville Seedling, Summer Golden Pippin, Baumann's Red Winter Reinette, Peasgood's Nonesuch and Christmas Pearmain? 7. Note.—Professor W. O. Backhouse finds the following Plums self-fertile:—Victoria, Prince Englebert, Czar, Pershore, Yellow Magnum Bonum, Denniston's Superb, Early Transparent, Reine Claude Violette, but that Rivers's Early Prolific is nearly self-fertile. 8. Are any Cherries self-fertile beside the Morello? 9. Note any insects seen visiting blossoms of Plum, Pear, Apple and Cherry, so as to record roughly the proportion of hive bees, bumble bees, other wild bees, thrips, midges, beetles, ants, &c.; also those visiting Gooseberry, Red and Black Currants, Strawberry, Raspberry and Loganberry. Kindly send reports in June or July to "The Secretary, National Fruit Growers' Federation, 2, Gray's Inn Place, Gray's Inn, London. *C. H. H.*

BIRDS AND FRUIT BUDS (see p. 227).—Last year nearly all the flower-buds of my Peach and Apricot trees were destroyed by birds, and I observed that the destruction was due to the tom-tit or tit-mouse with the black head. It is the first time in 20 years that I have experienced such damage. *F. Denis, Balaruc les Bains, Herault, France.*

———Similar mischief, as recorded by Mr. Hatcher, was done to our Peach trees out-of-doors, and no doubt all the fruit-buds would have been destroyed had I not discovered the culprits in time. There are numbers of bullfinches in this locality, and early one morning I found two of these birds eating the buds. I, like Mr. Hatcher, was confused at first as to what was destroying the buds. As soon as I found out the reason, nets were put on all the Peach trees at once, and twigs placed against the wall so as to keep the nets about 1 foot from the trees. This was effectual in stopping the mischief. The bullfinch is one of the worst enemies of the gardener, but I have never seen sparrows attack buds of Peach trees. *A. P. Umpleby, Iridge Place Gardens, Hurst Green, Sussex.*

——— While at Hunsdon Bury, in Hertfordshire, I found some of the Peach trees entirely denuded of fruit buds, and I was at a loss to account for it. After watching the trees for some time, I saw a number of sparrows clinging to them and picking the fruit buds off. In the same gardens sparrows would pick out the individual fruit buds of apple blossom just before the blooms expanded. *W. Phillips, Derry Ormond Gardens, Cardiganshire.*

———In reply to Mr. G. S. Hatcher's inquiry about the possibility of birds destroying fruit buds, I may relate the following observations which I made at Potsdam:—The winter of 1908-9 being a very hard one, the birds found but little food for a long time. An extraordinarily warm November and December caused the buds of many trees and shrubs to develop during that winter, especially those of the Japanese Quince (Cydonia japonica), and sparrows, blackbirds, and thrushes picked them all off. *Paul Kache, Weener, Germany.*

SCHOOL GARDENS (see p. 223).—The increasing interest taken in school gardening by elementary teachers is seen in the number of candidates entered for the R.H.S. school teachers' examination in gardening, which takes place on the 17th inst., the entries being double those of last year. The evolution of the school garden is interesting. Many years ago it was a common practice in schools to utilize a piece of spare ground by dividing it into small plots, where the children could play at gardening in their spare time—often as a reward for good behaviour. A step forward was taken about 20 years ago by the Surrey Technical Education Committee, under Mr. John Wright, V.M.H., when continuation evening classes in gardening were instituted. The committee is now extinct, but under its direction school gardens were established all over the county. When the Education Act of 1902 made the County Councils responsible for elementary education, the example of the Surrey authorities was followed all over the country. The new movement, involving, as it did, a break in the old habit of class-room teaching, was welcomed by the teachers, pupils, and school authorities alike, partly on account of its extremely practical nature and partly because it took the children into the open air for instruction. The moral benefits of such practical teaching are becoming every day more and more apparent. To learn how to use garden tools; to cultivate, sow, tend, and finally reap the fruits of labour—all this comes as a revelation to many a lad who, though dull and slow in a class-room, is ready enough to work intelligently and well where cause and effect are so obviously related. It is well, however, to remember that, valuable as is the teaching of school gardening, it is only a beginning, and it would be a good thing if every boy who had shown promise at school could be passed on, at the age of 14, to a large garden, where the knowledge gained at school could be increased, and where the work would be all of a practical nature. After a few years' experience it should be made easily possible for him to obtain a small holding or allotment which he could work for his own benefit. *D.*

RAINFALL IN BRYNTIRION GARDENS, DOLGELLY, N. WALES.—It may interest readers to known that in these gardens at Bont-Ddu, Dolgelly, N. Wales, 11.93 inches of rain was registered during March. On March 28 2.26 inches fell, whilst on the 3rd and 5th 1.01 and 1.77 inches fell respectively. During the past eight years the rainfall at Bryntirion has only exceeded 2 inches on four other occasions in 24 hours, whilst the total rainfall in any month has only exceeded 10 inches in January, 1906, December, 1910, and December, 1911, since 1904. *F. G. Brewer.*

"WAKE UP" MANCHESTER.—When the members of the Manchester Botanical Society wish to start flower shows, lectures, and the like, they will find more than plenty of first-rate horticultural talent in and around the city without asking the assistance of any other society. The few remarks I made in a previous note as to combinations meant with or without the aid of the Manchester Orchid Society. It is very kind of the Rev. J. Bernard Hall offering to hold shows and give lectures in Manchester, but it reminds one of the boy teaching his father how to wheel a barrow. No doubt the North of England Horticultural Society is doing a lot of useful work, and from the wide circle its sphere covers one would suppose it was in a fairly active state. Might it be suggested that a suitable site should be found in the vicinity of Leeds, where a botanic or experimental garden could be established for the diffusion of knowledge in horticultural matters. In a county where there is so much wealth and so many patrons of gardening, surely an establishment of the kind should find ready and generous support. It would also be the means of finding greater scope for the energy of the northern society—if they feel their present area of operations somewhat circumscribed. *Pinus.*

SALE OF TREES IN IRELAND BY THE DEPARTMENT OF AGRICULTURE.—Knowing something about the recent operations by the Department of Agriculture in Ireland for the promotion of land industries in that country I desire to protest against some of the observations in last issue. The question of manners may be left to those who attach importance to them; it is not usual for Government officials to be overburdened with them. The methods of the Irish officials concerned are, however, material, and when these methods are understood, they must meet with general approval. Irish farmers and small holders have hitherto limited their operations to the production of what are known as agricultural crops, notwithstanding the exceptional advantages possessed by many parts of the country for the growth of fruit, early vegetables, flowers, &c., not merely for home markets but for distribution to other countries. It was therefore determined a few years ago to show farmers and others how to make more profitable use of their land, but instead of resorting to the usually futile pamphlet and lecture, the much better method of practical demonstration and personal advice and persuasion was decided upon. The Department of Agriculture invited the County Councils to form Agricultural and Horticultural Committees, to establish demonstration gardens and plots, and to appoint instructors in horticulture. They were also to assist by purchasing for those who decided to plant, such fruit trees, &c., as were most likely to be suitable. The project was to practically force horticultural enterprise and methods upon a people who generally paid little heed to them, and to get them to plant largely and wisely. An annual grant was offered to the counties that decided to put the Department's scheme into practice, but not a farthing of this grant was to be used for other purposes than expenses of the demonstration plots, flower and fruit shows, and the horticultural instructor. The Department takes a hand in the selection of competent horticultural instructors, who must be experienced practical gardeners. This is, briefly, the machinery; now for the working of it. The County Councils invite nurserymen to tender for the supply of trees, an inspection of the stock of those that tender being conducted before a decision is arrived at. Nurserymen, of course, know what the trees are for and, as always happens in such matters, some are taken and the others are left, either because their prices are too high or their stock is not of the right quality. Those purchased are then supplied to the farmers, &c., at cost price, plus the charges for carriage. The instructor gives advice with respect to site and the most suitable sorts to plant, and I believe he makes periodical calls afterwards to see that the planting and other operations are properly performed. There has been an enormous amount of planting done in Ireland in consequence of this activity and wisdom on the part of the two authorities, to the great advantage of the nursery trade there, and, no doubt, to the future enrichment of the country. Is it reasonable to ask that this good work should be stopped because a few nurserymen feel they are not getting a full suck at the orange? Are these highly praiseworthy efforts of the Irish Department of Agriculture to do really helpful work to be condemned at the bidding of the secretary of the Horticultural Trades' Association? Had the counties started their own nurseries for the growth of trees for sale the objection might then have been reasonable, although even in that case they would be doing good by employing labour and land at higher rates than nurserymen pay, though it is doubtful if they would grow better stuff. The long and short of the matter is, the Irish grower had to be taught something for his own and his country's good, and to get him to look favourably upon the operation it had to be made reasonably easy and attractive. The plan adopted by the two authorities has proved most successful. Six hundred thousand trees bought and planted in a year, which otherwise would never have been planted at all! Was paucity of argument the excuse for dragging in those "Cupressus, 4 to 5 feet high, Laurels and Clematis"? It smacks rather of the story of the cook and the dripping! Some of the nurserymen in Ireland have stated that since this progressive policy was inaugurated they have done a large business in trees, and I know several in England who have profited for the same reason; for the Irish authorities will have good healthy trees, whatever their source. Yet we are asked to believe that "the Irish Department of Agriculture is doing grave damage to the horticultural industry of Great Britain and Ireland." I say it is doing horticulture a great service and setting a very good example, as every other person would say who puts the general welfare first. What a prospect for our tree nurserymen if the English Board of Agriculture were to set out to educate and help wealthy landowners to understand and practice forestry by establishing demonstration forest areas, giving practical advice, and providing the right kinds of trees to plant, all at the landowner's expense! *W. W.*

PRIMULA ROSEA.—Much has been written about this charming species in the gardening papers from time to time, and most of its characteristics have been described in detail, but writers have omitted to state one peculiarity which should prove of great utility to raisers of hybrids, namely, that P. rosea never seeds unless artificially pollinated. The reason why no seed is produced is very evident when an individual flower is examined. If the corolla-tube is severed just above the calyx, the stigmas can then be seen at the base of the flower receptacle. As the styles never grow more than one-tenth of an inch in height, the stigmas have little or no chance of getting selfed or crossed. Of course, this is not the case with most other Primulas whose flowers may bear short or long styles to their stigmas. P. rosea is the only species I am acquainted with whose flowers bear persistently short styles on their carpels. I should be much interested to know if any reader of the *Gardeners' Chronicle* knows of any other species behaving in like manner. *Ralph Aldersey, Aldersey Hall, Chester.*

REHMANNIA (see p 218).—At this season of the year, after the dull days of winter, a flowering batch of R. angulata is much appreciated, and plants may be raised from seed now, if no time is lost in sowing. The plant is all but hardy, and should be afforded a cool treatment in all its stages. It is a gross feeder and should be treated liberally always. The flowers are variable in colour, and seed is produced with the prodigality which characterises certain other members of the Natural Order Scrophularineæ. *Fred. W. Jeffery, Woodend Gardens, Renfrewshire.*

SAXIFRAGA × KEWENSIS.

This hybrid Saxifraga is probably the first example of a cross between a white-flowered and a red-flowered species. The red-flowered S. media, however, hybridizes naturally with the yellow-flowered S. aretoides in the Pyrenees, producing quite a series of intermediate forms known as S. ambigua, S. luteo-purpurea and S. Lapeyrousei. S. ambigua is more closely allied to S. media, while S. Lapeyrousei is nearer the other parent, and S. luteo-purpurea is intermediate, with red sepals and yellow petals. S. kewensis appeared in a batch of seedlings raised from seed of S. Burseriana var. macrantha three years ago. The first one that flowered amongst the batch had normal foliage and Burseriana-like flowers tinged with pale purple. The second one, however, which is illustrated (fig. 112) shows much more of the influence of a red-flowered parent, evidently S. Frederici Augusti. It has the leaves of the latter with six pits on each side of the leaf, but they are arranged in the cushion-like form of S. Burseriana. The stems are from 2 inches to 3 inches long, covered with pale glandular hairs, and the red bracts are tipped with green. The sepals are deep red and glandular, while the rose-tinted petals are much deeper in colour towards the base. In shape the flowers are intermediate between the two parents, and the fact of S. Frederici Augusti being the poller. parent is seen in the leaves, branched stems, red bracts, sepals and flowers. The plant promises to have a very free-growing and free-flowering habit. *W. I.*

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

April 2.—*Present:* Mr. E. A. Bowles, M.A., F.L.S. (in the Chair); Sir John Llewelyn, Messrs. J. O'Brien, J. Fraser, W. Hales, G. Gordon, E. M. Holmes, A. W. Hill, and C. E. Shea.

Schomburgkia Lueddemanii, Prill. — Sir Frederick Moore sent a flowering spike of this uncommon species, figured in the *Bot. Mag.*, t. 8427. Some discussion arose regarding its distinctness from S. undulata, but the Director of the Royal Botanic Gardens, Kew, to whom it was referred, says it is distinguished from that species by a bright yellow crest to the lip and other differences. It appears to have been lost sight of since 1862, and even now its habitat is unknown. S. undulata has been figured several times (see Lindl. *Bot. Reg.*, xxxi., t. 53; Will. *Orch. Alb.*, v., t. 335; Warn. *Sel. Orch.*, ii., t. 21; Cogn. *Dict. Orch. Draw*, xlix., t. 33), and always without the yellow disc.

Draba rupestris.—Mr. J. Fraser showed a specimen of Draba rupestris in a pot, in which condition the plant grows much more dwarf and compact than when in a rock-garden in free soil, attaining in the latter conditions to about 6 inches in height, and in the former to only about 3 inches, though flowering quite as freely.

Clivia miniata. Mr. J. W. Odell showed an inflorescence of Clivia miniata with one of the bracts foliose and about 7 inches in length.

Narcissus sporting.—Mr. C. E. Shea showed a variety of Daffodil which had appeared among plants of Empress, but which had a much flatter perianth and no green colouration at the back; the mouth of the corona was wider and the colour somewhat paler. The evidence as to its origin did not appear conclusive, and the Committee were inclined to regard it as probably a seedling from Empress.

Narcissus malformed.—Mr. Jacob sent a flower of Narcissus having the perianth segments three-lobed instead of entire as is usually the case.

Elaeagnus sp. fruiting.—Mr. F. R. Durham sent from Salcombe, S. Devon, Elæagnus macrophylla, E. Fredericii Anna, and E. pungens variegata, each bearing ripe fruits. The pink berries of the first-named with their silver scales are particularly beautiful.

NORTH OF SCOTLAND HORTICULTURAL AND ARBORICULTURAL.

March 20.—A large attendance of the members gathered in the Botany Class-room, Aberdeen University, on the above date, when a paper was read by Mr. W. B. Clark, gardener at Balgownie Lodge, Aberdeen, on the Carnation. In the course of his paper, Mr. Clark stated that border Carnations were the most generally grown, and these required considerable attention. The propagation of the Carnation by means of cuttings and layering was described. August, said Mr. Clark, was the best month for layering. In the northern part of Scotland planting was best done in the spring. The Carnation delighted in much sunshine. Mr. Clark gave a succinct description of the insect and fungus pests of the Carnation, and how best to deal with them.

Mr. James Ogg, gardener at Skene House, Aberdeen, then read two short papers on "Cottage Gardening" and "Garden Cities." In his paper on "Garden Cities," Mr. Ogg gave an account of the origin and development of the movement, and of the great value of garden cities from an economic point of view. In the discussion which followed, members of the Aberdeen Town Council, who had come to hear Mr. Ogg, took an active part, one councillor declaring that Aberdeen might do much to foster the garden city movement.

Fig. 112.—Saxifraga × kewensis: flowers rose-coloured.

THE NURSERYMEN, MARKET GARDENERS' AND GENERAL HAILSTORM INSURANCE CORPORATION, LTD.

March 29.—The seventeenth annual meeting of this company was held at 41 and 42, King Street, Covent Garden, on the above date.

Mr. Harry J. Veitch, who presided, congratulated the shareholders on the growth of the company and the strength to which it had attained. The company had been of great service to nurserymen, and the directors had recently seen their way to grant a bonus of 15 per cent. to policy-holders in reduction of their annual premiums.

A strong reserve fund had been accumulated out of revenue account. Six claims had been paid during the past year, and since the books had been closed four other claims had been received.

To illustrate the prompt way in which claims were met, Mr. Veitch read the following letter from Mr. Ladds, of Swanley:—

"Dear Sir,—In consideration of the generous and prompt manner in which you settled with me, following on my claim on your company for glass broken by the severe storm on March 4, I wish to convey my best thanks to you personally for the courtesy and fairness shown me when here on the following day, and to the company for their unquestionably fair method of business. I do not desire a repetition of the storm, but in these untoward occurrences it is very gratifying to know that the Hailstorm Insurance Co. are always ready to extend every advantage of their company to the glass-house owner.—Yours faithfully, Frank W. Ladds (Manager)."

ROYAL SCOTTISH ARBORICULTURAL.

March 30.—Dr. Somerville, Professor of Rural Economy at Oxford, addressed a meeting of the Aberdeen branch of the Royal Scottish Arboricultural Society, in Aberdeen University buildings, on this date. There was a large attendance of landed proprietors, foresters, and nurserymen of the shires covered by the branch, but from the many apologies read by the secretary it was apparent that the attendance would have been much larger had it not been for the coal strike and the decrease in travelling facilities in the north of Scotland. Mr. Irvine, of Drum, president of the branch, occupied the chair.

Dr. Somerville said that North America included all kinds of climates, from nearly tropical conditions around the Gulf of Mexico to purely Arctic conditions in the far North. From an economic point of view the forests of North America were of the very first importance, and the United States constituted the most important of the timber exporting countries of the world. The States exported annually something like £18,000,000 to £20,000,000 worth of timber. No doubt, the forests of North America had been rather carelessly managed, and forest fires had done enormous damage, causing great financial losses. Canada exported only about £10,000,000 worth of timber per annum, and imported wood worth about £2,000,000.

Dr. Somerville then proceeded, with the aid of maps, photographs, and lantern slides, to illustrate interesting parts of wooded country, of special forests, and of giant individual trees he had seen during his visits to the United States and Canada.

In Canada young trees are distributed free of charge to settlers, these distributions being made from the nurseries at Indianhead, Alberta. In the prairie country, said Dr. Somerville, they found Willows and Poplars growing on the banks of the rivers. When they approached the Rocky Mountains they met with a forest country extending south of the Selkirk range, and there they had several of the most magnificent of the American forests. It was in that district that Sitka Spruce, Douglas Fir, Picea nobilis and the Lawson Cypress were found. In the Valley of the Mississippi grew many hard-wooded trees, including Chestnut, Birch, and Cherry.

SCOTTISH HORTICULTURAL.

April 2.—The monthly meeting of the above association was held in the Goold Hall, 5, St. Andrew Square, Edinburgh, on this date. Mr. Massie, the president, occupied the chair, and there was an attendance of 125 members.

A lecture entitled "Sweet Peas up to Date," illustrated by lantern slides, many in natural colours, of the leading varieties, was delivered by Mr. Wm. Cuthbertson, J.P., of Messrs. Dobbie & Co., Edinburgh. Commencing with 1901, when the first waved flower was shown in London by Mr. Silas Cole, gardener to Earl Spencer, at Althorp Park, Nottingham, the lecturer dealt with the great development of the Sweet Pea in that period. The variety was named "Countess Spencer," and the exhibitor claimed that it was the result of crossing two of the older unwaved varieties, but Mr. Cuthbertson stated that within the last few days unmistakable evidence had come into his hands that an exactly similar flower had appeared in Somersetshire, also in 1901, in the form of a variation from "Prima Donna," one of the varieties which Mr. Cole claimed as one of the parents of "Countess Spencer." This fact, in conjunction with Mr. Unwin's statement that "Gladys Unwin" was also a variation from "Prima Donna," points to the conclusion that the waved Sweet Pea arose as a mutation, and was not the result of crossing. It appeared in several parts of the country, as many sports in other plants have done. Many beautiful varieties arose as simple variations from Countess Spencer; and others as the result of crossing.

The exhibits included Richardia africana, from Miss BURTON, Polton; Narcissus "King Alfred," from Messrs. JAMES GRIEVE & SONS, Edinburgh; and Apples "Mère de Ménage" and "Lane's Prince Albert," from Mr. A. C. SCOTT, Riccarton, Midlothian.

At the meeting on May 7, Mr. James Whytock, The Palace Gardens, Dalkeith, will deliver a lecture entitled "Some Impressions of America and its Horticulture," illustrated by limelight views.

ROYAL CALEDONIAN HORTICULTURAL.

APRIL 10, 11.—The spring exhibition of the above society was held on Wednesday and Thursday last in the Waverley Market, Edinburgh. Notwithstanding the restricted railway service, the show proved a very successful one as regards the quality of the exhibits, but owing to the absence of some of the usual trade exhibits from the south the non-competitive groups were fewer than usual. The entries in the competitive classes exceeded those of last year. Fine weather and the new heating arrangements of the hall also contributed to the success of the show, which was opened by the Marquis of Tullibardine.

PLANTS.

The principal class in the plant section was for a group of Orchids, staged in a space not exceeding 12 feet by 6 feet, and arranged so that the exhibit could be viewed from one side only. Two entries were staged, the 1st prize being awarded to R. BROOMAN-WHITE, Esq., Ardarroch, Garelochhead (gr. Mr. G. Smith). This exhibitor staged a magnificent collection, notable examples being Cattleya Schröderæ, Odontoglossum crispum var. "Mrs. F. W. Peeters," and various Cypripediums. The "Sander" Cup was awarded to this grower for the second year in succession. The other exhibitor, JAS. WOOD, Esq., Wallhouse, Torphichen (gr. Mr. F. Henderson), was awarded the 2nd prize for a beautiful and comprehensive group.

There was a good competition in the class for four stove or greenhouse plants in flower, distinct, the 1st prize being won by J. BALLANTINE, Esq., Peebles (gr. Mr. Alan Smith); 2nd, A. DRYBOROUGH, Esq., Gogar Park (gr. Mr. A. Findlay); 3rd, Sir ROBERT USHER, Bart. (gr. Mr. Geo. McKinna).

In the class for six plants in bloom, excluding Hyacinths and Tulips, there was a poor competition: the first prize was won by Sir ROBERT USHER; 2nd, Sir J. MURRAY, Leith (gr. Mr. J. McIntyre); 3rd, The EARL of HOME, Douglas Castle (gr. Mr. A. McMillan).

For greenhouse Rhododendrons there was only one entry, the exhibitor being Lord ELPHINSTONE, Carberry (gr. Mr. D. Kidd), and the exhibit was awarded the 1st prize.

The class for four plants of Rhododendron indicum (Azalea indica) produced a good competition, well-grown plants being staged. The 1st prize was won by the Hon. Mrs. BAILLIE HAMILTON, Longton, Duns (gr. Mr. Gilbert D. Kerr); 2nd Sir JOHN GILMOUR, Bart., Montrave (gr. Mr. Jas. Wilson); 3rd, C. E. GREEN, Esq., Liberton (gr. Mr. P. McLauchlan).

For two Azaleas, distinct, Col. MORE NISBET, Duns (gr. Mr. Robert Whannell), won the 1st prize easily, whilst for hardy Azaleas the 1st prize was secured by Mrs. BICKMORE, Murrayfield (gr. Mr. J. Pearson); 2nd, Lord ELPHINSTONE; 3rd, Earl of HOME.

There were few entries in the classes for Orchids. The premier award for four distinct kinds was won by A. DRYBOROUGH, Esq.; 2nd, R. HINDLE, Esq., Edinburgh (gr. Mr. A. Roe).

For a single plant of Orchid the 1st prize was awarded to a choice example of Dendrobium nobile virginale, shown by C. W. COWAN, Esq., Dalhousie Castle, Bonnyrigg (gr. Mr. W. G. Pirie); 2nd, Hon. R. C. MUNRO FERGUSON, Esq., of Raith, Kirkcaldy (gr. Mr. D. McLean); 3rd, A. DRYBOROUGH, Esq.

In the principal class for exotic Ferns the Earl of HOME was the leading exhibitor, followed by J. MCKELVIE, Esq., Edinburgh (gr. Mr. J. R. Findlay)

The Earl of HOME won the leading prizes for foliage plants, including Palms, which were shown in splendid condition. 2nd Mrs. HUTCHINSON, Carlowrie (gr. Mr. J. Thom).

Roses in pots did not produce many entries; Mrs. HUTCHINSON, Carlowrie, excelled easily in all the classes, whilst Mrs. DEWAR, Drylow (gr. Mr. W. T. Galloway), won all the second prizes.

For four pot plants of Hippeastrums (Amaryllis) Lord ELPHINSTONE was placed 1st; Mr. JAS. TODD, Colinton, 2nd; and Mr. WM. WOOD, Liberton, 3rd.

Caladiums were best shown by the Right Hon. R. C. MUNRO FERGUSON, whilst in the classes for Pelargoniums Mrs. HOGG, Gogar (gr. Mr. W. Brow), was the leading prize-winner.

Auriculas were shown well. Miss BALFOUR MELVILLE (gr. Mr. W. Robertson), won all the 1st prizes in the classes for Alpine as well as for Stage varieties.

For 24 pots of Alpines C. W. COWAN, Esq., won the 1st prize with well-grown plants, Saxifraga Boydii, Primula nivalis, and Androsace carnea being noteworthy examples.

CUT FLOWERS.

The principal class in this section was for a decorated dinner table, 10 feet by 5 feet, laid out for eight persons. The 1st prize was awarded to Sir JOHN GILMOUR, of Montrave (gr. Mr. Jas. Wilson), this exhibitor using pink and crimson Carnations freely relieved with spikes of Lily-of-the-Valley, the whole being gracefully intermingled with sprays of Asparagus plumosus. The second table was arranged by T. G. BISHOP, Esq., Helensburgh (gr. Mr. J. Hood), who employed pink-coloured Carnations and sprays of Asparagus Sprengeri. Lord ELPHINSTONE was placed 3rd for an arrangement of Jonquils and Orchids.

Roses were well shown. Mrs. HUTCHINSON, Carlowrie, won the 1st prizes in the classes for 24 and 12 blooms respectively. This exhibitor had fine blooms of Frau Karl Druschki, Mrs. E. Mawley, Kaiserin Augusta Victoria and Caroline Testout; Lord ELPHINSTONE was placed 2nd in both classes.

For 12 Roses in vases, other than Gloire de Dijon or Maréchal Neil, Miss WAUCHOPE, Inveresk, was awarded the 1st prize for fine blooms of Fortune's Yellow; 2nd, Mrs. HUTCHINSON, Carlowrie.

The 1st prize for Souvenir de la Malmaison Carnations was won by the Earl of HOME.

There were classes for cut Tulips, Narcissi and hardy spring flowers, all of which only produced moderate competitions.

FRUIT AND VEGETABLES.

There were only four classes for fruit, and the entries were very small and call for no special comment.

Lord ELPHINSTONE secured the 1st place for a dish of Strawberries, whilst for six bottles of preserved fruits Mr. THOMAS M'PHAIL, Dirleton, was placed 1st.

Competition in the vegetable classes was also poor, the entries having decreased considerably compared with last season. For a collection of vegetables, Col. E. R. STEWART RICHARDSON (gr. Mr. John E. Davis), was placed 1st, and Lord LAUDERDALE, Lauder, (gr. Mr. R. Stewart), 2nd. Mr. JAS. PATERSON, Roxburgh, excelled in the class for six Leeks; whilst Col. E. R. STEWART RICHARDSON, Ballatine, showed best in the classes for Mushrooms, Tomatos, salads and Cucumbers. The Hon. Mrs. Baillie HAMILTON was placed 1st for 50 pods of French Beans.

PRIZES FOR UNDER GARDENERS.

Five designs were submitted by under gardeners for the laying out of about 16 acres of land for pleasure ground, kitchen garden, &c., and the 1st prize of £3 was awarded to Mr. HUGH G. OLIVER, Buccleuch Nurseries, Hawick, for an exceedingly well-executed and well-considered plan; 2nd, Mr. J. W. FORSYTH, Taymouth Castle Gardens, Kenmore.

AWARDS.

A First-class Certificate was awarded to *Carnation Duchess of Devonshire*, exhibited by Messrs. YOUNG & Co., and an Award of Merit to *Carnation Lady Alington*, exhibited by Messrs. STUART LOW & Co.

NON-COMPETITIVE EXHIBITS.

Messrs. YOUNG & Co., Hatherley, Cheltenham, showed perpetual-flowering Carnations exceedingly well, and were awarded a Gold Medal.

Messrs. HOGG & ROBERTSON, Dublin, had an extensive and very fine exhibit of Narcissi, for which a Gold Medal was awarded.

Messrs. STUART LOW & Co., Enfield, showed fine perpetual-flowering Carnations, Orchids, and other flowering plants. (Silver-gilt Medal.)

Mr. H. N. ELLISON, West Bromwich, showed Ferns and hybrid Gerberas. (Silver-gilt Medal.)

Messrs. CUNNINGHAM, FRASER & Co., Edinburgh, displayed a neat exhibit of Alpines on a rockery. (Silver-gilt Medal.)

Messrs. DOBBIE & Co., Edinburgh, exhibited a collection of Tulips and a few Narcissi. (Silver-gilt Medal.)

Messrs. JOHN FORBES, LTD., Hawick, showed Primulas, Tree Pæonias, and other plants. (Silver Medal.)

Mr. G. REUTHE, Keston, Kent, had an interesting exhibit of hardy and shrubby plants, including Indian and Chinese Rhododendrons. (Silver Medal.)

Messrs. R. B. LAIRD & SONS, LTD., Edinburgh, displayed a large group of Rhododendrons, Roses, Azaleas, Maples, and other plants.

Mr. D. W. THOMSON, Edinburgh, showed Narcissi, Hyacinths, and Tulips.

Mr. JOHN PHILLIPS, Edinburgh, showed a group of Palms, Dracænas, Azaleas, Clematis, Roses, and Ferns.

Messrs. BAKERS, Wolverhampton, staged Primulas and other Alpine plants.

Orchids were exibited by Messrs. SANDER & SONS, St. Albans, and Mr. D. MCLEOD, Chorlton-cum-Hardy.

Messrs. DICKSONS & Co., Edinburgh, showed hybrid Hippeastrums (Amaryllis) and a collection of Roses.

NURSERY AND SEED TRADE ASSOCIATION.

APRIL 2.—The 35th annual general meeting of this association was held at the offices of the Association, 32, Gresham Street, London, on the above date, when the following members took part in the discussion of matters which affected the trade:—Mr. J. B. Slade (Messrs. Protheroe & Morris), in the chair; Mr. G. H. Barr (Messrs. Barr & Sons), Mr. John Harrison (Messrs Harrison & Sons), Mr. H. W. W. Nutting (Messrs. Nutting & Sons, Ltd.), Mr. A. W. Paul (Messrs. William Paul & Son, Waltham Cross), Mr. H. E. Silberrad (Messrs. R. Silberrad & Son), and Mr. W. S. Thomson (Messrs. D. S. Thomson & Sons).

The annual report which was submitted showed that the association is in a prosperous condition with a substantial bank balance, and the membership had been maintained. During the past year the association had answered 1,011 status inquiries for the benefit of its members, and had collected debts for them to the amount of £5,287 3s. 11d.

The association has taken counsel's opinion on the subject of railway rates, and on the non-warranty clause, and a new clause had been drawn by counsel in consequence of a decision of the House of Lords, and distributed to the members of the association for their use.

ROYAL HORTICULTURAL SOCIETY OF IRELAND.

AT the monthly meeting of the above society, held in the Council Rooms recently, Sir Frederick Moore stated that the subscriptions for the cup to be presented by the members at the International Horticultural Exhibition exceeded the cost, and it was decided to offer a second cup for hardy plants. The remainder of the balance will be given as a subscription towards the expense incurred by the Ulster Rose and Floral Society in arranging the National Rose Society's Provincial Show in Ireland, the first time in its history. A Cultural Certificate was awarded to Mr. BEDFORD, Straffan Gardens, for splendid fruits of Apples Hoary Morning and Newton Wonder. Other exhibits included a collection of Apples grown within a few miles of Dublin; flowering racemes of Acacia dealbata, grown in the open, and shown by Captain RIALL; and a collection of Tulips and Daffodils, shown by Messrs. CHARLES RAMSEY & SONS, Ballsbridge.

LAW NOTE.

FAILURE OF A "FRENCH" GARDENER.

The first meeting of the creditors of Mr. Frank Mynott, formerly a "French" gardener at Tiptree, Essex, was held at the offices of the official receiver (Mr. F. Messent) at Ipswich, on the 3rd inst.

The summary of debtor's statement of affairs showed gross liabilities amounting to £8,887 4s. 8d., of which £1,318 19s. 8d. was expected to rank for dividend, £927 3s. 6d. being due to 30 unsecured creditors. The deficiency was estimated at £720 1s. 6d.

The official receiver said that the debtor, who is 45 years of age, informed him that for some years he was a printer and journalist at Romford. He bought about 86 acres of land in Essex, the greater part of which he let, but a small part he occupied himself with the object of raising vegetables on a system of intensive cultivation. The tenant of the larger portion became bankrupt early in 1909, and the debtor says the land was thrown on his hands. As he could not relet it then, he had to cultivate it himself as best he could. In September last the debtor hired premises at Felixstowe to start a printer's business, but it was not successful, owing to the limited capital he had at his disposal. The creditors returned as fully secured hold charges on property situate at Romford, Chelmsford, Tottenham, Hornchurch and Tiptree. The debtor estimated a surplus of £490 should be realised from some of these properties, but this was debtor's estimate and not his, and the properties were subject to realisation. The creditors partly secured held similar charges on properties which the debtor estimated would not realise sufficient to satisfy the mortgagees. The unsecured creditors appeared to be made up of £705 for money lent, and the rest for goods supplied or work done.

No quorum of creditors attending the meeting, the estate was left in the hands of the official receiver for administration.

GARDENING APPOINTMENTS.

[*Correspondents are requested to write the names of persons and places as legibly as possible. No charge is made for these announcements, but if a small contribution is sent, to be placed in our collecting Box for the Gardeners' Orphan Fund, it will be thankfully received, and an acknowledgment made in these columns.*]

Mr. A. C. Wicks, for the past 6 years Foreman at Halstead Place, near Sevenoaks, Kent, as Gardener to Kenneth Foster, Esq., Coombe Park, Whitchurch, Oxfordshire.

Mr. R. Farnell, for the past 20 years Gardener at Edgeley Hall, Whitchurch, Salop, as Gardener to Captain Foster, Woodcote, Newport, Salop. (Thanks for donation of 1s. 6d. for R.G.O.F. box.—Eds.)

Mr. T. Roberts, for the past 3 years Gardener to C. C. Paine, Esq., Hillfield, Hampstead, and previously at Northleigh, Bradford-on-Avon, Wiltshire, as Gardener to Colonel Stuart, Tempsford Hall, Sandy, Bedfordshire.

Mr. P. Corps, for the past 8½ years as General Foreman at Beau Manor Park, Loughborough, and previously at Hylands Park, Chelmsford, as Gardener to T. Fielden Johnson, Esq., Brookfield, Leicester.

Mr. F. E. Cottrell, for 2½ years General Foreman at Weardale Gardens, Brasted Chart, Kent, and previously at Roath Park, Cardiff, and Hewell Grange, Redditch, as Head Gardener to F. J. Tennent, Esq., Lympne Castle, Lympne, Kent. (Thanks for 2s. 6d. which has been placed in the R.G.O.F. box.—Eds.)

Mr. S. J. Craze, for the past 3 years Second Gardener at Abbey Manor, West Kirby, Cheshire, and previously at Downton Castle, Ludlow, as Gardener to A. Saunderson, Esq., Foxlease Park, Lyndhurst, Hants. (Thanks for 1s. 6d. received for R.G.O.F. box.—Eds.)

Mr. F. Gibbs, for the past 9 years Gardener to Mrs. Mounsey, Hill House, Dedham, Essex, as Gardener to the Rev. Canon Barker, Henstead Hall, Wrentham, Suffolk.

SCHEDULE RECEIVED.

Chester Paxton Society.—The annual autumn exhibition of this society will be held in the Town Hall, Chester, on Tuesday and Wednesday, November 12 and 13. A silver challenge cup is offered for the best collection of 24 varieties of Apples and Pears, and a silver salver to the winner of the first prize in the class for a group of Chrysanthemums. The society's bronze medal is offered for the best dish of Apples shown by a cottager. A silver Rose bowl is offered for the best table decorated with flowers other than Chrysanthemums. Secretary, Mr. G. P. Miln, Grosvenor Museum, Chester.

MARKETS.

COVENT GARDEN, April 10.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—Eds.]

Cut Flowers, &c.: Average Wholesale Prices.

	s.d.	s.d.
Arums (Richardias)	2 6	3 0
Azalea, per dozen bunches	3 6	4 0
— mollis, p. bnch.	1 6	1 9
Camellias, per box of 18's and 24's	1 6	2 0
Carnations, p. doz. blooms, best American var.	1 6	1 9
— smaller, per doz. bunches	10 0	15 0
— Carola, crimson, extra large	2 6	3 0
Eucharis, per doz.	3 0	3 6
Freesia refracta alba, per dozen bunches	1 3	1 6
Gardenias, per box of 15 & 18 blms.	2 0	4 0
Iris (Spanish), per doz. bunches:		
— white, mauve, yellow and blue	12 0	18 0
Lilac, per bunch white	2 6	3 0
— mauve	3 0	3 6
Lilium auratum per bunch	4 0	5 0
— longiflorum, long, per doz.	3 6	4 0
— short, per doz.	3 0	3 6
— lancifolium alba, long	2 0	2 6
— — short	1 6	2 0
— speciosum rubrum, dz. blooms:		
— long	1 9	2 0
— short	0 9	1 0
Lily of the Valley, p. dz. bunches:		
— extra special	15 0	18 0
— special	10 0	12 0
— ordinary	8 0	—
Marguerite, per doz. bunches:		
— Yellow	2 0	2 6
Myosotis (Forget-me-not), p. dz. bunches	3 0	4 0
Narcissus, per doz. bunches:		
— Emperor	2 0	2 6
— Empress	1 6	2 0
— Orange Phœnix	1 3	1 6
— Poeticus	1 0	1 3
— Sir Watkin	1 6	2 0
Narcissus, per doz. bunches:		
— Victoria	2 0	2 6
— Barrii	1 0	1 3
Orchids, Cattleya, per doz.	12 0	—
— Odontoglossum crispum	3 0	4 0
Pelargoniums, p. dz. bunches:		
— Double Scarlet	8 0	12 0
Primroses, per doz. bunches	1 3	1 6
Roses, 12 blooms,		
— Bridesmaid,	1 6	2 0
— C. Mermet	1 6	2 0
— General Jacqueminot	1 0	1 6
— Liberty	2 0	4 0
— Madame A. Chateney	2 0	4 0
— Niphetos	1 6	2 6
— Richmond	2 0	3 6
— Sunrise	1 0	1 6
— President Carnot	2 0	3 0
— Lady Roberts	2 0	2 6
— Lady Hillingdon	2 0	2 6
— Franz Deegan	3 0	3 6
— Kaiserine	1 6	3 0
Spiræa (Astilbe) japonica, per. doz. bunches	6 0	7 0
Sweet Peas (white), pr. doz. bnchs.	2 0	2 6
Tulips, per bunch:		
— double pink	0 6	0 9
— — yellow	1 0	1 6
— — scarlet	1 3	1 6
— p. dz. bunches:		
— white	8 0	9 0
— yellow	6 0	7 0
— scarlet	6 0	8 0
— bronze	8 0	9 0
— pink	6 0	8 0
— Darwin, p. bch.:		
— pink	1 0	1 3
— mauve	1 3	1 6
— red	1 3	1 6
Violets, p. dz. bchs.	1 3	2 0
— Princess of Wales, per doz. bunches	3 0	4 0
— Parma	2 0	2 6
Wallflowers, per dozen bunches	2 0	2 6

Cut Foliage, &c.: Average Wholesale Prices.

	s.d.	s.d.
Adiantum Fern (Maidenhair), best, dz. bnchs.	7 0	8 0
Agrostis (Fairy Grass), per dz. bunches	2 0	4 0
Asparagus plumosus, long trails, pr. ½ doz.	1 6	2 0
— medium, doz. bunches	12 0	18 0
— Sprengeri	10 0	12 0
Carnation foliage, doz. bunches	4 0	—
Croton foliage, various, per dozen bunches	12 0	15 0
Cycas leaves, artificial, per doz.	3 0	12 0
Eulalia japonica, per bunch	1 0	1 6
Moss, per gross	6 0	—
Myrtle, dz. bchs. (English), small-leaved	6 0	—
— French	1 0	—
Smilax, per bunch of 6 trails	1 6	—

Plants in Pots, &c.: Average Wholesale Prices.

	s.d.	s.d.
Acacia lineata, 48's, per dozen	18 0	21 0
Aralia Sieboldii, p. dozen	6 0	7 0
Araucaria excelsa, per dozen	18 0	21 0
Asparagus plumosus nanus, p.dz.	10 0	12 0
— Sprengeri	8 0	9 0
Aspidistra, p. dz., green	21 0	30 0
— variegated	30 0	60 0
Azaleas, per doz.	36 0	42 0
Boronia Megastigma, 48's, p. dz.	21 0	24 0
Cinerarias, pr. dz.	8 0	9 0
Cocos Weddeliana, per dozen:		
— 60's	6 0	12 0
— larger, each	2 6	10 6
Croton, per dozen	18 0	30 0
Cyperus alternifolius, per doz.	5 0	6 0
— laxus, per doz.	4 0	5 0
Daffodils, per doz.	6 0	8 0
Dracæna, green, per dozen	10 0	12 0
Ericas, per dozen:		
— Willmorei, 48's	15 0	18 0
— persoluta	27 0	30 0
Ferns, in thumbs, per 100	8 0	12 0
Ferns, in small and large 60's	12 0	20 0
— in 48's, doz.	6 0	—
— choicer, sorts per doz.	8 0	12 0
— in 32's, per dozen	10 0	18 0
Ficus elastica, per dozen	9 0	12 0
Genistas, 48's, per doz,	10 0	12 0
Geonoma gracilis, 60's, per dozen	6 0	8 0
— larger, each	2 6	7 6
Hyacinths white & clrd., p. dz. pots	10 0	12 0
Hydrangeas, white, 48's, per dozen	18 0	21 0
Kentia Belmoreana, per dozen	5 0	42 0
— Fosteriana, 60's, per dozen	4 0	6 0
— larger, per doz.	18 0	60 0
Latania borbonica, per dozen	12 0	30 0
Lilium longiflorum, p. doz.	20 0	24 0
— lancifolium rubrum in pots, per dozen	15 0	18 0
— lancifolium alba	15 0	18 0

Plants in Pots, &c.: Average Wholesale Prices *(Contd.)*.

	s.d.	s.d.
Marguerites, white, per dozen	8 0	10 0
Mignonette, 48's, per dozen	6 0	8 0
Pandanus Veitchii, per dozen	36 0	48 0
Phœnix rupicola, each	2 6	21 0
Spiræa japonica, per dozen pots	10 0	12 0
— Pink	10 0	12 0

Fruit: Average Wholesale Prices.

	s.d.	s.d.
Apples, Nova Scotian, per barrel	17 0	22 0
— Californian Newtowns, pr. case	6 0	8 0
— (Canadian), per barrel	20 0	—
— Oregon (Hood River), per case	16 0	18 6
— American, per barrel	20 0	32 0
— Australian per case	7 6	20 0
Bananas, bunch:		
— Doubles	10 0	12 0
— No. 1	8 0	10 0
— Extra	10 0	12 0
— Giant	14 0	18 0
— Loose, per dz.	0 6	1 0
— Red coloured	5 6	6 6
— Jamaica Giants, per ton	£10	£12
— Jamaica Ordinary, per box (9 doz.)	4 0	5 0
Cranberries, per case (30 qts.)	10 0	11 0
— Cape Cod, per case (30 quarts)	9 6	—
Dates (Tunis) doz. boxes	4 6	5 6
Grape Fruit, case:		
— 96's		
— 80's		
— 64's	14 0	20 0
— 54's		
Grapes (Belgian), Gros Colman, per lb.	3 0	3 6
— Almeria, per barrel	11 6	15 0
Per dozen lbs.	4 0	6 0
— (Cape) per case	4 0	5 0
— ,, White	5 0	6 0
— ,, Red	5 0	7 0
Lemons:		
— (Naples), case	26 0	30 0
Lemons:		
— Messina, p. case	7 6	17 0
Limes, per case	4 0	—
Mangoes, per doz.	6 0	10 0
Melons (Cape)	0 10	1 6
Nuts, Almonds, per bag	52 6	—
Spanish, p. sack	40 0	42 0
— Barcelona, bag	35 6	36 6
Nuts, Chestnuts, per bag	3 6	19 0
— Cocoanuts, 100	18 0	23 0
— English Cobs per lb.	0 3	—
— Walnuts (Naples) kiln dried, cwt. cases	54 0	—
Oranges, Jamaica per case	9 0	10 0
— Californian	15 0	16 0
— Denia, case	16 0	34 0
— Valencia	10 0	12 0
— Jaffa, per case	9 6	—
— Blood, per case	8 0	9 0
— Mandarins, per box	0 6	3 6
— Bitter, per ½ chest	16 0	18 6
— Seville Sour ½ chest	15 0	18 0
Pears (Californian), per case	10 6	16 6
— Glou Morceau	11 6	12 6
— Easter Beurré	8 6	—
— Winter Nelis	12 6	13 6
— (American) per barrel, 180 lbs.	25 0	26 0
— cases	7 0	—
— (Cape)	4 0	5 0
Pineapples, St. Michael	2 6	5 0
Pines Cape), each	0 6	0 9
Plums (Cape), per case	10 0	12 0
— Apple, per box	8 0	10 0
Strawberries, p. lb.:		
— A quality	3 0	4 0
— B quality	2 0	2 6

Vegetables: Average Wholesale Prices.

	s.d.	s.d.
Artichokes (Globe), per dozen	3 0	4 0
— Jerusalem, per ½ bushel	1 0	1 3
Asparagus, Sprue.	0 10	1 0
— Lauris	2 6	3 6
— Paris Green	3 0	—
— (English), per bundle	2 0	3 0
Beans, Guernsey, Dwarf, per lb.	0 9	1 0
— French, per packet, lb.	0 10	1 0
Beetroot, p. bshl.:		
— Long	2 6	3 0
Broccoli, sprouting, per bag	3 6	4 0
Celeriac, per doz.	2 6	3 0
Cabbages (French) per dozen	2 6	3 0
— Cornish, p. dz.	2 0	3 0
Cauliflowers, p. dz.	3 0	4 0
— (Italian), p. pad	2 0	3 0
— (Cornish), per crate	12 0	16 0
Celery, doz. bndls.	6 0	10 0
— (washed), per dozen bundles	7 0	10 0
Carrots (English), pr. doz. bun.	2 6	3 0
— per cwt.	3 6	4 6
— (washed) p. bag	4 6	6 0
Chicory, per lb.	0 4	—
Cucumbers, p. doz.	6 0	—
Endive, per dozen	2 0	—
Greens (Spring), p. bag	6 0	7 0
Herbs (sweet), pkts., p. gross	7 0	—
Horseradish, 12 bundles	10 0	14 0
Leeks, per doz.	4 0	4 6
Lettuce (French), per doz.	0 9	1 3
Mint, per dozen bunches	2 0	3 6
Mushrooms, cultivated, p. lb.	0 8	0 10
Mustard and Cress, pr. dz. punnets	1 0	1 6
Marrows, each	2 0	3 0
Onions (Dutch) per bag	6 0	7 0
— English	7 0	7 6
— (Spanish), per case	9 0	10 0
— Egyptian	8 0	8 6
Parsley, ½ sieve	1 6	2 6
— per doz. bun.	3 0	4 0
Parsnips, per bag	5 0	5 6
Peas (French) per pad	5 0	6 0
— (Guernsey), lb.	1 0	2 0
Radishes (English), per dozen	0 9	1 0
Rhubarb, forced, per 12 bundles	0 3	0 6
— Outdoor, per dozen	1 9	2 0
Spinach, pr. bshl.	5 0	6 0
Seakale, p. punnet	0 8	0 10
Tomatos (Canary Islands), per bundle	12 0	16 0
Turnips (English), per dz. bunches	2 6	3 0
— bags (washed)	5 0	6 0
— (unwashed)	4 0	5 0
Turnip Tops, per bag	2 0	3 0
Watercress, p. dz. bunches	0 4	0 6

Remarks.—Grapes are now limited to supplies from Belgium, Almeria and the Cape. Green Figs are arriving from the Channel Islands. Australian Apples received last week per s.s. "Morea" consisted of 32,000 boxes of dessert varieties. Consignments of fruit from the Cape, per s.s. "Kenilworth Castle," amounted to 18,000 cases, the bulk consisting of Grapes. Imports of fruit and vegetables from the Canary Islands amounted to 13,000 packages of Tomatos, Bananas and Potatos. Tomatos are arriving from Guernsey and the home district. Hothouse Strawberries are much more plentiful and are meeting with a slow demand, which is usual during the Easter holiday season. Forced vegetables have been plentiful from all sources; specialities include Marrows and Peas. Outdoor Asparagus is commencing to arrive from the Cambridge and Worcester districts. Mushrooms have been a good supply. Outdoor vegetables of all kinds are scarce and realising high prices.

E. H. R., Covent Garden, April 10, 1912.

Potatos.

	per cwt. s.d. s.d.		per cwt. s.d. s.d.
Kents –		**Lincolns –**	
Queen's	4 0– 4 6	Maincrops ...	4 0– 4 6
Up-to-Date ...	4 0– 4 6	Blacklands ...	3 0– 3 3
Lincolns –		**Bedfords –**	
Up-to-Date ...	3 9– 4 6	Up-to-Date ...	3 9– 4 0
British Queen ...	3 9– 4 3	**Dunbars–**	
King Edward ...	4 0– 4 6	Up-to-Date ...	4 9– 5 3
Northern Star ..	2 9– 3 6	Maincrop ...	5 3– 5 6
Evergoods ...	3 0– 3 9		

New Potatos.

Teneriffe ... .. 10 0-13 6 | Algerian — ... 11 6-13 6

REMARKS.—Trade is about the same as last week. Consignments are still fairly large. *Edward J. Newborn, Covent Garden and St. Pancras, April 11, 1912.*

THE WEATHER.

THE FOLLOWING SUMMARY RECORD of the weather throughout the British Islands, for the week ending April 6, is furnished from the Meteorological Office:—

GENERAL OBSERVATIONS.

The *weather*.—Over the King lom generally the conditions were fair to fine, but in the north and north-west rain was again of frequent occurrence. Early in the week snow and sleet showers were experienced over a considerable portion of the Kingdom.

The *temperature* was above the average in all districts, the excess amounting to more than 3·5° in the east and north-east of Great Britain. The highest of the maxima were recorded on rather irregular dates, but mostly on the 5th or 6th April. The figure ranged from 69° in England E. to 57° in the English Channel and Scotland W., and to 54° in Scotland N. The lowest of the minima, which occurred early in the week, mostly on the 1st or 2nd, ranged from 27° in Scotland E. and England S.W. to 31° in Scotland W., and to 39° in the English Channel. The lowest grass readings reported were 19° at Worksop, 20° at Marlborough, Llangammarch Wells, Burnley, and Newton Rigg, and 21° at Hampstead, Kew, and Wisley. Both at 1 foot and 4 feet below the surface the temperature of the earth was again above the normal, but the excess was less marked than in previous weeks.

The *mean temperature of the sea*.—The water was warmer than during the corresponding week of last year, and its temperature was above the average at all stations except Sheephaven. The mean values ranged from 52° at Scilly to between 41° and 44° on the north-east coast of Britain.

The *rainfall* was less than the average in England and Ireland, but just equal to it in Scotland E. and above it in Scotland N. and W. At Glencarron as much as 5·76 inches fell in three days—1·18 inch on the 3rd, 2·68 inches on the 4th, and 1·90 inch on the 5th. At Rothesay on the 4th the fall equalled 1·12 inch, and at Kilmarnock 1·61 inch.

The *bright sunshine* did not, as a whole, differ much from the average, but in Ireland, England S.W., and the English Channel there was a large deficiency. The daily mean was nearly six hours in England S.E. and E., and the percentage of the possible duration in those districts was 46 and 45 respectively. Elsewhere the figure was much lower, falling to below 30 per cent of the possible in Ireland, England S.W., and Scotland N.

THE WEATHER IN WEST HERTS.

Week ending April 10.

The ninth unseasonably warm week in succession. — The first five days of the past week were warm, and some of them very warm for the time of year; but the last two days have been cold, and on one night the exposed thermometer showed 4° of frost. On the warmest day the temperature in the thermometer screen rose to 67°, which is 14° warmer than is seasonable, and the highest shade temperature as yet recorded this year. The ground is now 2° warmer at 2 feet deep, but only at an average temperature at 1 foot deep. Rain fell on but one day, and to the depth of less than one-tenth of an inch. There were a few flakes of snow and a little soft hail on the 9th inst. There has been no percolation at all through either of the soil gauges the last few days. The sun shone on an average for 6¼ hours a day, or for 1½ hours a day longer than is usual at the same period in April. On three days the sun was shining brightly for 10 or more hours a day. The winds have been, as a rule, high, and in the windiest hour the mean velocity reached 23 miles—direction W.N.W. This is the highest wind recorded here since February, 1911, or for 14 months. The mean amount of moisture in the air at 3 p.m. exceeded a seasonable quantity for that hour by 1 per cent. A wild Cherry tree growing in my garden came first into flower on the 3rd inst., or 15 days earlier than its average date in the previous 26 years, and also 15 days earlier than last year. *E. M., Berkhamsted, April 10, 1912.*

CATALOGUES RECEIVED.

H. J. JONES, Ryecroft, Hither Green, Lewisham—Asters, Begonias, Chrysanthemums, Dahlias, and Fuchsias: also Vegetable and Flower Seeds.

CLIBRANS, Hale, Altrincham—Indoor Plants and pot Roses.

FOREIGN.

JULES CHANTRIER, Mortefontaine (Oise), France—Indoor Plants.

FRANÇOIS GERBEAUX, Rue de Médreville, Nancy, France—Hardy Perennial and Greenhouse Plants.

HENRY F. MICHELL COMPANY, 518, Market Street, Philadelphia—Cannas, Dahlias, and Gladioli.

ANSWERS TO CORRESPONDENTS.

APPLE TREES DISEASED: *E. C.* The fungus causing Apple Scab is responsible for the trouble. Spray the trees with the Bordeaux mixture and cut out the decayed branches.

BEAN LEAVES UNHEALTHY: *V. B.* No disease is present in the plants: the injury is due to some wrong cultural treatment.

BEECH TREES WITH WHITISH BARK: *T. L.* The Beech trees are attacked by Cryptococcus fagi. Scrub the trunk with a solution of soft soap and paraffin, adding half a pint of paraffin to each gallon of the mixture, which should be kept stirred thoroughly.

FIGS DISEASED: *T. L.* The Figs are attacked by Botrytis cinerea, which is favoured by too damp an atmosphere.

FORCING STRAWBERRIES: *E. S. R.* To have Strawberries ripe in February you will require four rows of 4-inch piping in your forcing house, two rows on either side of the pathway close up to the side walls, one on top of the other, at a distance of about 18 inches above the floor line. The house being a narrow one, this arrangement of the pipes will not interfere with the free use of the ground space and it will allow of a proper circulation of the heat. It is not necessary to start pot Strawberry plants in bottom heat, but should a cold pit and a supply of slightly fermenting tree-leaves be available you may place the latter to a depth of 18 or 24 inches in the pit and partly plunge the pot Strawberry plants therein early in October. The gentle heat imparted by the fermenting leaves will promote root action in the plants before the first batch is removed to the forcing house early in November. By the end of September Strawberry plants layered in July should be well established in 6-inch pots with large, single, well-ripened crowns. Success or failure in fruiting Strawberries in pots depend in a great measure upon the condition of the plants when introduced into the forcing house. We have no knowledge of the Solar sectional boiler you mention, and therefore are unable to give you the name of the maker of same. Sectional boilers capable of heating from 200 up to 1,800 lineal feet of 4-inch piping are made by several firms.

GIANT ARUM: *E. D.* There are several distinct varieties in cultivation of the Arum Lily (Richardia africana). A somewhat small-flowered form, but with a dwarf and compact habit, is the American variety Childsii. Small-flowered, dwarf varieties have also been distributed by Mr. W. J. Godfrey, The Nurseries, Exmouth.

INSECTS FOR IDENTIFICATION: *M. B. Greenwood.* The names of your insects are as follow:—1, staphylinid larva; 2, the larva of a lepidopterous insect; 3, carabid larva; 4, Carabus violaceous; 5, Julus terrestris; 6, the larva or caterpillar of the common swift moth Hepialus lupulinus, and not of a carnivorous ground beetle.

LEAVES FOR EXAMINATION: *R. E. W.* No disease is present in the leaves of Tomato, Bean, Strawberry and Peach. The injury is due to unfavourable conditions of growth.

MUSHROOMS DISEASED: *Mushrooms.* The trouble is due to the presence of a mite which was probably introduced with the manure. When making a fresh bed remove the old materials and mix a little powdered sulphur with the surface layer of soil.

NAMES OF FRUITS: *W. Chipp.* Brabant Bellefleur.—*T. R. Staddon.* Keeping Red-Streak.

NAMES OF PLANTS: *E. J. W.* 1, Cœlogyne flaccida; 2, Cypripedium Moussetianum (callosum × superbiens); 3, Helxine Solierolii.—*Orchid.* 1, Oncidium flexuosum; 2, O. oblongatum; 3, Cœlia triptera; 4, Lælia albida; 5, Ada aurantiaca; 6, Brassia verrucosa.—*F. F.* 1, Pteris longifolia; 2, Adiantum hispidulum; 3, Pteris cretica; 4, P. tremula; 5, Blechnum corcovadense; 6, Adiantum cuneatum.—*F. W. T.* Oncidium Cavendishianum.—*F. T.* 1, 2 and 3, varieties of Aubrietia deltoidea; 4, Cupressus macrocarpa; 5, C. pisifera var. squarrosa; 6, Cryptomeria japonica var elegans; 7, Cupressus Lawsoniana; 8, Quercus species; 9, Sequoia sempervirens.—*J. Lisney.*—1, Cytisus fragrans var. elegans; 2, Nuttallia cerasiformis (male form); 3, Xanthorrhiza apiifolia.—*C. E. L., Oxton.* Milla (Triteleia) uniflora.—*V. S.* 1, Oncidium triquetrum; 2, Trichopilia laxa; 3, Oncidium altissimum; 4, Maxillaria tenuifolia; 5, Oncidium pubes; 6, O. barbatum.—*F. P. H.* 1, Dendrobium nobile; 2, D. n. Cooksonii; 3, D. rubens (Ainsworthii × nobile); 4, D. chrysotoxum; 5 and 6, varieties of D. Ainsworthii (aureum × nobile); 7, D. aureum (heterocarpum).

NARCISSI UNHEALTHY: *A. D. S.* There is no fungus disease present. The injury is caused by unfavourable weather conditions. Lime has proved beneficial in similar cases.

PEACH SHOOT DYING: *T. P. A.* There is no disease present in the Peach shoot. The trouble is due to some check to growth.

PEACH SHOOTS AFFECTED: *H. F. G.* The foliage is affected with leaf-curl. Your best plan is to remove all the injured shoots, and spray the trees with a solution of 1 ounce of liver of sulphur in three gallons of water.

PEACH TREE: *P. B.* There is no poison found in the bands which are too broad, and, being tied tightly, may have killed the shoots by preventing the bark from performing its functions.

PRIMULA OBCONICA: *F. W.* Your plants are attacked at the ground level by Botrytis cinerea. The old soil should be removed and replaced by fresh material, adding sprinklings of quicklime and powdered sulphur.

SEED POTATOS REQUIRED FOR PLANTING SEVEN-EIGHTHS OF AN ACRE: *Horsley.* The area of the ground is, roughly, 140 rods, and if you plant in rows at 2 feet apart, each rod will accommodate eight rows. If you use sets of an average weight of 3 ounces each, and plant in rows at 13 inches apart, you will require 24 lbs. of seed Potatos per square rod, planting 15 sets in a row. It would be wise to allow 28 lbs. per rod (half-a-bushel). Tubers weighing 6 ounces or 7 ounces should be cut lengthwise in halves the day before planting, dusting the cut surfaces with slacked lime to dry them. Allowing half-a-bushel of seed tubers per rod area, you would require 70 bushels of Potatos or about 1¾ ton. If you plant a strong-growing variety, you may use 10 bushels of seed tubers less. A distance of 2 feet apart is too close between the rows, and, whilst leading to a waste of seed tubers, does not produce so good a crop as when 2½ feet is allowed. With respect to wireworm, dress the ground at once with a quarter of a ton of fresh soot. Then if you plant in furrows, strew Vaporite or Apterite along the furrows after planting, and just before covering the tubers with soil. Wireworm is a serious pest to such a crop as Potatos. Failing Vaporite or Apterite, give a second heavy dressing of soot along the rows before the tubers are covered with the soil.

SWEET PEAS: *H. S.* There is no disease present in your plants. The trouble is due to some cultural error.

TREE PÆONIES DISEASED: *E. H. B.* Your Pæonies are suffering from "drooping" disease. In future remove the surface soil in the winter, and replace this by soil mixed with equal quantities of powdered lime and sulphur. You can do nothing this year to save the growth.

WORM: *A. J. J. G.* The worm you send is one of the land Planarians belonging to the genus Bipalium, and very probably the species described as B. kewense. It is an exotic worm, and has undoubtedly been imported into this country with plants or soil. This and allied species have hitherto been found in England and other parts of Europe. The creature has not been recorded as injurious, and although it has been found in hot-houses, does not, so far as is known, breed in such situations. Your find is an interesting one, and we shall be grateful for additional specimens if you can secure them.

Communications Received.—F. J.—H. B.—L. C.—K.—Fareman—C. T.—D and W. C.—T B., Sutton—F. W. P.—W. E.—C. L.—T. W. B—W. P.—L. L. S.—A. G. H. H.—Rev. A. H. S., Canada—H. C. L.—G. M. T.—F. B.—W. K.—W. E. B.—W. H. W.—G. H.—W. W.—Primula—A. C. C.—A. H. P.—J. G.—W. G. K., Cambridge—F. K.—J. F. W. H.—C. H. P.—T. H.—R. M. K.—W. T.

MORAINE CONSTRUCTION.

THE GARDENERS' CHRONICLE

ESTABLISHED 1841

No. 3721

No. 1,321.—VOL. LI. {THIRD SERIES.} SATURDAY, APRIL 20, 1912. {Registered as a Newspaper.} {PRICE 3d. POST-FREE, 3½d.

SUBSCRIPTION—Inland, 15/-; Foreign, 17/6 [22fr. 10c.] [$4 26c.] per annum. Entered at the New York Post Office as second-class matter.

Postal Address—41, Wellington Street, Covent Garden, W.C. Telegraphic Address—"Gardchron, London." Telephone—Gerrard, 1543.

☞ For CONTENTS see page 251.

For Advertisement Charges see page viii.

Perfect Lawns.

WEBBS' PRIZE LAWN GRASS SEEDS
Mixtures for Tennis, Croquet, and Garden Lawns, Bowling Greens, etc., 1s. 9d. per lb.; 5s. per gallon; 35s. per bushel. No. 2 Mixture, 1s. 6d. per lb.; 4s. 6d. per gallon; 30s. per bushel. Carriage paid. Pamphlet on "Making and Renovating Lawns," post free.

WEBBS' LAWN GRASS MANURE.
Specially prepared, 28 lbs., 6s.; 56 lbs., 10s. 6d.; 112 lbs., 20s. Carriage paid. Lawn Sand (for eradicating weeds), 14 lbs., 4s. 6d.; 28 lbs., 8s. Carriage paid.—WEBB & SONS, The King's Seedsmen, Wordsley, Stourbridge.

DOUGLAS'S CARNATIONS & PINKS, border and perpetual, are noted all over the world. 5 Gold Medals, R.H.S., 450 Medals and Cups. Newest and best varieties at most reasonable prices, all ready for planting or potting on. Finest hand fertilized seed only sold. Carnation and Picotee seed, all types, 1s. 6d. to 2s. 6d. packet. Auricula, Pink, Polyanthus, finest strain in existence, all 1911 fine crop, now ready for sowing. Send for catalogue, Edenside, Gt. Bookham.

GARDEN PESTS.—Cross's "Clubicide" is the Gardeners' Insurance against damage by Eelworm, Wireworm, Slugs, Maggot, and all Disease Germs and Insect Pests. Kills all harmful Bacteria, reinvigorates the soil, stimulates plant life. In 1s. flasks and ½-gall. and 1 gall. drums. From all Seedsmen.
Sole Manufrs.: A. CROSS & SONS, Ltd., Glasgow.

WM. DUNCAN TUCKER & SONS, Ltd., 27, Cannon Street, London, E.C.; Works, Tottenham. Conservatories, Winter Gardens, Vineries, Peach-houses, Portable Buildings, etc. Catalogue gratis.

Roses and Herbaceous Plants.

GUNN & SONS were awarded the 25 Guinea Challenge Cup in each collection at the Leamington Show. Up-to-date List for each now ready. Address: Olton, Warwickshire.

ORDER TRELLIS-WORK NOW.—Get our book on Trellis-work, showing Screens, Wall Panels, Window Surrounds, Arches, Arbours, &c., post free.
BOULTON & PAUL, Ltd., Norwich.

FRUITING VINES IN POTS.—Muscat of Alexandria, and leading Market varieties. We make Vines a speciality.
G. COLEMAN, The Vineries, Burgess Hill, Sussex.

ALPINES & HERBACEOUS PLANTS, —Himalayan and other rare Rhododendrons, rare Shrubs, Construction of Rockeries. Catalogues ready.
G. REUTHE, Keston, Kent.

BUNYARD'S CATALOGUES, free on application.
BORDER CARNATIONS, 50 varieties.
ROSES AND OTHER CLIMBERS, in Pots.
HERBACEOUS AND AQUATIC PLANTS for present planting.

GEORGE BUNYARD & CO., LTD., Royal Nurseries, Maidstone. Established 1796.

DICKSONS Horticultural Manure & other high-class Fertilizers; also Dicksons Improved Mushroom Spawn. Priced Circulars free on application to DICKSONS, Royal Seed Warehouses & Nurseries, Chester

HARRISON'S "RELIABLE" WEED KILLER.—Best and cheapest. See p. iii. this issue.

Sow Now.

SUTTON'S CHARMING ANNUALS.
Beautiful colours; easily grown.
SUTTON'S ROSY QUEEN ESCHSCHOLTZIA, per packet, 6d., post free.
SUTTON'S GIANT MIGNONETTE, per packet, 1s., post free.
SUTTON'S STOCK-FLOWERED ROSY SCARLET LARKSPUR, per packet, 1s., post free.
SUTTON'S DOUBLE SALMON CLARKIA, per packet, 6d., post free.

SUTTON & SONS, The King's Seedsmen, READING.

THE Popularity of "XL ALL" Specialities increases every year. All gardeners proclaim that nothing equals these celebrated preparations. "XL ALL" NICOTINE VAPORISING COMPOUND, the gardeners' favourite Fumigant, both Liquid and Cake. "XL ALL" NICOTINE INSECTICIDE WASH for Syringing, Dipping and Dressing Fruit Trees and Plants; Mealy Bug, Scale, etc., cannot exist where this is used. "XL ALL" INSECTICIDE WASH B (*sine* Nicotine), best non-poisonous Wash on the Market. No licence required to sell this. Other preparations of great renown are:—"XL ALL" WEED KILLER, "XL ALL" FERTILISER, "XL ALL" ROSE MANURE. Richards' GREEN SUNSHADE, finest powder shading on the market, 1s. packet, does 100 feet of glass. Don't forget to ask your Nurseryman or Seedsman for my small pink list.—G. H. RICHARDS, Manufacturer, 234, Borough High Street, London, S.E.

LISSADELL ALPINE & HERBACEOUS PLANTS.—Write for our new illustrated and enlarged List, containing many beautiful novelties at moderate prices. Also List of Seeds collected from above in 1911.
J. A. COOPER, Lissadell (No. 2), Sligo, Ireland.

AUTO SHREDS FUMIGANT kills Leaf-mining maggot, insects in greenhouses, frames. For 1,000 cubic feet, 6d.; 10,000, 3s. 6d. No apparatus.
WM. DARLINGTON & SONS, Patentees, Hackney, N.E.

HUTS FOR THE GARDEN.—Fruit Rooms, Potting Sheds, Workshops, Cycle Houses, Boot Rooms, Servants' Mess Rooms, Children's Playrooms, &c. Send for Illustrated Catalogue, free.
BOULTON & PAUL, Ltd., Norwich.

GISHURST COMPOUND is harmless in use; its soluble Sulphur, &c., has for 40 years cured Blights and Fungus on Plants, and is good for washing unhealthy dogs. Gishurstine keeps boots dry in all weathers; they will polish. Good for Harness.
Wholesale from—
PRICE'S PATENT CANDLE CO. LTD., London.

THE BEST OF ALPINES, and new and old-fashioned Perennials, Rock Gardens, Borders, Water Gardens, and Wild Gardens designed and planted. Illustrated Catalogue (free).—THE GUILDFORD HARDY PLANT NURSERY, Guildford.

BARR'S VEGETABLE AND FLOWER SEEDS of FINEST SELECTED STRAINS and TESTED GROWTH. Descriptive Catalogue free.

BARR'S HARDY PERENNIALS, ALPINES, AQUATICS, CLIMBERS, ETC., for Spring planting. Descriptive Catalogue, post free.
BARR & SONS, 11, 12 & 13, King St., Covent Garden, London.

GREENHOUSE PAINTING & GLAZING "Vitrolite" superior to White Lead Paint, 9/- per gall. "Plastine" supersedes Putty, 16/- per cwt. Full particulars from W. CARSON & SONS, Grove Works, Battersea. Agents throughout the country.

KELWAY'S "Manual of Horticulture" is the best of all Garden Books, 2s., post free. From ——, Esq., Northwood, Middlesex, September 28th, 1911: "I find that I have never forwarded 2s. for your lovely Catalogue you sent me some weeks since. It would be cheap at five times the price, and I sincerely regret the oversight."—KELWAY & SON, Langport, Somerset.

THE MODERN HERBACEOUS BORDER.—Full particulars and prices of Kelway Borders packed, arranged for planting, to flower in tasteful schemes of colour, from—KELWAY & SON, The Royal Horticulturists, Langport, Somerset. From ——, Gorton, near Manchester, "The goods which you despatched on Thursday arrived here safely on Saturday. After reading the numerous letters of thanks and congratulation which you have received from all quarters and classes, it almost seems like presumption on my part to attempt to say anything further, and yet I feel so grateful to you for your kind attention to my small order, and the courteous treatment which I have received from you, that I felt it requisite that I should express it in some way. The extreme care which has been taken in packing, labelling, etc., and the kind help afforded me in the arrangement of my small garden, deserve and receive my warmest thanks. If there should be any way in which I can show it, either by recommendation or personal orders, you may be assured that I will do so."

NOW is the time to plant Kelway's Delphiniums—fine, bold upstanding plants with a wealth of bloom in all shades of blue and purple. They are from strong country-grown stocks, and flourish under almost all conditions. From ——, Esq., ——, Bolton Percy: "I wish to say how pleased I am with the Delphiniums I got off you two years ago. They are really splendid. I have never seen anything to touch them." Choice named collections 15s., 24s., 34s., 56s. a dozen.—KELWAY & SON, The Royal Horticulturists, Langport, Somerset.

OSMUNDA for Orchids.—Consignments arrive fortnightly. 2s. 6d. per bushel; per bag, 8s. 6d.
SANDER & SONS, St. Albans.

New Phloxes.

GUNN & SONS were Awarded a Silver Cup at the Great Show at Olympia. New Lists now ready. Address: Olton, Warwickshire.

WALTERS & CO., Morland Rd., Croydon, Makers of Lath Roller Greenhouse Blinds; also Pinoleum, Scrims and Tiffany Blinds. Prices and samples free. Established 20 years.

LANDSCAPE GARDENING.—W. INNES STUCKEY, Landscape Gardener, Piccadilly Mansions, Piccadilly Circus, W. (With the late Mr. H. E. Milner).

CUTHBERT'S SPECIALITE MUSHROOM SPAWN.—NEW SPAWN NOW READY. We continue to receive the most gratifying testimonials as to the productiveness and good quality of our Spawn. Per bushel, 5s.—R. AND G. CUTHBERT, Seed and Bulb Merchants, Southgate, Middlesex.

VERBENAS.—The best sorts are Miss Willmott (pink), Princess of Wales (deep blue), Queen of Whites, King of Scarlets, and Lovely Blue (light blue); clean, healthy, strong young plants; carriage paid; 10s. per 100, cash.—H. DUDDERIDGE, The Dorset Nurseries, Blandford.

PERPETUAL FLOWERING CARNATIONS; strong, established plants in pots, from 4s. per doz., carriage paid; 20s. per 100, carriage forward; illustrated catalogue, describing 75 leading varieties with cultural hints, post free.—C. F. A. VAN DER SLUYS, F.R.H.S., Ramee, Guernsey.

SALES BY AUCTION.

Wednesday next, April 24th, at 12 o'Clock.

Choice Herbaceous and Border Plants, new and rare Perennials, Japanese Liliums, Gladiolus, Begonias, Gloxinias, Lily of Valley, Iris, Carnations, Pinks, &c., Liliums Nepalense and Sulphureum.

At 5 o'Clock.—100 lots of Ornamental and Decorative Palms and Plants, Rhododendrons, Dracænas, Standard Bays, &c., from Belgium, Stove and Greenhouse Plants, a consignment of Brunsvigias, Vallottas, Watsonias, Richardias, Nerines, and other Bulbs from the Cape.

MESSRS. PROTHEROE & MORRIS will SELL the above by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, E.C. On view morning of Sale and Catalogues had.

Friday next, April 26th, at 12.45 o'Clock.

By order of Messrs. Sander & Sons, St. Albans.

An importation of CATTLEYA LABIATA, the finest type, in splendid condition, including many large masses, also a fine lot of imported CATTLEYA DOWIANA.

From various sources:—100 lots of Cattleyas, Lælias, Brasso-Cattleyas, Brasso-Lælias, including C. HARRISONIÆ ALBA, C. GASKELLIANA ALBA, C. MISS WILLMOTT, C. CONSPICUA, L.-C. GLORIOSA, L.-C. CANHAMIANA ALBA, L.-C. BELLA, BRASSO-CATTLEYA DANTE, &c., all in excellent condition, together with three plants of CATTLEYA MENDELII, Clae's variety, in flower, exhibited at R.H.S. meeting, April 16, 1912. Imported plants of Odontoglossum grande, Oncidiums leucochilum, splendidum, oblongatum, and Cavendishianum, Lycaste Skinneri, Lælia anceps, Cymbidium insigne, and Cœlogyne Mooreana, together with 150 lots of choice established Orchids. Orchids in flower and bud.

MESSRS. PROTHEROE & MORRIS will SELL the above by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, E.C. On view morning of Sale and Catalogues had.

THE WHOLE OF THE COLLECTION OF ORCHIDS
formed by H. J. Adams, Esq., deceased, of Roseneath, London Road, Enfield.

MESSRS. PROTHEROE & MORRIS will SELL the above by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on THURSDAY and FRIDAY, MAY 2nd and 3rd, at one o'Clock. On view mornings of Sale and Catalogues had.

Royal International Horticultural Exhibition, May, 1912.

Messrs. PROTHEROE & MORRIS beg to announce that they have arranged to hold a series of important Auction Sales of

RARE ORCHIDS

from many of the best known and finest collections in Great Britain and on the Continent, as well as from noted growers, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., during the period covered by the show as follows:—

Tuesday,	May 21st	Tuesday,	May 28th
Thursday,	„ 23rd	Wednesday,	„ 29th
Friday,	„ 24th	Thursday,	„ 30th

Friday, May 31st.

MESSRS. PROTHEROE & MORRIS will be pleased to forward Catalogues of these Sales as soon as published to any applicants. Central Sale Rooms, 67 and 68, Cheapside, E.C.

PROPERTY FOR SALE.

FREEHOLD, best part of Kent, nearly an acre Orchard, with seven-roomed Brick House, &c.; in going order; possession at once; cheap.—Write, W. G., care of J. W. Vickers & Co., Ltd., 5, Nicholas Lane, E.C.

BUSINESSES FOR SALE, &c.

COMPACT NURSERY in good district for Sale as going concern; nine greenhouses and useful buildings; capital opportunity for all-round man to do sound local business; price for everything £350.—Full particulars of Messrs. PROTHEROE & MORRIS, 67, Cheapside, E.C.

GREENGROCER'S and FLORIST'S.—Exceptional opening in this block of shops; rent from £70. Boots', Sainsbury and Express Dairy Co. already open in this established market; population 150,000; immediate possession.—OWNER, 3, Walm Lane, Willesden Green, London, N.W.

A LEASEHOLD NURSERY for SALE, under exceptional circumstances, within 20 miles of London; 3½ acres of land planted with good Apples and Pears; 1,275 feet of modern well-built houses (heated), with about 175 feet heated brick pits; well stocked; any reasonable offer accepted.—Particulars, apply to C. BIRTS, Esq., 5, Salter's Hall Court, Cannon Street, London, E.C.

FOR DISPOSAL, NURSERY in main thoroughfare; large town; five greenhouses; large shop; eight-roomed house; long lease; suit good gardener with sons and daughters; same hands over 20 years.—Particulars, A. T., Box 12, 41, Wellington Street, Covent Garden, W.C.

FOR SALE.—REDLANDS NURSERY, Emsworth, Hants. SPLENDID OPPORTUNITY in Sunny Hampshire. I am now offering my Nursery at Emsworth, where for twelve years I have carried on an ever-increasing trade. I have divided the same in suitable lots for small buyers. Growers will find this an opportunity such as one rarely meets. Every facility will be given to beginners. They can have my assistance free for the season. Including one plot of houses, planted with tomatos, which always do well here; very little capital will be required to work this range. First comer can have my House to live in. Also Propagating Houses for growing Ferns, which are exceptionally well adapted; now stocked with the famous "Glory" Ferns. But stock need not be taken over; I can sell that readily myself.—A. A. FABIUS, Redlands Nursery, Emsworth.

WILLIAM AUBREY & CO., Nurserymen's Agents, 10, Duke Street, Charing Cross, London, offer splendid GROWERS' NURSERY, within 15 miles of Covent Garden, consisting of 10 acres, good Dwelling House, and 14 large Glasshouses, all fully stocked. Price complete, £1,400.

AUBREY & CO. also offer CARNATION NURSERY, Hants, consisting of 17½ acres, Dwelling House, and 11 Glasshouses, all stocked with choice varieties, many prize-winners. Price £3,000.

BUSINESSES TO LET.

TO MARKET GARDENERS, FRUIT GROWERS and OTHERS.—TO BE LET, from September 1st, large Kitchen Garden, eight acres, 1½ miles from main line station, on G.N.R., six miles from important Midland Market Town of Grantham. The garden comprises five acres walled garden, including 700 feet glasshouses, well stocked with vines, peaches, etc.; three acres apple orchard; Gardener's house; two cottages, bothy for single men; ample water supply; all necessary appointments for the management of a large garden on the most economical lines; an exceptionally low rent would be taken from a desirable tenant.—For futher particulars apply (C. S. ORWIN), Panton Estate Office, Wragby, Lincolnshire

NURSERY to LET; splendid position; five minutes from rail and trams; 350 ft. glass, 1½ acres fruit; good house, rent £40.—Further particulars from MILES, Royal Hotel, Sheerness.

BUSINESS CARDS.

PROTHEROE AND MORRIS, HORTICULTURAL, MARKET GARDEN, and ESTATE AUCTIONEERS and VALUERS, 67 and 68, Cheapside, London, E.C., and at Leytonstone, E. Monthly Horticultural Register had on application.

NOTICES.

THE RHODODENDRONS planted in Rotten Row, Hyde Park, are supplied by ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey. Kindly note Christian name and address.

PUBLISHERS' NOTICES.

Present-Day Gardening.

Edited by R. HOOPER PEARSON, Managing Editor of the GARDENERS' CHRONICLE. Now Ready. Post free, **1/9** each.

Numerous Beautifully Coloured Plates are contained in Each Volume.

1.—**SWEET PEAS.** By HORACE J. WRIGHT, late Secretary and Chairman of the National Sweet Pea Society. With Chapter on "Sweet Peas for Exhibition," by THOS. STEVENSON.

2.—**PANSIES, VIOLAS, AND VIOLETS.** By WILLIAM CUTHBERTSON, J.P., and R. HOOPER PEARSON.

3.—**DAFFODILS.** By the Rev. J. JACOB.

4.—**ORCHIDS.** By JAMES O'BRIEN, V.M.H., Secretary of the Orchid Committee of the Royal Horticultural Society.

5.—**ROOT & STEM VEGETABLES.** By ALEXANDER DEAN, V.M.H., Chairman of the National Vegetable Society.

6.—**CARNATIONS & PINKS.** By T. H. COOK, Head Gardener at Sandringham; JAMES DOUGLAS, V.M.H., and J. F. MCLEOD, Head Gardener to Mr. Pierpont Morgan. Contains 8 full-page coloured plates.

7.—**RHODODENDRONS & AZALEAS.** By W. WATSON, with preface by Sir F. W. MOORE, M.A. (the first popular volume published on this subject). Contains 8 full-page coloured plates.

8.—**LILIES.** By A. GROVE, F.L.S., with preface by H. J. ELWES, F.R.S. Contains 8 coloured plates.

9.—**APPLES & PEARS.** By GEORGE BUNYARD, V.M.H. Contains 8 coloured plates.

10.—**ROSES.** By H. R. DARLINGTON, with 8 full-page coloured plates. A double volume, price **2/10**, post free. Special presentation edition, with beautiful cover design, in cloth gilt, gilt top, price **3/10**, post free.

11.—**IRISES.** By W. R. DYKES, M.A., with preface by PROF. BAYLEY BALFOUR. 8 full-page coloured plates.

12.—**ANNUALS, HARDY AND HALF-HARDY.** By C. H. CURTIS, with 8 coloured plates. **1/9.**

THE PUBLISHER,

"Gardeners' Chronicle" Offices, 41, Wellington St., Covent Garden, London, W.C.

EXHIBITIONS.

ROYAL SHOW

DONCASTER,

July 2nd to 6th, 1912.

73RD ANNUAL EXHIBITION of HORSES, CATTLE, SHEEP, PIGS, POULTRY AND FARM PRODUCE; JUMPING, SHEEP DOG TRIALS, HORSE-SHOEING AND BUTTER-MAKING COMPETITIONS, AGRICULTURAL EDUCATION, FORESTRY AND HORTICULTURE.

HORTICULTURE,

ENTRIES CLOSE ... ... MAY 31st.

LIVE STOCK entries close May 20th.

Prize-sheets and Entry Forms will be forwarded on application to

THOMAS McROW, Secretary,

Royal Agricultural Society of England, 16, Bedford Square, London, W.C.

PLANTS, &c., WANTED.

WANTED, large KENTIA PALMS, from 5 feet to 25 feet in height; large, well-coloured Dracænas and Crotons, also Aspidistras; for cash or exchange.—ROBERT GREEN (1911), LTD., 28, Crawford Street, London, W.

PLANTS, &c., FOR SALE.

PERPETUAL CARNATIONS.—Our 1912 Illustrated Catalogue free. Read our "Cultural Treatise," 1s.—YOUNG & CO., Carnation Specialists, Hatherley, Cheltenham.

FERNS! FERNS!!—Tree, Climbing, Basket, Stove, Greenhouse, and Garden Ferns; catalogues free.—SMITH, London Fern Nurseries, Loughboro' Junction, London, S.W.

CUT FLOWERS AND FOLIAGE.—A. W. REDFORD, Wholesale Bulb Grower, Stevenage, offers choice Daffodils, Narcissus, and Tulips in variety daily; boxes free; price lists forwarded on application.

TINY SEEDLINGS, for immediate pricking; Storrie's invincible strains as under.

CYCLAMEN, for winter and spring blooming; strong from boxes, 100 10s.; from 2-inch pots, 3s. doz.

AURICULA (Border), to bloom next spring; choice mixed, 3s. 6d.; super extra mixed, 5s. 6d. per 100.

POLYANTHUS, to bloom next spring; choice mixed, 4s. 6d.; super extra mixed, 5s. 6d. per 100.

EXCELSIOR ICELAND POPPIES, in superb art shades; bloom this summer; tiny seedlings, 3s.; advanced plants, 12s. 6d. per 100.

HOLLYHOCKS, Carnations, Pentstemons, Pansies, &c., Primula obconica, Gloxinia, &c. Write for catalogue.—STORRIE & STORRIE, Glencarse, Perthshire.

GERBERAS.—Adnet's Hybrids, all colours; seed 6d., 1s.; plants 10s., 15s. doz.; choice Flower and Vegetable Seeds, all at reasonable prices. I give value in Seeds, not in elaborate catalogue or large adverts.—ELLISON, 45, West Bromwich.

JAPANESE IRIS.—Imported clumps, 24 different choice varieties (named), 15s.; LILIUM AURATUMS, 9 to 10 in., 4s. 6d. doz.; TUBEROSES, 1s. 6d., 2s. doz.; BEGONIAS, choice LILIUMS, GERMAN IRIS, MONTBRETIAS, GLOXINIAS, &c.—ELLISON, 45, West Bromwich.

PAUL CRAMPEL, KING EDWARD, JACOBY, WEST BRIGHTON'S, autumn potted, from large 60's, good stuff, 16s. 100; rooted cuttings half price; also Hydrangea Hortensis, large pots, 30 to 50 flower-buds, 5s. to 10s. each.—HENRY HUXTABLE, Caxton House, Tunbridge Wells.

GARDEN FERNS, 20s. 100.—Cyclamen, Genistas, Acacias, Ericas, Palms, Begonias, Crotons, Dracænas; catalogues free.—SMITH, London Fern Nurseries, Loughboro' Junction, London, S.W.

THE
Gardeners' Chronicle

No. 1,321.—SATURDAY, April 20, 1912.

CONTENTS.

Agriculture, scholarships in	262	Myrica gale, root nodules on	262
American Gooseberry-mildew	262	New invention—A new flower pot	265
Arches, garden	255	Nova Scotia, government help for settlers in	263
Birds and fruit buds	265	Nursery notes—Sander & Sons	254
Books, notices of	251, 263	Obituary—Blacklock, James	269
Bulgaria, botanising in	252	Lawlor, Michael H.	269
Carbon-assimilation	263	Lyall, John B.	269
Carnation "Baroness de Brienen"	254	McKenna, Patrick	269
Chesterfield, new public park for	263	Piper, George Wren	269
Conifers at Dropmore, damage to	264	Orchid notes and gleanings—Orchids at Belsize Court, Hampstead	253
Edinburgh Spring Show	262	Cœlogyne speciosa alba	254
Fairy rings	263	Dendrobium primulinum giganteum	254
Fernery, the	257	Plants, new or noteworthy	252
Fish hatcheries in Canada	264	Plum rust	263
Flower shows at Birmingham	262	Primrose, colour of	264
Foreign correspondence	257	Primula rosea	265
Forest, a submerged	263	Purdom, Mr. W.	262
Forestry in Scotland	263	Rose, new, from Formosa	263
French International Horticultural Congress	257	Russia, cut flowers in	263
Fruit crops, frost on	265	Salt and Sugar-Beet	262
Fungus parasite, remarkable effect of a	264	Societies—Cornwall Daffodil and Spring-flowering	268
Grass land, manures on	263	Manchester and North of England Orchid	268
Grieve, Mr. James	262	Royal Horticultural	265
Hampton, Mr. A. J., presentation to	262	Surveyors' Institution	262
International Horticultural Exhibition, the	262	United Hort. Benev. and Provident	268
Irrigation, overhead	264	Tobacco, home-grown, for spraying purposes	260
Law note—Failure of a market gardener	269	Tobacco, the effect of manures on	262
L.C.C. gardeners and the R.H.S. examination	262	Vines, red spider on	256
Leaks in pipes	263	Violas, a trial of	260
Manchester, horticulture in	264	Week's work, the	258, 259
Moraines, notes from my	251	West African gardening	256

ILLUSTRATIONS.

Achillea Kellereri	252
Arches, garden	255
Barr Memorial Cup, the	266
Bulgaria, Mount Vitosha in	253
Camellia cuspidata, a flowering shoot of	261
Carnation "Baroness de Brienen"	254
Odontoglossum crispum Saga	267

NOTES FROM MY MORAINES.

I HAVE been asked by many people to give the latest and most exhaustive news as to the success of my moraines and their inhabitants.

I have also been asked to reassure the timid who have (to my very great regret) been terrified by Mr. Malby's elaborate preparations and precautions. Therefore let me briefly declare my conviction and experience, that Mr. Malby's cement arrangements and other formidable deterrents, while they spring from a zeal that can never be overpraised, are in themselves not only entirely unnecessary, but even harmful. So important does this reassurance seem to me, that I wish my words could be echoed on into other periodicals which Mr. Malby has lately been dazzling with his magnificent but uncalled-for and extravagant precautions. The proclamation of these has frightened many of the humble and earnest; they write to me asking, "Must we take any notice?" To which, with all the passion at my command, I answer "No." Mr. Malby, like every good sound gardener, has allowed himself to stray into a multiplicity of carefulnesses that are really wholly unnecessary and deluding. Bother about none of them. This is how to make a moraine, the simplest, most successful, and least expensive of all gardens:—

On some level strip, bank or steep slope, you excavate to the depth of 2½ feet at the least. You then fill up with one part of soil (vary the composition to your pleasure—one plot of limey loam, one of peaty humus, another of granite, another of sand, and so on) to five parts of finely-broken road metal about the size of one's top finger joints, the blue Craven conglomerate being the best, but almost any other road metal, except flint, answering quite well. If your bank be steep, the successive slopes of moraine should be shored up with big breasts of rock, set very deep and firm; in flat places big stones should be planted flush with the surface for stepping-stones. In very hot places or aspects a violent slope should be avoided, as the drainage may prove too rapid.

In no circumstances is any cement bottom either necessary or even desirable. I have made wet moraines; I have made dry moraines; I have made them in many counties and aspects—never have I had anything but perfect pleasure from them, made quite simply, as I describe. My experiments (in the beginning of things) with cement bottoms, on the contrary, were wholly disastrous. The essence of a moraine, even of the wettest, is its rapid drainage; a cement bottom turns it into a slough. Even where such an additional expense does no harm, it certainly does no good, and is quite unnecessary. As for moisture, one of my most successful creations was a very shallow, flat, and grilling moraine, which I made for a cousin, Sir Reginald McLeod, near Maidstone. And here, with no precautions, in fearful exposure to the sun, with indifferent soil, and poor moraine stuff (white flinty chips) the plants are a wonder, Primula glaucescens growing apace, and the Aizoon Saxifrages flourishing higher and wider than anywhere else in my knowledge. Therefore let no one be afraid, nor trouble about any further rules than those I have suggested. The moraine, if properly built, has always a sufficiency of water, without any "fussment" of cement bottoms and underground pipes (though these last would be a pleasant luxury). Even in the extremest drought a few canfuls over the moraine go further, last longer, and do more good than dozens on the border. For moraines are by nature fitted to luxuriate most in the overhead watering of Heaven, though in nature they also enjoy the underground rills of the melting snow. In our climate this would keep it too wet; by its constitution, unhelped and unworried, it automatically retains exactly the amount of moisture that its plants require.

As to a record of successes and failures, this is a much harder matter. I cannot possibly dogmatise; one of the charms of the moraine is that, while a universal success, it is also a special gamble. You may suddenly succeed with a plant which always dies in a neighbour's moraine, and vice versa. Failure, again, may be the fault of an ill-rooted specimen, trying weather, inappropriate soil mixture, resurrectionist birds; and not of the moraine itself. Success may reward your next attempt, and in one county the moraine-success may be the failure of another. In my own case I am *certain* of no failure; a few I have had, but I can never be sure that the plant in question dislikes moraine in general, or only mine in particular. And, again, there are numbers of things I have never yet tried—from inattention in some cases, and from stupid fear in others. Here, then, is a partial and undogmatic list, to which, in the cases of failure, the experience of other growers has already given the lie:—

Acantholimon, untried; Achillea, Aethionema, Alyssum, Anthemis, Andromeda, Arabis, Aubrietia, all perfectly successful; Androsace, complete success with the Indian and villosa-sections, and A. Mathildæ, failure with the high Alpines; Anemone baldensis a failure, no others tried; Antennaria, Anthemis, Artemisia, Arenaria, Asperulas, Astragalus, Bellis, all do very well; Campanulas all thrive brilliantly (not, of course, the big herbaceous ones); C. excisa has failed here in moraine, but succeeded elsewhere; C. Morettiana, untried—I am fearful; Cerastium, Chrysanthemum, Draba, do well; Dianthus all do nobly, except, so far, D. neglectus and D. callizonus (which thrive elsewhere); Dryas does well, so does Delphinium nudicaule; Edraianthus are all successful; Eritrichium has usually failed here in moraine, but succeeds in other places; Erodiums untried, but Geranium lancastriense grows neat, E. chamaedryoides, (Reichardi) failed; Erysimum, Cheiranthus, Matthiola succeed; of the Gentians all are failures; Globularia and Geums do well, but G. reptans prefers open soil; Gypsophilas are brilliant; Hypericums have not succeeded; Iberis and Thlaspi do splendidly, and so does Petrocallis; no Linums nor Lithospermums yet; Flannel-flower (Leontopodium) and Linaria alpina are at home, of course; Lychnis is doubtful so far, but Silene Elizabethæ is wonderful; Mertensia primuloides brilliant; Morisia doubtful, and so are Oxalis enneaphylla, and Ourisia; Omphalodes Luciliæ does well, but O. nitida seems a bog plant; Myosotis rupicola, glorious and perennial; Papaver alpinum, glorious and perennial, P. croceum and nudicaule also; Phyteumas (the alpine) have usually failed; Potentillas all do well, and some too well; Primulas, of these I have not yet tried as many as I should. For all the Auriculas, spectabilis, glaucescens, intermedia, &c., thrive most wonderfully; Ranunculus, all the Alpines do well; Saxifrage, all the Aizoons (except florulenta), Englerias, Kabschias (many dislike excess of sun), none of the Porphyrions; Sedum does well, not Sempervivum; Silene and Saponaria do brilliantly; the alpine Senecios have not succeeded; nearly all Veronicas prosper; all the alpine Valerians; the high alpine Violas have not yet properly justified my hope.

This list, as I plead, is very partial, merely betraying incomplete experiment in many of its silences, and faulty experiment only in many of its failures up to date. However, it may be a guide and glory to other happier gardeners, and give back to all their shaken confidence in the good old simple moraine. *Reginald Farrer.*

NOTICES OF BOOKS.

Perpetual Carnations.*

As with Sweet Peas and Roses, so with Carnations, there seems to be no end to the books that treat of their culture. The present volume is a brief treatise of 100 pages, and in that space the author, who is an expert, treats of everything connected with Perpetual Carnations, and gives as well a short chapter on Souvenir de la Malmaison varieties, and another on border Carnations and Pinks. He expects to see "Borders" give way to Perpetuals for out-of-door work, and introduces a list of varieties which he esteems the most suitable for that purpose. The varieties for winter flowering are restricted to 34, and an index expurgatorius serves as a warning to the tyro against cultivating varieties which have been superseded. The increasing custom of growing on benches does not find in the author an advocate for its extension, but, as a rule, the book defines the various cultural practices on popular lines. It is a useful handbook for the beginner.

* *Perpetual Carnations.* By Laurence J. Cook. (Cassell & Co., Ltd., London.) 1912. Price 1s. and 1s. 6d. net.

NEW OR NOTEWORTHY PLANTS.

RHODODENDRON DELAVAYI ALBUM.

When noting the flowering of the Chinese R. Delavayi in the garden of the late Mr. Thomas Acton, Kilmacurragh, Co. Wicklow, in 1904 (see *Gardeners' Chronicle*, xxxv, 262), I pointed out how close was the resemblance between this species and the common Indian R. arboreum. Their close relationship is now attested to by the flowering of a white form of R. Delavayi in the Temperate House at Kew, the plant being one of the originals raised from seeds sent from China by the Abbé Delavay, some 20 years ago. The figure of R. arboreum album in the *Botanical Magazine*, t. 3290 (1830), might very well stand for the plant of R. Delavayi in flower now at Kew; neither in the size, shape, colour and venation of the leaves, nor in the shape and markings of the flowers is there any difference between them. However, the name Delavayi has been generally adopted for the Chinese plant, and as it is possible the Indian plant is not so hardy as R. Delavayi, the names may well stand as they are. Compared with the type, as figured and described, R. Delavayi album differs in having leaves up to 9 inches by 2 inches, the upper side dark green, the lower covered with a brown, felt-like indumentum. The flower-head contains about 25 flowers, which are pure-white, with small, purple spots on the upper segments and a blotch of purple at the base of the corolla. R. arboreum album first flowered in a conservatory at Dee Hills, near Chester, in 1831.

RHODODENDRON ADENOPODUM.

Another Chinese Rhododendron that has its fellow, or very near ally, among the Rhododendrons of other countries, is what is called R. adenopodum. I have lately seen a flower-head of it from the collection of Mr. J. C. Williams, Caerhays Castle, and, to my eye, it is only a form of R. caucasicum, of which R. Ungernii, R. Metternichii, and R. Smirnowii are other forms. The Chinese plant is most like R. Ungernii, but Mr. Williams's example has very narrow leaves and their underside is fawn-coloured, not white as described by Franchet, though this is, we know, a variable character, as, for example, in R. arboreum. The hairy pedicels and deeply-lobed, reflexed calyx of R. adenopodum are its most distinguishing characters.

RHODODENDRON FARGESII.

Mr. Williams has also lately flowered R. Fargesii, a Chinese species, which, according to Wilson, forms a bush from 4 to 20 feet high, with white or rose-coloured flowers, on the Sutchuen Mountains at from 8,000 to 11,000 feet. It belongs to the same group as R. decorum, R. Fortunei and R. campylocarpum, resembling the last-named species rather closely in foliage and in the shape of the flowers, but it is quite distinct from all other cultivated Rhododendrons, the leaves being thin, glabrous, dull-green above, glaucous beneath, ovate, the base cordate, and the apex rounded. The flowers are in a fairly close head, nine in the specimen which I have seen, and they are broadly campanulate; the six or seven lobes are not reflexed; the colour is lavender-pink with numerous small, dull-red spots on the upper part; there is no perceptible calyx, and there are 12 or more stamens with white filaments and brown anthers. This is a distinct and good garden Rhododendron, being probably a presentable evergreen at all times, and if it flowers freely it ought to be very decorative. It was described by Franchet in 1895 as forming a shrub 3 metres high. There is a figure of it in the *Journal* of the French Horticultural Society for 1900, which contains an excellent paper on new Chinese trees and shrubs by M. Bois, in which no fewer than 69 new species of Rhododendron are briefly described. They include R. ciliicalyx, R. decorum, R Delavayi, R. intricatum, R. irroratum, R. lacteum, R. racemosum, R. rubiginosum, R. Souliei, and R. yunnanense. *W. W.*

BOTANISING IN BULGARIA.

Only 30 years ago Sofia was a squalid, Turkish village, but now sloth and dirt are replaced by industry and thrift, and the city has forged ahead in American style. Electric trams traverse the broad, well-paved thoroughfares, and many of the streets have either single or double avenues of Robinia or Ailanthus.

Near to the Royal palace are pleasant, well-shaded gardens where the people sit in the cool of the evening. There is also a large public park, a Rose garden being a feature in June. In places Prunus Pissardii may be seen laden with fruit, which is said to make good preserve. A curious eastern custom is observed in Bulgaria; it is the offering to a visitor of a spoonful of jam followed by a glass of water. Some of the preserves used for the purpose are rather uncommon, such as that made from the Cornelian Cherry; even the petals of the Madonna Lily (Lilium candidum) are given in a sweet syrup.

On June 17 I had an interview with the King and Queen, both of whom are keen botanists, and know the native plants well. To their courtesy and kindness I owe much of the pleasure of my visit to the country. In the course of conversation the King remarked that English nurserymen are doing their best to exterminate some rare plants. He instanced Lilium Jankæ, which formerly grew on Vitosha, but is now no longer to be found on the mountain. His Majesty is doing much to make the native Pinus Peuke popular, and has large plantations of it. Last year he also sent to Turkey an expedition to Pirin to introduce P. leucodermis. A fair quantity of seed was obtained, and some distributed in England and Ireland, has germinated well.

In the palace gardens is a fine collection of Alpines, containing some particularly interesting plants collected on the Pirin expedition. Leontopodium alpinum Pirini is a new and distinct form; the foliage and bracts are beautifully white, and broader than those of the type. Astragalus physocalyx has long pinnate leaves, and bunches of green, inflated pods. Saxifraga Spruneri and Viola Clementiana were also collected in the Pirin district. Herr Kellerer, who has charge of the King's alpine gardens, was the collector of these plants. His name is familiar in Saxifraga Kellereri, Primula Kellereri, a natural hybrid from the Tyrol, and Achillea Kellereri (see fig. 113), another hybrid having A. clypeolata and pseudo-pectinata as its parents. For the rock garden the latter hybrid is one of the best of its family, for throughout the summer the plant is seldom without a few umbels of white flowers, and the long, silvery leaves are always beautiful. In Ireland it seems perfectly hardy, but Mr. A. E. Bowles informs me it was killed last winter by cold in his garden at Waltham Cross.

Geum Borisii is a natural hybrid between G. bulgaricum and reptans; it was found in the Rilo Mountains, and was named after Prince Boris. The rockery at the Sofia Palace gardens is rich in rare Ferns and Orchids, includes also fine groups of Haberlea rhodopensis and H. Ferdinandi-Coburgii. The summer bedding is very similar to our own, but Monsieur Delmard, the Director of the Palace gardens, tells me they have always to be on the watch or a hailstorm may spoil everything. The hailstorms are extremely heavy, and leaves of such plants as Docks and Veratrums are torn to ribbons on the mountains. Bombs are always kept in readiness in the garden, and are fired at the approach of a storm, causing the hail to fall on another place.

[*Photograph by C. F. Ball.*

Fig. 113.—Achillea kellereri: flowers white.
(A hybrid from A. clypeolata and A. pseudo-pectinata.)

Sofia is well situated in a plain surrounded by picturesque mountain ranges; Vitosha forms the end of the Rhodope range, and is the highest mountain near Sofia (see fig. 114). Some of the plants of the plains are interesting. The annual Larkspur takes the place of the Poppy in England, and often makes the Cornfields a glorious patch of blue and purple. Nigella (Love in a Mist) is also abundant in places. Euphorbias by the roadside give a glow of yellow, but on Vitosha the bracts of E. Cyparissias had changed to a deep blood-red. In waste ground Verbascums form pyramids of yellow, and are very numerous; among the commoner kinds met with are V. decorum, V. pannosum, V. phlomoides, with V. phœniceum occurring now and again.

Digitalis lævigata soon takes possession of arable land. It is a distinct plant, growing 2 feet to 3 feet high, and has a fulvous corolla, with long, hanging, white lip. D. lutea and D. grandiflora are both abundant in the higher regions. Coronilla varia makes the dry banks pretty with its rambling stems and pink flowers. Salvia argentea rises up here and there by the

roadside, making a pyramid of white flowers, whilst S. nemorosa is such a showy plant with its blue flowers that one wonders why it is not more cultivated at home in borders, for the flowers last a long time, and the coloured calyx remains after the corolla falls. In stony places and waste ground Cnicus Casabonae, well known

Fig. 114.—BULGARIA: VITOSHA MOUNTAIN.

as a bedding plant, was seen frequently just coming into flower.

I visited Vitosha, which rises to a height of about 9,000 feet, in company with M. A. Delmard and Mr. H. Cowley. Several interesting plants were met with (see fig. 115). In moist places colonies of Saxifraga rotundifolia, 10 yards across, were very beautiful, while Myosotis alpestris covered several acres with its beautiful, blue flowers. Salix Lapponum gave some of the boggy places quite a silvery appearance, whilst Geranium macrorrhizum was common among boulders; this last-named is a favourite flower with the Bulgarians. Veronica austriaca, Pedicularis, Genista sagittalis, and dwarf Cytisus abound, while a most interesting and uncommon plant is the yellow Columbine (Aquilegia lutea), which differs from its American relative in having very short spurs. The "Honey Balm" (Melittis Melissophyllum), with its large pink flowers, was very striking. In company with Mr. Pierce O'Mahony we also visited the King's beautiful gardens at Vrana, an interesting dry limestone hill near Stara-Zagora, and spent two days on the Belmaken Mountain near Kostenetz. On this mountain we found a quantity of the true Rhododendron myrtifolium S. and K., an Eastern species rather like a small half prostrate form of R. hirsutum and quite distinct from the plant which is grown under the name of R. myrtifolium in gardens.

Attar of Roses.

We also visited the Shipka Pass and Kasanlik or the Valley of Roses, where Attar of Roses is prepared. Kasanlik lies on the Plain of Thrace, and, like many other of the Bulgarian plains, is absolutely flat and shut in by high and precipitous mountain ranges. The valleys give the impression of being dried lakes. This is the biggest Rose garden in the world, and is 80 miles long; 170 villages are devoted to the culture of Roses. The soil is sandy and porous, well watered by numerous rivulets, but it has a peculiar quality in that the Roses grown upon it give a high yield of attar. The Rose cultivated in Bulgaria and E. Roumelia is a variety of Rosa damascena, the red Damask Rose. Around the borders of the plantation either a single or double row of a white Rose is usually planted, a variety of Rosa alba; the perfume from this variety is not so good as that from the red Rose.

Around Kasanlik the Rose bushes are grown in rows, forming hedges about 100 yards long and 6 feet apart in the rows; when full grown they are nearly 6 feet high. New plantations are formed by cutting down the old stumps and dividing them in October or November. A plantation is in its prime five years after planting, and, if carefully tended, will continue productive for 15 or 20 years. The Roses are gathered from the middle of May to the middle of June, and the flowers are picked before the heat of the sun is upon them, otherwise they yield much less attar. A hectare of land (2.5 acres) produces about 3,000,000 Rose flowers, yielding one kilo. of attar, so that it takes about 100,000 Roses to make one ounce of attar. *C. F. Ball, Glasnevin.*

(To be continued.)

ORCHID NOTES AND GLEANINGS.

ORCHIDS AT BELSIZE COURT, HAMPSTEAD.

The interesting collection of Orchids in the gardens of J. S. Bergheim, Esq. (gr. Mr. H. A. Page), at Belsize Court, Hampstead, embraces numbers of pretty and uncommon species. Mr. and Mrs. Bergheim make a journey annually to some tropical country, and usually bring back with them Orchids as mementoes of their visit. Last year they brought from Trinidad a very interesting collection of plants which flowered very satisfactorily, the Catasetums seeding and the seedlings coming up among the surrounding plants. At present, Epidendrum Hartii, a rare species with branched spikes of greenish flowers; E. oncidioides, and several other Epidendrums are in bloom. Recently a very large specimen of Ansellia africana, from Fernando Po, was a grand sight with a dozen showy heads of bloom, and now, out of the West African plants, Megaclinium Bufo, M. falcatum, M. minutum, and other Megacliniums, also Polystachya bracteosa, with its curiously-flattened pseudo-bulbs, are in bloom or bud. One block, as collected, has a very interesting lot of plants growing together, including Polypodium irioides, one or two species of Peperomia, Liparis guineensis and Polystachya bulbophylloides (both in bloom) and Megaclinium minutum, with many flower-spikes. Dendrobiums grow remarkably well at Belsize Court, although the district is so near to London. Mr. Page adopts the method of affording them a warm temperature and moist atmosphere during their growing season, keeping the houses closed, especially when cold winds prevail, no matter how the temperature may rise by sun-heat. Dendrobiums under these conditions make strong growths, and flower profusely. A fine show of blooms of D. Phalænopsis, D. bigibbum, and D. superbiens is just over; one specimen of D. superbiens with four spikes lasted two months in bloom. At present the nigro-hirsute section has the best show of flowers, one beautiful specimen of D. infundibulum having 55 large, white blossoms with yellow centres. Another, of the form of D. Jamesianum, known as D. Donnesiæ, has a fine head of bloom, and the still larger D. formosum giganteum is also well represented.

Photograph by C. F. Ball.

Fig. 115.—WILD FLOWERS IN BULGARIA: MELITTIS MELISSOPHYLLUM, SAXIFRAGA ROTUNDIFOLIA, AND GERANIUM MACRORRHIZUM GROWING WILD ON MOUNT VITOSHA.

D. nobile varieties, D. Falconeri, D. aggregatum, D. luteolum, and others are also well flowered.

In the intermediate house there is a good show of Cattleya Mendelii, C. Mossiæ, C. Schröderæ, and some good hybrids in bud, Chysis bractescens and a fine collection of Miltonia vexillaria, the plants being in perfect health and with many flower-spikes. In the warm house, with a collection of Nepenthes suspended overhead, a batch of Vanda teres planted in boxes and placed close to the glass end of the house are each furnished with two or three spikes on a single stem, and the Angræcums, Aërides, and Saccolabiums are also about to flower well. Plants of Odontoglossum crispum, a few O. Hallii, O. cirrhosum, O. sceptrum, O. Cervantesii, and others, in the cool-house, are well set with flower-spikes.

Masdevallia macrura, with its long, fleshy, prettily-marked flower, M. Troglodytes, M. radiosa, and other Masdevallias were also doing well. Specimen plants of Bletia Sheperdii (one with a dozen spikes), Sobralia macrantha alba (with many flowers), Cymbidium eburneum, and other old favourites make a beautiful show, whilst the collection of Bulbophyllums, Cirrhopetalums, and insectivorous plants are equally interesting. *J. O'B.*

CŒLOGYNE SPECIOSA ALBA.

WIDELY distributed in the Malay Peninsula, Borneo, and Java, this fine species exhibits considerable variation; usually the fringed crests are coloured in some degree, red-brown to nearly black. The variety alba was first shown by Messrs. Sander & Sons at the Royal Horticultural Society's meeting on March 28, 1905, when it received an Award of Merit.

A fine inflorescence of the variety is sent by Mr. C. Wright, gardener to the Hon. Charles Rothschild, Ashton Wold, Oundle. The flower is 4 inches across, whitish, tinged with salmon-buff, the colour being darkest on the lip, the rounded, oblong front lobe being pure white. The latter feature and the suppression of the dark colour on the crests gave rise to the varietal name alba; but the flower is not wholly white.

DENDROBIUM PRIMULINUM GIGANTEUM.

THE section of which this plant forms the highest development in point of floral beauty begins with D. crataceum, followed by the slender, pendulous D. Pierardii, whilst the dwarfer and less slender D. primulinum, although having the same characteristics, the lilac-tinted sepals and petals, and pale-primrose lip, shows a further stage in development. The variety giganteum, of which flowers are sent by Mr. C. Wright, gardener to the Hon. Charles Rothschild, Ashton Wold, is more than 3 inches across the sepals and petals, which are white, tinged with rosy lilac. The labellum is nearly 2 inches wide, the surface pubescent, and of a pale-primrose tint, and with purple lines at the base. All the species mentioned are natives of Burma, and grow best in baskets suspended, or in hanging Orchid pans. The species are deciduous, and require a dry resting period after the growths are completed.

CARNATION BARONESS DE BRIENEN.

THE illustrated variety of perpetual-blooming Carnation in fig. 116 was raised by Messrs. Stuart Low & Co., Enfield, and has received the Award of Merit of the Royal Horticultural Society (see *Gard. Chron.*, November 11, 1911, p. 342). The bright, salmon-pink flowers are 4 inches in diameter, and are borne on short, stout stems. Messrs. Low inform us that they have exhibited blooms of the variety at all the meetings of the Royal Horticultural Society since last September, and the fact of their being able to do so they attribute to the variety having fimbriated petals, as Carnations of this type open well in dull weather. The stems are not so long as in some varieties, but they are stiff and hold the blooms erect. The habit of growth is sturdy and the foliage has a glaucous tint.

NURSERY NOTES.

MESSRS. SANDER & SONS, ST. ALBANS.

WE are indebted to Messrs. Sander & Sons, St. Albans, for the introduction through their collectors of many fine species of Orchids to cultivation—Vanda Sanderiana, to mention only one—but their work in hybridising has been no less successful than the efforts of their collectors. The St. Albans nursery includes a block of houses specially built for the raising of seedlings. It is interesting to go first into the seedling house, the centre of which is occupied by seed-raising cases filled with the recently-sown seed-pots, and store pans in which are growing countless numbers of transplanted seedlings of various sizes. Each seed-pot has a conical tuft of thin gauze-covered moss in the centre, bedded in fine Orchid potting material, leaving an inch wide margin of the material around the cone. In some cases the seeds do not germinate on the cone, but come up freely on the surrounding margin; in other cases the seeds germinate on both surfaces, and in others again on the central cone only, so that it is evident that advantage is gained by giving the choice. Here, as in most other hybrid-raising establishments, the great end is to secure something new, but the crosses already made by other hybridists with good results are not neglected, finer parents being used. Messrs. Sander have thus succeeded in obtaining batches of extra-fine forms of Lælio-Cattleya Canhamiana, L.-C. callistoglossa, L.-C. Aphrodite, and the like, which, in point of showiness, excel most of the modern novelties.

I inspected many houses devoted to hybrid Cattleyas, Lælio-Cattleyas, and Brasso-Cattleyas, especially those occupied by the larger plants, some of which were in flower. The houses containing Brasso-Cattleyas made a very fine show, and, moreover, the fragrance of the blooms was delightful, the sweetest, though not the most beautiful, being B.-C. Pluto. One house is filled with crosses between albinos. The Brasso-Cattleyas and some others have given good results, but other batches have produced coloured varieties reverting to the type.

Another house is filled with albinos of species, including a fine collection of Cattleya Mossiæ Wageneri, various white-petalled forms of C. labiata, and numerous plants of C. intermedia alba.

One house is devoted to seedling Odontoglossums and Odontiodas, whilst in an adjoining structure are larger plants of these Orchids, some being in bloom at the time of my visit, including Odontoglossum Groganiæ, dark forms of O. eximium, O. percultum, O. Lambeauianum, O. mirum, O. Gladys, and O. Phœbe, together with some good blotched forms of O. crispum, which are reserved for crossing, and bright scarlet Odontiodas, including several plants of O. Bradshawiæ and O. keighleyensis, the flowers of which, although not of the largest size, are of the most brilliant colour. Several houses contained seedling Cypripediums, two with plants of a flowering size, among those in bloom being the handsome C. Helen II "Holford's variety," some good forms of C. aureum, the fine C. Franconia (with broad and distinctly-marked petals), a batch of C. callosum Sanderæ, C. Lawrenceanum Hyeanum, and the hybrid C. Maudiæ, together with a few examples of C. Alma Gevaert (Lawrenceanum Hyeanum × Maudiæ), which shows a great advance. Another house contained, on the one side, plants of C. insigne Sanderæ, and on the other C. insigne Harefield Hall and other good forms of C. insigne, C. Druryi, and many specimens of the pretty white C. niveum in bloom.

In the Dendrobium house a good display was

FIG. 116.—CARNATION BARONESS DE BRIENEN: FLOWERS SALMON-PINK COLOUR.

made of varieties of D. nobile and many hybrids; also handsome hybrid Phaius, and, in the corridor, specimens of Cymbidium Lowianum, C. eburneo-Lowianum, C. Ballianum, C. insigne (Sanderi), C. eburneum, and other Cymbidiums with graceful spikes of bloom. In the many houses containing species and varieties, specially noteworthy were Cattleya Schröderæ, C. Trianæ, magnificent specimens of Phalænopsis Rimestadiana, P. Schilleriana, P. Aphrodite, and a brilliant display of

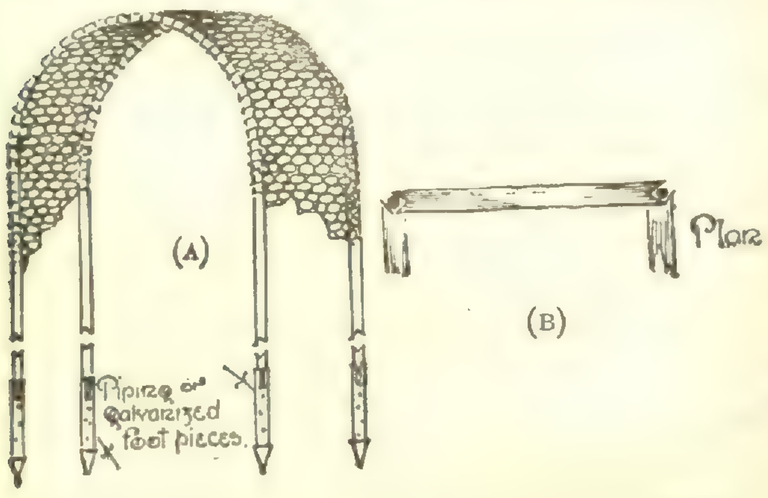


FIG. 117.—(A) A SIMPLE ARCH OF BAMBOO AND WIRE NETTING. (B) CROSS-PIECE FOR AFFORDING RIGIDITY.

hundreds of spikes of the bright-red Renanthera Imschootiana. Finely-flowered plants of Angræcum sesquipedale, with a few plants of A. Sanderianum, A. arcuatum, and others were in bloom, whilst a large number of plants of Dendrobium Wardianum, the greater part of recent importation, although some were imported as recently as early last year, were equally well flowered.

At the end of one of the houses was a display of Dendrobium nobile giganteum, arranged with the white Dendrobium infundibulum, Cattleya Trianæ including one plant with pure-white and another with blush-white flowers, C. Vulcan (of very dark colour), the new C. Olaf "var. Venusta" (labiata Cooksoniæ × Parthenia), a pretty white flower with purplish crimson front to the lip, which has a distinct white margin; Odontoglossum Hallii leucoglossum, and varieties of O. luteo-purpureum.

In other houses were Cattleya Dowiana, C. D. aurea, a fine collection of varieties of Lycaste Skinneri, including the best white form and a plant of the rare hybrid L. Imschootiana, a batch of the handsome Dendrobium Sanderæ, a good selection of Vandas, Aërides, and Saccolabiums, numerous choice plants of Maxillaria Sanderiana, M. lepidota, a good importation of the true Cattleya gigas Sanderiana from the locality from whence it was originally received, and a large importation of the best form of Vanda cœrulea.

A large number of rare and interesting plants

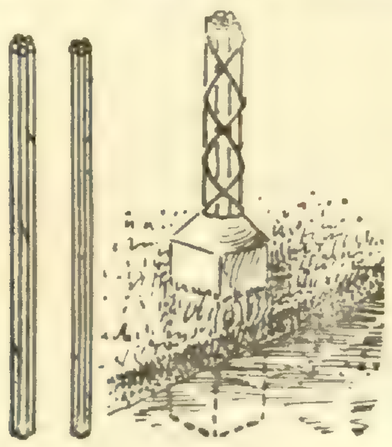


FIG. 118.—CLUSTERED COLUMNS.

have accumulated in the St. Albans nurseries, sent home by the firm's collectors. Amongst those now in flower are Eria aëridostachya, E. amica, E. marginata, several Polystachyas, Sarcochilus Fitzgeraldii, Megaclinium maximum, Cœlogyne lactea, C. Micholitzii, Cirrhopetalum cæspitosum, and several other Cirrhopetalums, the showiest being C. picturatum Veitchii, Houlletia Sanderi, Dendrobium spectabile, D. velutinum, Acanthephippium Sylhetense, and some little species not yet determined. In the new houses devoted to plants other than Orchids are several promising Anthuriums. *J. O'B.*

GARDEN ARCHES.

ARCHWAYS, if employed with discretion, may be made very effective objects in the garden. They furnish pleasing supports for a variety of showy plants, and may serve to screen an unsightly outlook, or mark the boundary of one portion of the garden from another. Varieties of pillar Roses have been multiplied enormously during recent years, and the archway is one of the best means of showing climbing Roses to advantage. Recently introduced Chinese plants include many beautiful vines, and these too are seen to great advantage on archways or pergolas.

Fig. 117A illustrates a simple but effective garden arch. It is formed with a couple of stout Bamboo canes, covered with wire netting of any desired mesh, the netting being wired to the canes. An arch of this description, used as a greenery porch to the doorway of a house having a plain exterior, introduces a pleasing feature. By placing two arches, one at the gate and another at the house door, a pergola may be formed by stretching a few lengths of wire between the tops of each, cross-pieces being introduced here and there, and wired at the intersections. Special attention should be paid to the setting of the

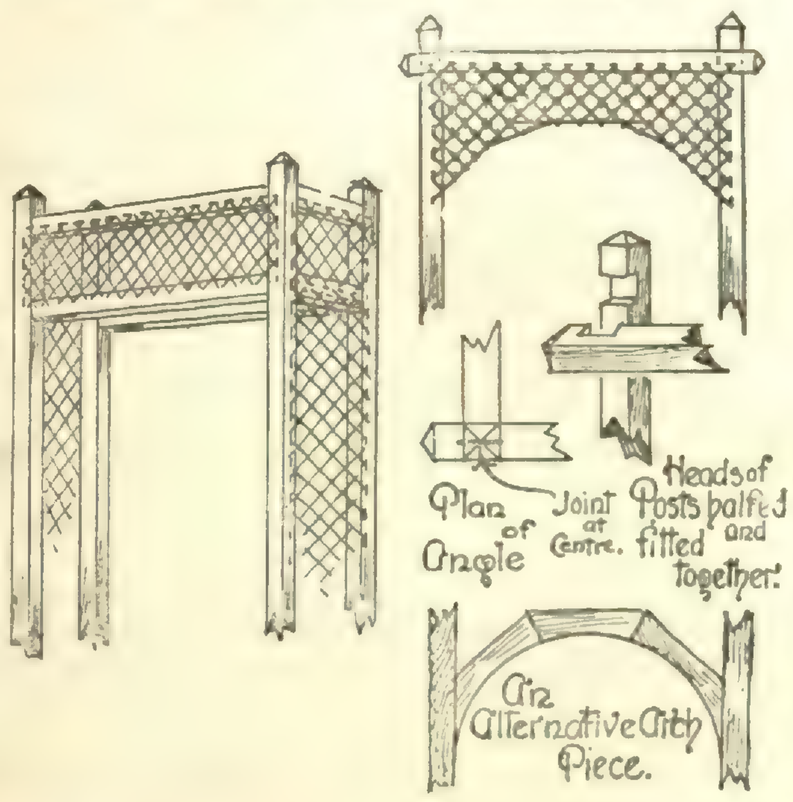


FIG. 119.—SQUARE-HEADED ARCHWAYS, WITH DETAILS.

poles to ensure their durability and to prevent premature decay. The part inserted in the ground may be encased in feet formed of any old pieces of piping, preferably of lead, or it may be painted with creosote or tar. Such arches may also be wired up with stout galvanised wire, worked in broad patterns, either on the diagonal, forming diamonds, or by horizontal and vertical wiring forming square or rectangular patterns. In the latter cases, it is best to make them secure at the intersections with fine wire. With either method it will be found convenient to cut a few pieces of wood with notched ends, as shown in fig. 117B, to the correct dimensions of the arch, securing them temporarily with string to keep them in a rigid position whilst wiring. Where a more substantial shaft is required a clustered column may be formed by small canes bound together, as shown in fig. 118. Suitable canes may be obtained in long lengths, the butted ends being secured by a short, double-pointed nail and pressed up. A better jointing, although entailing more trouble, is the spliced and wired one. This effectually prevents springing where joints happen to occur on the bend. The whole is then bound round by a couple of spiral wires, running in opposite directions, forming a lattice pattern, the ends being inserted in a wooden block, firmly wedged or pegged into position, with the interstices filled with pitch. This style, with its clustered and latticed shaft, forms one of the most picturesque methods for this class of work. In many cases the square-headed arch may be preferred, especially where required for a pergola extension. Two methods of construction are illustrated in fig. 119. The one has the horizontal pieces either tenoned into the uprights, nailed or screwed through, the other being halved and screwed. The wiring may be either laced through small staples or twisted round large, square-headed nails, allowed to project about ¼ inch, thus giving a more rustic character to the whole; as also do

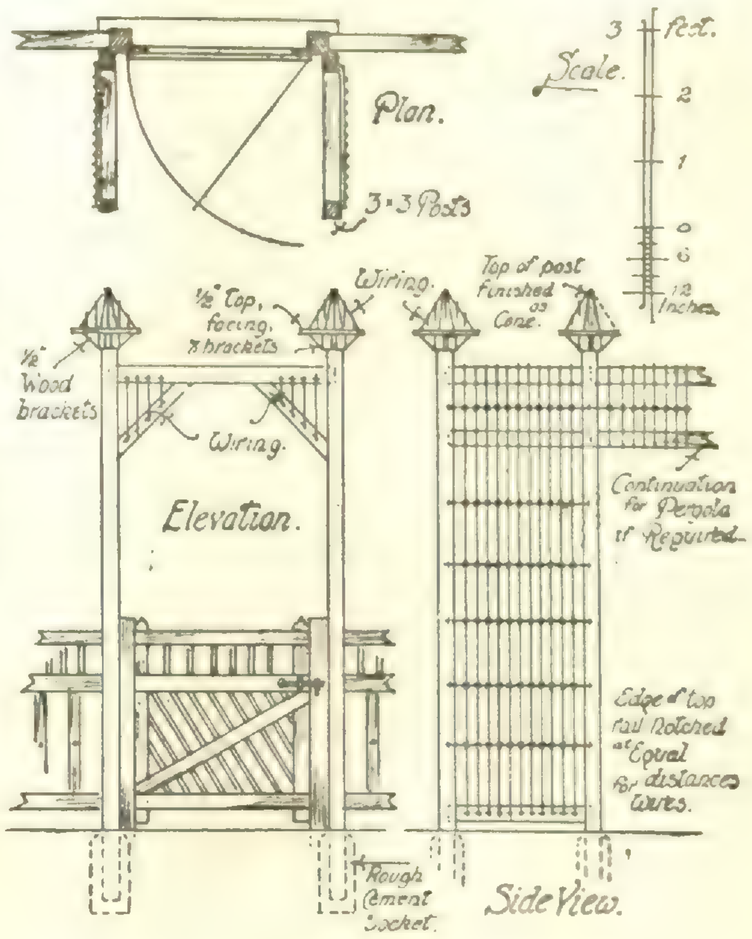


FIG. 120.—GATEWAY WITH ARCH.

rough-sawn posts. The nails are best fixed in position for wiring before the posts are erected to prevent jarring or loosening the foundation. Fig. 120 shows a simple design for an entrance and garden gate, with wiring on the horizontal and vertical system. If preferred, the wood angle-pieces at the top of the arch may be omitted, this portion being constructed in wire, as shown in fig. 119. The wood arch illustrated in fig. 119 may be adopted with advantage, sawn out of these pieces and nailed up. The cement foot gives greater durability, but may be omitted, and the portion embedded given a coat or two of tar. A further improvement to such arches are hoop-iron and wire domes in place of the flat top. These are formed by bending the hoop-iron over in a semi-circle on the diagonal from post to post; wiring together at the crossing in the centre. Others

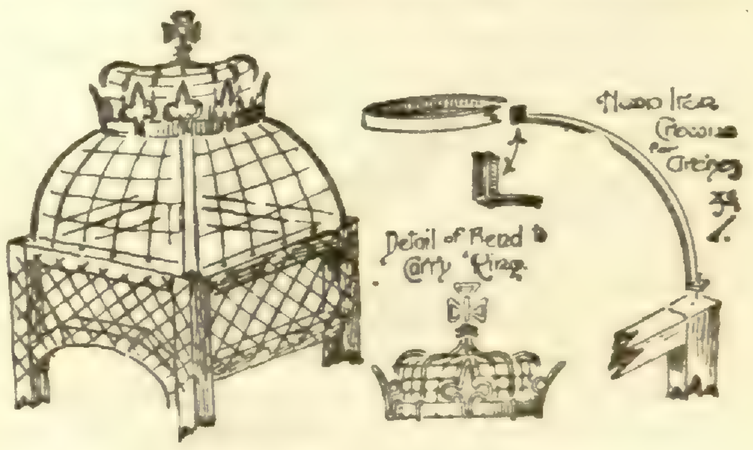


FIG. 121.—DOMES FOR ARCHWAY, WITH DETAILS.

are taken over from side to side, and back to front, the whole being afterwards wired around horizontally and then vertically between the segments. Another development of the latter style is shown in fig. 121, a wire skeleton crown being formed, over which the plant may be trained. A circular hoop being formed, its ends notched and fastened with wire, it is dropped in a bent-up slot-piece, as shown in the sketch, and wired to each angle, the whole being finished as previously described for the dome. The crown-piece can be bent up easily with a pair of pliers, the ends turned over the hoop, as in fig. 121, and wired on with finer material. *W. C. Kerby.*

GARDENING IN WEST AFRICA.

It has been said that the first thing an Englishman does on arriving in a new country is to make a cricket ground, and perhaps his countrywoman first turns to the garden.

She meets with many handicaps in West Africa, mainly connected with the climate and conditions of life. For so small a colony as the Gold Coast climatic conditions vary considerably. In the western, the rainfall is at least twice as heavy as in the Eastern Province, being no less than 70 inches on the coast and even heavier inland, so that in one of these places your garden may be parched up one month and washed away the next.

I remember the latter catastrophe happening at Seccondu. After a night of very heavy rain, on going to look at our carefully-cherished seedlings, which had been transplanted the previous day, we found them carried several yards out of their beds.

At Axim, where 9 inches of rain have been known to fall within 24 hours, we made our tiny flower garden entirely ourselves, breaking up the ground at first with a pick and extracting from it a surprising amount of broken glass, tins, &c. The soil here was apparently as unpromising as soil well could be, being a sort of yellow clay, such as the natives use for building their houses, and commonly called "swish." During rain, which fell almost daily in the wet season, the ground received the overflow from the bungalow roof, and the garden became so swampy that we had to make little gravel paths in order to get into it at all.

It was very gratifying, therefore, to find that all our seeds flourished amazingly. If vegetables or flowers will grow at all they grow very quickly when frequently watered; I have seen French Beans, sown in a small box, grow several inches in four days, and be ready for table in as many weeks. Apart from watering, the secret of success is to have seed fresh from England, for seed left in an open packet becomes mildewed and unfit for use in a few weeks.

It is not every vegetable or flower that will flourish where there is no winter season. There is no attempt at market gardening among the natives, and the residence of Europeans is not usually of long enough duration in any one place for gardens of any kind to be universal. A great deal more, however, in the way of gardening can be done than is at present: Tomatos do well everywhere, also Beans of all kinds, Radishes, Lettuces and Cabbages, Cucumbers and Pumpkins, but not root crops. Then, as regards flowers, I have grown the following with success: several varieties of Roses, as the La France and the William Allen Richardson (but they require to be pruned severely every season or they soon deteriorate) Balsams, Zinnias, Petunias, French Marigolds, Mignonette, Dahlias, Nasturtiums, Sunflowers and others. I have never seen any English fruit trees, but I see no reason why Grapes should not be cultivated.

Very many of the natives describe themselves as farmers, but a native farm is quite different from a farm in England. In the neighbourhood of every village the natives make rough clearings in the bush, in which, when the first rain comes, say about April, they plant corn, i.e., Indian Corn, Cassada, Yams and ground nuts; in a few months the crops have matured, and in August there is the "Yam Custom" or "Black Christmas," extending for several weeks. Next spring, if corn is to be grown, a fresh clearing is made in the bush. In the Eastern Province there is a large cultivation of Cocoa, started by the Basel Mission, while in the Western Province the white man has recently introduced the systematic planting of rubber.

There are, of course, certain native fruits and vegetables, but few of these are really indigenous to the soil; the Cocoanut, for instance, which grows all along the beach, originally came, I think, from the West Indies. In some places, notably at Chama, there are excellent green Oranges, and there are also Mangoes, much appreciated by the natives, Plantains and Bananas, Guavas, Papaw, Avocada Pears, Pineapples, Limes and Custard Apples. Yet all of these grow better in other countries where they are properly looked after. The Papaw grows male and female side by side, the male plant producing flowers only, the fruit being on the female tree.

The bush is unrelieved green, except for a few Lilies and Orchids, but where they have been introduced, certain brilliant tropical flowers give colour to the compound. In the Commissioner's garden, at Cape Coast, which is an old one, the Bougainvillea over the bungalow was magnificent; there also grew many fine Flamboyant, with its huge scarlet blossoms, and its sister, the Pride of Barbadoes, with the less showy Oleander; these, of course, were perennials. But the very existence of flowers and vegetables requiring daily attention depends upon the European. His seeds mysteriously vanish while in the ground, are bitten off by insects while they are sprouting, and, if by chance they survive, are damaged by sheep and goats. These animals are ubiquitous, and make up in numbers what they lack in size. They are turned out in the streets where there is no pasture for them, and seemingly subsist on leaves and refuse. It is characteristic of the native that unless compelled to do so, he does not keep any animal under control. At Axim, our garden having been invaded, the police organised a raid upon the flocks and herds, and we were awakened at six o'clock in the morning by the loud outcry of nanny goats, whose young were in the arms of the law, en route to the pound. After this there was a marked absence of these animals round our quarters, and it was amusing to see the Hausas returning with the redeemed beasts on a string.

I am bound to say they bore us no ill-will, and made no attempt to steal our own pet sheep.

The native attitude as regards gardens is summed up in a remark which one of the boys made to me. "Missus," he said, "you go make garden again?" "Yes," I answered. "Well," he continued, "you go make fine garden for Axim, then you go leaves him. Now you make one here for some other man."

Such are some of the amenities of gardening on the Gold Coast. *Agnes Lamond.*

RED SPIDER ON VINES.

A correspondent writing in *Gardeners' Chronicle* some time ago on the subject of red spider attacking vines (see vol. lx., p. 284) emphasised the need for the vine to be the sole occupant of the Grape house. There is, of course, no doubt of the desirability of this course; but in how few cases is it possible? Certainly it has never been my good fortune to be able to preserve the vinery for Grapes only, and I think this must be the common experience. Otherwise, an enormous amount of worry and trouble would be saved which is now expended on attempts to get rid of red spider, thrip, and that worst of all vine pests, mealy bug, for the growing of other plants in the vineries, such as French Beans, Azaleas, and various stove plants, is almost entirely responsible for the introduction of the pests I have mentioned.

If vines become infested with red spider prompt measures must be taken to check the pest, or the growth of the plants will suffer almost incalculable harm. The berries will fail to colour, the vines become weakened by the loss of foliage, and the future crop seriously impaired. Happily the detection of red spider is not very difficult to the experienced eye; it is usually first found on two or three of the leaves nearest to the main rod, and may be perceived by the pale colour of the leaves when the observer looks upward towards the glass. Occasionally the presence of this pest on the vine is to be accounted for by other causes than the contamination by other plants; a too dry atmosphere, caused by a faulty arrangement of hot-water pipes, favours the spread of the insect. It is remarkable that pipes are frequently placed in a cluster of two, three, or four, as the case may be, according to the size of the vinery, although this method is faulty and wasteful of heat. The result of such a concentration of pipes under the plants in the front of the vinery is that the leaves in that place are always in a dry atmosphere favouring an attack of red spider. Unless great care is taken to prevent attack, the vines in this part of the house suffer regularly every year.

Various remedies are suggested for the extermination of the pest. Some growers recommend a frequent and vigorous syringing with clear water; but this is not effectual, and the risk of spoiling the Grapes is so great that very few carry it out. I do not mean to imply that clean water will actually do harm to the Grapes, nor will it hinder their ripening, but the bloom is sure to be removed by the action of a considerable quantity of water applied with force from a large syringe. If the Grapes are required for exhibition, syringing is out of the question.

Another method is to sponge the affected leaves with an insecticide, such as tobacco-water or soft soap. Sponging, however, is a laborious process, and attended by a certain risk to the bunches of fruit in the neighbourhood.

A remedy which is often recommended is that of applying sulphur to the hot-water pipes, and thus fumigating the house. This, I consider, both dangerous and ineffectual. I have known cases where the foliage of the vines has been entirely crippled by the fumes, when the sulphur has been applied too early, whilst the berries are frequently scalded from the same cause. Another danger lies in the great difficulty of effectually cleansing the pipes when the fumigation is finished. The least trace of sulphur left on the pipes is sufficient to cause an attack of "rust" on the berries in the following season, especially those in the immediate vicinity of the pipes.

After condemning the foregoing remedies, it is only right that I should suggest some means which I consider efficient for ridding the vines of this pest. The method which I recommend is to sprinkle flowers of sulphur of a brown colour on the affected leaves (either on the under or the upper surface). This should be done on the first appearance of the pest; it is a great mistake to wait and see whether it will disappear of itself, and thus risk being too late. The best way to apply the sulphur is to use a small pair of hand bellows, holding these in one hand and the leaves firmly in the other. The affected parts of the leaves should be quite covered with the sulphur; if it is properly applied the insects cannot survive, and one dressing should be sufficient. If the application is done with care, none of the fruit even in the immediate vicinity will be spoiled.

Much has been written about the application of moisture to vines. This, in some form or another, is an absolute necessity, but if carried to excess it becomes a serious evil. Warts and excrescences of various kinds are often seen on the under-side of the leaves of Black Hamburgh and Muscat of Alexandria, these are mainly caused by an excessive quantity of atmospheric moisture, coupled with insufficient ventilation. Experienced Grape growers are not prone to these errors of culture; but, as it is more for beginners that I am writing, I think it well to draw attention to these points. Healthy vines bear leaves of a dark-green colour, and if ample space is allowed for development success should follow.

I have already alluded to the arrangement of hot-water pipes in a vinery, and this is a detail too often neglected. They are often placed, for the sake of convenience, in a cluster, whereas the results would be much more satisfactory if they were spread over the border in a single layer, with, say, five flows to one return in the case of a vinery with six 4-inch pipes. *E. Molyneux.*

THE FERNERY.

THE LADY FERN.

(Athyrium filix-fœmina.)

Amongst our native Ferns, the Lady Fern undoubtedly occupies a foremost place as an example of at once delicate structure and robust constitution. When grown under congenial conditions of moisture, aerial and terrestrial, and sheltered from wind and sun, it reaches a larger size than any other native species, Osmunda regalis and Pteris aquilina excepted. As a species it has always been somewhat of a puzzle to botanists, the form of its spore heaps and their cover or indusium being so peculiar that it is difficult to allocate it to a definite genus. The results have been that many botanists rank it as an Asplenium, while its undoubted close relative or mountain form has been ranked as a Polypodium (P. alpestre). Those, however, who actually grow these plants and also members of the two genera to which they have thus been allotted cannot possibly accept either classification. The Lady Fern has its spore capsules in small clusters, only partially protected by a ragged horse-shoe shaped indusium or cover springing from the midst of the sorus. Its mountain form, better termed Pseudathyrium alpestre, only appears at and over some 2,000 feet elevation, considerably above that of the range of the Lady Fern proper. It is, however, so closely similar that its main difference consists in the dot-like character of the spore heaps and the absence or rudimentary nature of the indusium. It is owing to the last feature that botanists have ranked it as a Polypodium, the characteristic of that genus being naked round or oval sori. In this connection, however, there are so many counterbalancing considerations that, to the actual cultivator, it seems nothing more or less than absurd to ignore them all in favour of what is really a minor one. In the Lady Fern proper, A. f. fœmina, we have varieties in which a dot-like apparently non-indusiate fructification occur, A. f. f. plumosum Horsfall, for instance. The Polypodies proper, too, have all creeping rhizomes, while both the Ferns in question have definite crowns. Most Polypodies are evergreen, the so-called P. alpestre is thoroughly deciduous, and, in short, the relationship between the lowland and the highland species is in every way so close that to place them in entirely distinct families cannot be justified. The allocation of A. f. fœmina to the Spleenworts is an even worse instance of misapplied knowledge. There we have even greater differentiation altogether ignored in favour of a very indefinite form of fructification which only a strong imagination can consider as Asplenoid. The Asplenia are peculiarly rock and wall Ferns, are all evergreen, and as a general rule but little liable to variation. Their sori are long and linear, and even where the smallness of the divisions reduces their length they are still distinguished by an unbroken indusium springing definitely from one side on quite different lines from the Lady Fern. Their fronds, too, are much tougher, even leathery, while those of the Lady Fern are in all its innumerable forms thin and delicate. The Lady Fern, moreover, is not normally a denizen of rocks or walls, but of the soil proper where Asplenia would not thrive. No two genera, indeed, could differ more or in more characters than the Athyria and the Asplenia, and yet, on account of a merely fancied resemblance in the sori, the former is ranked as a member of the latter genus by even our foremost botanists. It is, however, on the abnormal side that the two genera differentiate themselves still more. The genus of Spleenworts proper, excluding their close allies the Scolopendriums, rank with the least variable genera existent, despite the fact that, like nearly all our other native species, some, but comparatively few, varieties have rewarded the research of our Fern hunters. Even taking the exotics as well as our own, crested Asplenia are very rare, despite the immense numbers which are raised and used for decorative purposes since many decades. The Lady Fern, on the other hand, rivals any other species in the abundance of its natural sports and in the delicate beauty and diversity of their selected progeny. The distinct forms run into hundreds, and it has been well said that the old botanists who named it A. f. fœmina, literally the Lady Fern, long before they had an inkling of sex relations in the Fern world have been fully justified eventually in so far that that Fern has proved her femininity by her peculiar faculty of conceiving new fashions and decking herself with tassels, fringes, frills, and furbelows on the most ornate and charming lines. In this versatility, indeed, the Lady Fern holds first place, for no other Fern in all the world has yet proved a rival as regards originality in many of her types. A glance at any illustrated work dealing properly with our native Ferns will suffice to show this, apart from the voluminous catalogues which, in these days of revived interest in the subject, are issued by trade Fern growers. The Lady Fern is very plentiful in many parts of the country; everywhere, indeed, where conditions of soil and aerial moisture prevail under shady conditions and where the Fern vandal is precluded from reaching it. In the coombes of Devon and Dorset, and other western English counties, in the umbrageous glens of Scotland, in the ravines of Wales and among the hills and dales of Ireland we may find the Lady Fern in all its beauty as shoulder-high specimens of plumy loveliness, and in less favoured districts they may fringe the ditches by the roadside on smaller lines, and crop up here, there, and everywhere where boggy conditions favour them. With regard to the varieties, their name is legion, but our object in this article has been mainly to treat of some anomalies in the nomenclature connected with what we may term, without disrespect, the raw material from which Nature has shaped them, and incidentally to induce our readers to refer to books and catalogues with a view to making a selection of the varieties in question, instead of contenting themselves with the common ones provided by the hawker or purchased by the bunch in the market as an encouragement to the vandals afore-mentioned. *Chas. T. Druery.*

FOREIGN CORRESPONDENCE.

PLANTS FOR SHADE.

I read with great interest the note on p. 205 on "What to Plant Under Trees," by P. H.; but I miss from his list some of the most useful plants. In the first place, he has omitted Convallaria japonica; this plant is not quite hardy, but there are few parts of England where it would not grow out-of-doors. Here, in the south-west of Italy, it is largely grown under trees, and when combined with Cyclamen neapolitanum in autumn, or C. repandum in spring, it is most effective. After two or three years' growth, the Convallaria should be cut down near the root, otherwise it will grow tall and straggling.

There are two useful species of Ruscus which should not be omitted—R. Hypoglossum and R. Hypophyllum. These may be planted in dry spots where rather taller plants are needed. The young shoots form a very palatable table vegetable. Another good lawn plant is Bambusa nana, which requires a considerable amount of water the first year it is planted, but afterwards it does well even if kept rather dry.

IRIS TUBEROSA.

With reference to Mr. Fitzherbert's note on "Iris tuberosa," on p. 227, I should like to remark that I have often found this plant in the neighbourhood of Naples, growing in sunny, dry places on the hills. In a wild state it grows among such indigenous plants as Cistus salvifolius, Myrtus communis, Pistacia Terebinthus, Erica arborea, and Phillyrea, and I find that in my garden it grows and flourishes abundantly, even in half-shady places, especially if the roots are left undisturbed for some years.

PINE TREES DESTROYED BY LIGHTNING.

The Province of Caserta, in South-west Italy, was visited by a severe thunderstorm last July, and almost the whole of the fruit crop was destroyed.

In the Royal Botanic Garden at Caserta the damage wrought was almost incredible. For weeks after the event nearly all the gardeners were employed in lopping and carrying away the branches of trees which had been injured, and extensive damage was done to the stove and greenhouse plants by splinters of glass, all the panes having been shattered by the hail.

Although practically all the trees in the garden were damaged more or less, the chief victims of the storm were the Pines. The damage in this direction was very serious, and, indeed, irreparable, for within 14 days after the occurrence about 60 Pines, some of them nearly 250 years old, were found to be dead.

The cause of this sudden demise on the part of the Pines was investigated, and the conclusion was drawn that they were killed by contact with the electricity in the air. The trees were probably first wounded by the heavy hail, and the exposed resin attracted the electricity to the trees, and thus caused them to perish. This theory is further borne out by the fact that of the trees which died all belonged to those species which contain the most resin. Thus, all the large specimens of Pinus maritima, P. Laricio, P. Hamiltonii, Picea excelsa, and Larix europæa were killed, whilst Pinus Pinea, P. halepensis, P. Cembra, P. Strobus, Araucarias, and Cupressuses, although considerably damaged by the hail, recovered, and are now growing well.

It would be interesting to know the opinions of your readers on this theory. *Willy Müller, Naples, Italy.*

BROCCOLI IN A FRENCH GARDEN.

Since last November we have had a succession of good Broccoli. We planted the variety Autumn Protecting late in the season, and the plants commenced to form heads at the end of November and continued until Christmas, when a succession was maintained by Xmas White.

After these were finished Vanguard was ready for use, and we were cutting this variety through February, by which time Eastertide was ready for the table. This variety was available through March, when we commenced to cut Hâtif de St. Laud, and now Late Queen is almost ready, and to follow we have the fine variety Latest of All. These will provide a supply until the earliest Cauliflowers grown under chassis are ready.

White sprouting Broccoli has also been good, although this vegetable does not seem to be known in this district. *W. L. Lavender, Laferte-Bernard, Sarthe, France.*

French International Horticultural Congress.—We have received intimation from the National Horticultural Society of France that the French railways are issuing tickets from all parts of that country to Paris, half-price, for the benefit of members attending the May Congress. Application for such cheap tickets must be made to the office of the society, 84, Rue Grenelle, Paris, and in the case of English or other foreign visitors, the tickets are only available from the frontier town to Paris.

The Week's Work.

THE FLOWER GARDEN.

By J. G. Weston, Gardener to Lady Northcote, Eastwell Park, Kent.

The Water Garden.—It is necessary, at this time of the year, to devote attention to the water-garden, with a view to making everything neat and tidy. Strong-growing plants that may encroach on their neighbours should be divided, lest the abundant foliage does not allow the flowers to show their full beauty. In many gardens there are natural lakes or streams which could be used with advantage for cultivating aquatic plants; but where such facilities do not exist, much may be done by forming Lily-ponds in the lower portion of the garden, choosing, if possible, a position which is exposed to the sun, but sheltered from cold winds. The present is a suitable time to commence this work. It is essential that the bottom of the pond or stream be made water-tight, either by puddling or the use of concrete. The banks of the pond or stream should be planted first, leaving the water plants, such as Nymphæas, for planting during the month of May. Water Lilies planted in May will yield some flowers in their first season. It is not desirable to lay down hard-and-fast rules for the treatment of any phase of gardening; the garden-maker must be guided by the situation and surroundings of the spot he has selected, and this applies especially to water-gardens. Many plants, such as Hydrangeas, Eulalias, Bamboos, Cordylines, Osmundas and other large Ferns, Astilbes and Gunnera manicata, are eminently suitable for planting by the waterside. Great care and taste must be exercised in the arrangement of the various plants used. As a rule, the tall-growing subjects should not be placed close to the paths, where plants of a moderate height are suitable. The tall and strong-growing subjects, such as Bamboos, Gunneras, and Pampas Grass, may be grouped on the banks away from the walk, so that they may be viewed from across the water. The flatness of a series of Water Lilies may be relieved by planting small groups of grasses and other plants which rise above the water. In the warmest part of the pond, Richardia africana should be planted; if the roots are sunk to a depth of from 12 to 15 inches, this desirable plant will be found to be hardy in many localities. Cyperus longus, Carex pendula, Butomus umbellatus, Acorus calamus, Rodgersia podophylla, Lythrum salicaria, and its variety roseum, Caltha palustris, Scirpus lacustris, and Poa (Glyceria) aquatica are other plants which succeed on marshy banks or in shallow water. Near the edge of the water the many suitable kinds of Iris, Hemerocallis flava, Montbretias, Pæonies, Papaver orientale, Saxifraga peltata, and the Giant Musk, will all assist in adding colour during their flowering seasons. If the pond has a background of trees, or if there are high banks, a splendid effect may be produced by planting the hardy Bamboos, Arundo conspicua, and the Pampas Grass, interspersed with bold clumps of such flowering shrubs as Rhododendrons (including Azaleas), Berberis stenophylla, Philadelphus, Laburnum, Yuccas of various kinds, Hydrangea hortensis, and H. paniculata grandiflora; Kniphofias, Bocconia cordata, and Lupins.

Nymphæa.—If Nymphæa plants have to be purchased, they should be ordered without delay, and preparations made for planting them immediately on arrival. There is now a splendid selection of varieties, including many suitable for growing in tubs or small pools. The following are a few of the best hardy varieties: (rose and pink shades) colossea, somptuosa, Brackleyi rosea, Marliacea carnea, Aurora, William Roogue, Marliacea rosea, and Mrs. Richmond; (yellow) Marliacea chromatella and sulphurea grandiflora; (white) odorata gigantea, Gladstoniana, Marliacea albida, tuberosa, and the fragrant, small-flowered N. pygmæa. The brighter-coloured forms are very beautiful, including William Falconer, atropurpurea, James Bryden, Marliacea ignea, Robinsonii, and gloriosa. The roots should be planted in shallow baskets, holding two or three pecks of soil, consisting of rich loam and leaf-mould; manure is not necessary. The roots will penetrate quickly through the baskets, and by the time the latter have decayed the plants will be established in the mud.

THE HARDY FRUIT GARDEN.

By F. Jordan, Gardener to Lady Nunburnholme, Warter Priory, Yorkshire.

Peaches and Nectarines.—These trees are more forward than they have been for several seasons past at this date, and in the south of England especially the young shoots will soon be large enough to allow the cultivator to commence disbudding. This operation should be carried out with great care, and the work should extend over two or three weeks, in order that the trees may not experience a check by the removal of too many shoots at one time. Trees that have been planted this season or root-pruned recently should not be disbudded so severely as the others. First remove all foreright shoots, also a number of those growing from the sides of the branches, in all cases leaving two well placed at the base of each branch. One of these shoots will generally suffice in the case of well-furnished trees, and it should grow from the top side of the branch. Commence to disbud at the top of the more vigorous trees first, working downwards, pinching here and there a shoot which has a fruit at the base. Many of these shoots and fruits may, if not required, be removed at a later thinning, or when the weather is more genial. Young trees require a rather different treatment, as in their case a sufficient number of shoots must be left for extension, so that the wall space may be furnished quickly. In some cases a second shoot may be allowed to remain at 1 foot or 1½ foot up the branch. In the case of old trees, the leader may be stopped if there is no room for its extension. Avoid training the shoots thickly: 4 inches to 6 inches apart is close enough to allow sunshine and air to ripen the wood thoroughly. The thinning of the fruits should be carried out concurrently with the disbudding of the shoots, removing ill-shaped and badly-situated fruits first, always remembering that many may fall during the stoning period, and that it is desirable to have the fruits as evenly distributed over the tree as possible.

Grafting.—The weather has been most favourable for grafting fruit trees, and the work should be completed without delay. Examine trees that were grafted recently and make good any cracks in the clay by rubbing moist clay into the openings. Encourage a few shoots to grow on the stocks for a short time, as these will cause the sap to circulate more freely. Examine trees that were grafted last year, and, if necessary, secure the grafts to stakes to prevent damage by strong winds.

FRUITS UNDER GLASS.

By E. Harriss, Fruit Foreman, The Royal Gardens, Windsor.

Melons.—The fruits on the earliest batch of plants are swelling freely, and stimulants may be given more frequently and at a greater strength than formerly. Liquid manure made from cow dung is one of the most suitable stimulants for Melons, and at the final stages of growth may be applied to the plants at full strength. When the fruits commence to colour, a drier atmosphere should be maintained, plenty of air admitted when the weather is warm and genial, and water withheld gradually from the roots. The fruits should not be allowed to remain on the plants till they are fully ripe: they will keep longer and the flavour will be much improved if they are cut two or three days before they are required for consumption and placed in a cool room. During the hottest part of the day, the plants should be shaded. The stopping and regulating of the shoots of later plants must receive early attention, as Melons grow rapidly at this time of the year. As soon as sufficient fruits have set, the lateral growths must be kept removed as they appear. Raise a fresh batch of plants to replace the older ones when all the fruits have been cut. If wood-lice have been troublesome, all the old soil and heating materials should be removed from the house, and everything saturated with boiling water or a strong insecticide. These insects often induce canker to develop in Melons by eating the stems of the young plants. The glass and woodwork should be cleansed thoroughly, and the walls limewashed before planting afresh. Melons may be well grown at this time of the year in heated pits, without hot-beds. The rooting medium should be placed near to the glass.

Melons in Frames.—Although the fruits of Melons grown in frames are not quite so good in flavour as those grown in heated structures, plenty of good, serviceable fruits may be grown in unheated frames during the summer months. The frames should be set on a hot-bed of stable litter and leaves, in equal parts, placed to a depth of 3 or 4 feet. The materials should be well mixed, and placed in a heap to ferment before the hot-bed is made. In making the hot-bed, be careful to tread the materials firm and even throughout. Set the plants in mounds of soil at the head of the pit, using loam mixed with a small quantity of old mortar rubble. Should the soil be poor in quality, some crushed bones may be incorporated. Discretion must be exercised in ventilating the frames, especially during changeable weather. Early in the afternoon the plants should be sprayed with lukewarm rainwater previous to closing the frames. At night, the glass should be well covered with mats, and plenty of short litter placed around the sides of the pit. The latter should be mixed occasionally with fresh material in order to maintain the necessary degree of heat. Stop the points of the leading shoots when they have furnished three parts of the width of the pit, and stop the laterals at one or two joints beyond the fruits. When plenty of female flowers are open to form a crop, pollinate them, keeping the atmosphere dry. When sufficient fruits have set, all lateral growths should be pinched regularly. The fruits may be elevated near to the glass on pots.

Late Vines.—Late vines should be disbudded before the shoots become too large. Be careful to leave sufficient growth to ensure a good spread of foliage without causing crowding of the leaves. Admit air freely to all late vines when the weather is favourable. Give the roots a thorough soaking with diluted liquid manure before the flowering stage is reached. Except during the time when the plants are flowering, the house should be damped freely. Mealy bug must be eradicated directly the pest is detected.

THE ORCHID HOUSES.

By J. Collier, Gardener to Sir Jeremiah Colman, Bart., Gatton Park, Surrey.

Lycaste.—Plants of Lycaste Skinneri and its variety alba; L. Balliae, L. Gratrixæ, L. leucantha, L. Lucianii, L. costata, L. lasioglossa, and L. lanipes will develop new growths as they pass out of flower, and any that require new rooting materials should receive attention. Specimens that are pot-bound should be afforded larger pots, selecting receptacles sufficiently large to accommodate the plant for at least two years. Plants that have sufficient rooting space and with the compost in a good condition should not be repotted, but portions of the old rooting materials should be removed from the surface and replaced by fresh. Plants that are found to be in a bad condition at the roots or growing in sour compost should be taken out of the pots, and the roots cleansed of the old material by washing. They should then be repotted in relatively small pots. Keep the crown of the plants a little below the rim of the pots, so as to provide plenty of space for watering, as, during their growing season, Calanthes require liberal supplies of moisture at the roots. After the growth is completed, they should be kept on the dry side until they begin to develop their flowers, when the supply of water at the roots should be again increased. During the growing season they should be syringed frequently overhead. A suitable compost for Calanthes is good fibrous loam, from which all the small particles has been removed, and turfy peat in equal proportions, with a liberal addition of crushed crocks and small lumps of charcoal. During the summer months stand the plants in a shady position in the Odontoglossum house, and place them in the intermediate house for the winter.

Phaius.—Plants of Phaius Blumei, P. B. Sanderianus, P. Bernaysii, P. grandifolius, P. tuberculosus, and such hybrids as P. Norman,

P. Cooksonii, and P. Phœbes will soon develop new roots, and should be either top-dressed or repotted as is found necessary. A similar mixture to that advised for Lycastes is suitable. The pots should be well drained, as it is essential that water should pass freely through the compost. Place the base of the plant a little below the rim of the pot to provide plenty of room for water at the roots. The leaves should be sponged frequently with an insecticide to keep down scale insects, this Orchid being particularly subject to attacks by this pest. The plants should be grown in an intermediate temperature, and afforded a position where they may receive plenty of air without being subjected to draughts.

Spathoglottis.—Spathoglottis Vieillardii, S. Lobbii, S. aurea, S. Kimballiana, S. Fortunei, S. kewensis, and hybrids, such as S. Colmanii and S. Colmanii aurea, also need attention at the roots. The plants require the temperature of the warmest house, and should be well shaded during bright days. When in full growth they require a liberal supply of water at the roots and frequent sprayings overhead. For potting use a compost similar to that recommended for Lycastes and repot as advised for those plants.

PLANTS UNDER GLASS.

By Thomas Stevenson, Gardener to E. Mocatta, Esq., Woburn Place, Addlestone, Surrey.

Nerine.—These beautiful autumn-flowering bulbous plants have almost completed their growth, but they may still be watered sparingly with liquid manure. At this stage they will do best on a shelf in a moderately cool house, where they will obtain all the sunlight possible. Nerines require a long rest in order to flower successfully, therefore as soon as the foliage shows signs of turning yellow water should be gradually withheld at the roots, but the resting season must not be precipitated by withholding water suddenly or much harm may be done.

Coleus thyrsoideus.—Cuttings of Coleus thyrsoideus may be rooted now, obtaining them from plants that were cut down some time previously. They are best rooted in fair warmth, and should be hardened quickly afterwards. Grow the young plants on in an ordinary brick pit, and afford them partial shade during the summer. This treatment will ensure the plants being quite hardy, and, if they are stopped two or three times during their growing season, bushy specimens may be grown in 6-inch (32-size) pots. If the plants are afforded plenty of food after being housed in the autumn they will continue to bloom for a long period. The flowers are a bright shade of blue, and especially useful for the decoration of the conservatory.

Gloriosa.—Gloriosas are growing rapidly in the plant stove, and specimens started fairly early in the season will probably be showing flowers. When the blooms are developing the plants will benefit by frequent applications of weak liquid manure made, preferably, from cow dung. It is essential that the pots be well drained, so that surplus moisture may pass away quickly. The best of the numerous varieties is superba, the flowers of which are extremely useful for vase and table decoration.

Rhododendron indicum.—This plant is best known in gardens as Azalea indica. As specimens pass out of bloom the old flower-stems should be removed, taking care that the young growths under the flowers are not injured in the operation. Specimens that require potting may be attended to in this respect. A mixture of peat, leaf-mould and sand, with just a little loam added forms a suitable compost, but do not add sufficient loam to make the soil close. It is not advisable to afford the plants too large pots; the receptacles should allow only sufficient room for a rammer to be worked between the ball of the plant and the pot to ensure firm potting. Old plants that are growing straggly should be either tied into shape or have the long, ungainly shoots removed. After potting they should, if possible, be placed in a house by themselves, kept fairly close, and syringed for a time. This will soon rid them of insect pests unless they are badly infested, when they should be fumigated on one or two occasions. As growth develops air may be afforded, but it is a great advantage to have the plants well furnished with new growth soon, as they may then be hardened fairly early and placed out-of-doors in a semi-shady position to complete the process of bud formation ready for an early start next season. Careful watering is a very necessary precaution with Azaleas, and, if the plants are intended to be grown for a number of seasons, rain water should be used, as lime is detrimental to them.

THE KITCHEN GARDEN.

By Edwin Beckett, Gardener to the Hon. Vicary Gibbs, Aldenham House, Hertfordshire.

Cardoons.—The most satisfactory method of cultivating Cardoons, especially on light soils, is to plant in trenches prepared as for Celery or Peas. The sooner the trenches are made, the better. Take out the soil to a depth of 2 feet and the same in width; break up the bottom and add manure liberally, returning a few inches of the excavated soil. Avoid sowing too early, otherwise the plants may flower prematurely. Early in May sow a pinch of seed at intervals of 18 inches in the row, and cover the seeds with a little of the finest soil. When the young plants are large enough thin each clump to a single specimen.

Peas.—The planting of seedling Peas raised in boxes should be proceeded with as they become ready, staking them immediately after planting. Protect the young plants from attacks of birds and occasionally dust the rows with soot. Seeds sown in the open ground, and especially in gardens where mice are troublesome, should be first steeped in red-lead. Protect the seeds from the birds by placing wire guards along the rows: failing these, strands of black cotton will prove useful. Sow only the very best varieties suitable for the particular district. Duke of Albany, Alderman, Edwin Beckett and Quite Content are good varieties for mid-season supplies. Avoid planting or sowing too thickly, and, where practicable, avoid overcrowing the rows. I much prefer single rows, and these in dry seasons impart beneficial shade to crops near to.

Turnips.—The earliest Turnips out-of-doors will need partial thinning as soon as they are large enough to handle. The growth of Turnips in frames may be hastened by closing the lights fairly early in the afternoon and damping the foliage. Sow seeds in small quantities out-of-doors for a succession of roots.

Lettuce.—Frequent small sowings of Cos and Cabbage varieties of Lettuce should be made. Continue to plant Lettuces out in various positions for a regular supply, dusting them with soot.

Tomatos.—Plants with lower trusses of fruit swelling will need considerable attention to keep them in a healthy and vigorous condition. Water must be afforded with great judgment, and whilst carefully guarding against over-watering, it must be borne in mind that more frequent applications of water at the roots will be necessary now that the sun has increased in power, and if the plants are at any time permitted to become too dry, a poor crop will result. Assist the plants regularly with properly-diluted liquid-manure, and at intervals apply a top-dressing of fresh soil, withholding the liquid stimulant until the roots have penetrated the new soil. If the pot contains so much soil that top-dressings cannot be added, a small quantity of finely-sifted loam mixed with an equal amount of some suitable fertilizer sprinkled on the top of the soil will assist the plants. Remove the side shoots before they become too large, and, in the case of the earliest batch, stop the main shoot when a fair crop is set. Admit plenty of air at all times when the weather is favourable, and maintain a buoyant atmosphere, using fire-heat if necessary. Unless the foliage is very dense, I do not recommend defoliating the plants at present. The fruits should be gathered when they commence to colour, and placed on a warm shelf to ripen. By gathering them before they are fully ripe, the fruits are not liable to crack.

Cucumbers.—The growths should be stopped and regulated at least once a week to train the plants evenly on the trellis. Syringe the plants twice daily, wetting the undersides of the foliage. Maintain a humid atmosphere, and if red spider is present, syringe the foliage again late in the afternoon. If there are evaporating troughs on the hot-water pipes, keep them filled with strong manure-water, and sprinkle manure-water on the pathways as a preventive of attacks of red spider. Vigorous plants will require frequent top-dressings of soil, to which a small proportion of manure has been added. Copious applications of water must be given, for dryness at the root results in a poor crop of bitter fruits. Manure-water diluted to proper proportions is a valuable stimulant. Sow seeds as often as may be necessary for successional crops; at this season young plants quickly come into bearing, and are more fruitful than older plants. Tomatos growing in pits or frames must be protected carefully by covering the glass with mats on cold nights. The necessary watering of the roots and regulating of the shoots should only be done during warm weather.

THE APIARY.

By Chloris.

Purchasing Bees in Straw Skeps.—Bees are often purchased at this season of the year in straw skeps, because, if the combs are old, there is little fear of them breaking, owing to the store of honey being small. It is difficult for an amateur to judge whether a stock is strong and healthy when purchased in this manner. The combs of a good colony should be free from mould, quite straight, and reach to the bottom of the hive. When the combs are pushed aside, all those in the centre should be well filled with sealed brood, which can be easily seen.

Examining a Colony and Removing It.—In order to examine a stock, have the smoker well alight, and puff smoke into the hive at the entrance. In less than a minute the bees will have gorged themselves sufficiently to permit of the hive being overturned, and, immediately this is done, puff smoke between the combs to drive the bees down. They may be removed on a dull day early in the morning or late in the evening. Proceed as before when about to remove the skep, and, as soon as the hive is overturned and the bees driven down, cover the bottom with a cheese cloth and tie the cloth tightly. The skep should be carried to its destination mouth upwards.

Bar-framed Hives.—Some bee-keepers place the skep above frames fitted with full sheets of wired foundation, when the queen will go below. After there is no further room for the queen to lay her eggs, place a sheet of queen-excluding zinc between the brood chamber and the skep; in three weeks' time those bees above may be driven and added to the established colony. This is not an economical method, nor one to be recommended. It is best to drive the bees and cut out the combs containing brood

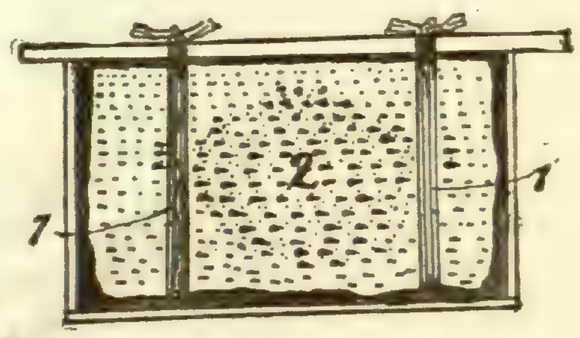


Fig. 122.—Securing the comb in a frame.
1, Tapes; 2, Brood.

and lay them on several layers of soft cloth, so that the sealed brood may not be injured. Over the comb place an empty frame and cut the comb so that it will fit the frame. Tie it with tapes as shown in fig. 122, so that the top of the comb touches the top bar, for, if any space be left, the bees will not seal it in. Place the brood comb in the centre of the hive and that containing honey on the outsides, to be replaced when emptied by full sheets of wired foundation. When all the combs are fitted in the frames, throw the bees out of the skep on the alighting board of the bar-frame hive. The whole operation of driving, fitting up the combs and returning the bees to the hive must be done expeditiously, or the brood may be chilled and killed. It is best to perform the operation on a warm day. The tapes may be removed as soon as the combs are sealed to the top bar, which will be done by the bees in two or three days.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, *as well as specimens of plants for naming, should be addressed to the* **EDITORS, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Special Notice to Correspondents.—*The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.*

Local News.—*Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, APRIL 23—Breconshire Daffodil Sh.

WEDNESDAY, APRIL 24—
Royal Botanic Soc. meet. North of England Hort. Soc. meet at Leeds.

THURSDAY, APRIL 25—
Midland Daffodil Soc. Sh. at Birmingham Botanical Gardens (2 days). Norwich Spring Sh.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—48·6°.

ACTUAL TEMPERATURES:—

LONDON.—*Wednesday, April 17* (6 P.M.): Max. 59°; Min. 44°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—*Thursday, April 18* (10 A.M.): Bar. 29·9°; Temp. 57°; *Weather*—Sunshine.

PROVINCES.—*Wednesday, April 17:* Max. 54° Cambridge; Min. 43° Scotland, N.E.

SALES FOR THE ENSUING WEEK.

WEDNESDAY—
Herbaceous and Border Plants, Lilies and Hardy Bulbs at 12; Palms and Plants at 5; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

FRIDAY—
Orchids, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.45.

Home-grown Tobacco and Nicotine Extraction.

It would come as a shock to a Chancellor of the Exchequer if he were to discover that he had established a system of old age pensions for Apple suckers, Hop and Damson aphis and other insect pests which are the scourge of fruit-growers and horticulturists generally. Were he told that he was compelling horticulturists to subscribe to the conservation of those pests which they are endeavouring to destroy he would be lost in amazement at his own temerity. Yet this is no fanciful picture of the present state of affairs, but a faithful one. It is true that the blame does not rest with chancellors, nor indeed with anyone. It is the chance outcome of the progress of our knowledge.

No smoker objects to the heavy duty which his tobacco—

> "Sweet when the morn is grey;
> Sweet when they've cleared away
> Lunch; and at close of day
> Possibly sweetest——"

—has to pay before it is consumed in his cheerful pipe. His contentment, as he puffs his proud cigar or furtive cigarette, is enhanced by the knowledge that he is contributing his share to the solvency of nations.

But many things have happened since Sir Walter Raleigh laid the foundation of this national habit, and among these things is the discovery that nicotine is one of the most valuable of insecticides. An alert and vigilant executive would have discovered that this is the case, and years ago would have reasoned thus:—We taxed tobacco as a luxury, and we were right, and we shall continue to tax it. But we must find a way whereby the active principle of tobacco, which is so deadly to insect pests, may be supplied to the horticulturist at a proper price. Nicotine sells at the present moment at 15s. a pound; it costs 3s. or 4s. to prepare—the difference between cost price and selling price is about 10s., and of that sum the major part represents "duty." Hence we are imposing a fine of 10s. on every careful cultivator who tries to keep his orchard or his Hop-garden, or his greenhouse clean. We are not responsible for this, but we shall be responsible for allowing this unfortunate and incidental injustice to remain.

It does not need to be said that no alert and vigilant executive argued in this way; nor does it need to be said that attempts to remedy the present silly conditions of things proceeded in the first place from private individuals, and from associations of such individuals.

As the outcome of these efforts the nicotine problem, as we may call it, is well under way to solution. The problem is by no means simple. Though the sky fall the Revenue must not suffer. If anyone and everyone were allowed to grow tobacco for insecticidal purposes, many would be tempted to try the effects of the crop on themselves—with disastrous results to them, to their neighbours in smoking carriages, and to the Revenue. Therefore it has to be recognized that the cultivation of tobacco in this country must be restricted. Further, such is the naughtiness of trade, the crop must be safeguarded lest unprincipled dealers should buy up the juice, mix it with vegetable debris and sell it as shag. To prevent this, homegrown tobacco must be denatured; that is, rendered unfit for smoking without detriment to its insecticidal powers. Lastly, it must be demonstrated that tobacco rich in nicotine may be raised cheaply in this country.

Knowing by long experience how desperately wicked is the heart of man, the Revenue authorities will not allow a stem of the Tobacco plant to be grown in this country without all sorts of safeguards and sanctions.

It speaks well for the South Eastern Agricultural College at Wye that they were not deterred, even by the restrictions imposed by the Revenue authorities, from tackling the problem; and we congratulate them on the very successful issue to which their efforts have led them. The results of experiments carried out at Wye by Messrs. Garrard and Edwardes-Ker (*The Growing of Tobacco for Nicotine Extraction.* Part II.) show that nicotine may be put on the market at a far lower price than that which obtains at present. In a bad, sunless year (1910) the cost of nicotine, obtained from the Tobacco crop grown at Wye, worked out at about 6s. 6d. a pound, considerably less than half the market price. In the good, sunny year of 1911 the cost price would have been something less than 5s.

There seems no doubt therefore that when further experience in cultivation has been gained nicotine may be put on the market at 5s. a pound or even less.

The problem of finding a denaturing agent is by no means easy. As the result of extended trials the Wye authorities recommend copper sulphate and sulphur. Anyone who smoked a pipe in the Underground Railway, before the happy electric days, will concede that sulphur is calculated to preserve them from Tobacco. With copper sulphate thrown in to produce a vivid green glue-like liquid, we fancy that even the apprehensions of the Revenue may be lulled. There the matter rests. The Central Chamber of Agriculture, the National Fruit Growers' Federation, and the South Eastern Agricultural College have laid their proposals before the Financial Secretary of the Treasury, and if the chief Government chemist reports that the denaturing process is a sufficient security against fraud, we may hope to have the price of this invaluable insecticide reduced to a proper level. We do not know yet whether the chief chemist has issued his report; but having regard to the fact that the deputation only waited on Mr. Hobhouse in May of last year we may expect to receive it in due course.

Violas.

The Royal Horticultural Society has invited growers of Violas to contribute plants to Wisley for the purpose of making a trial there this season. In order to make the Wisley trial as useful as possible, it is to be hoped that arrangements will be made to allow the plants to stand undisturbed over next winter, and that the Floral Committee will inspect them again early in the summer of 1913 for the purpose of issuing a second report. In *Pansies, Violas, and Violets,* the popular handbook on these flowers in Messrs. Jack's "Present-Day Gardening" series, the author, Mr. William Cuthbertson, has a chapter entitled "The Hardiest Violas." To discover which were the hardiest varieties, Mr. Cuthbertson observed a plantation of Violas in Essex for three years. At the end of each flowering season the old growths were cut away and the beds top-dressed with decomposed manure. In the introduction to the chapter it is said: "It is well known that a great number of the most beautiful exhibition Violas will not survive a single winter if left standing in the open. Such varieties are often purchased because they look so effective when staged on an exhibition table; but disappointment very often follows unless they get into skilled hands and are carefully propagated by cuttings each season. It cannot be gainsaid that varieties which possess the character of growing into clumps and surviving through several winters in the open border are most advantageous for many purposes." Such varieties as the latter are easily propagated. The plants may be lifted and pulled to pieces, or single growths may be pulled off. These are generally partially rooted, and, if inserted as cuttings, they always succeed, and few, if any, losses take place in the frames or even in the open during the winter.

[Photograph by R. J. Wallis.

FIG. 123.—CAMELLIA CUSPIDATA, A HARDY SHRUB: FLOWERS WHITE.

(See p. 262.)

The varieties which survived over three winters in Mr. Cuthbertson's experiment were:—

Whites.—Seagull, Peace, White Beauty, Pencaitland and Christiana.

Cream.—Sylvia.

Primrose.—Sulphurea.

Yellows.—Grievii, Redbraes Yellow, Klondyke and Mrs. E. A. Cade.

Light Blues.—Blue Duchess and Lilacina (bedding Pansy).

Dark Blues.—Royal Scot, Archibald Grant, Edina, Blue Rock and Jubilee.

It would be interesting to discover if the same varieties tend to become perennial in the Wisley soil. Perhaps others will succeed in standing over the winter in Surrey which failed to do so in Essex. We have specially in mind such charming varieties as Maggie Mott, Lady Marjorie, Admiral of the Blues, Cream King, Primrose Dame, Snowflake, and Purity. There are now numbers of very fine bronze-coloured Violas, and it is to be hoped that they will be well represented in the trial. The ideal bedding Viola should have clean, bright foliage, it should produce flowers on short, upright stalks in abundance, and the flowers, whilst being of fair size, should be distinctly self in colour. All these points the Royal Horticultural Society will, no doubt, keep in view. It would be well also for the Society to tabulate early-flowering and late-flowering varieties for the guidance of planters. Violas are invaluable in large public and private gardens, where they are required often in tens of thousands; they appeal none the less successfully to the smallest amateur; hence the announcement of the Wisley trial will be welcomed universally.

CAMELLIA CUSPIDATA (see fig. 123).—This exceedingly free-flowering species was discovered by WILSON during his first visit to China. A specimen shown by Messrs. JAMES VEITCH & SONS was in the form of a compact, pyramidal bush. The narrow leaves are from 2 inches to 2½ inches long, and the white flowers are 1½ inch in diameter, the latter resembling somewhat those of C. Sasanqua or Eucryphia pinnatifolia. The tree is an evergreen, and has proved hardy at the Coome Wood Nurseries; the flowers open in April. Although the hybrid Camellias are hardy over a great part of the British Isles, the fleshy petals of their beautiful flowers are easily damaged by slight frosts or rough gales, but the firmer texture of the petals of C. cuspidata enables them the better to escape injury. As Camellias seed with moderate freedom—in the West of England, the single and semi-double hybrids grown out-of-doors produce their fleshy fruits during hot seasons—the new species offers a fine opportunity for a hybridist with skill and patience to give us a race of hardier Camellias with flowers of equal beauty to those of the present hybrids. Camellia cuspidata was given an Award of Merit by the R.H.S. on April 2 last.

THE PERILS OF THE PLANT COLLECTOR.—On p. 188 we announced that Mr. PURDOM had sent home a cable with the news that he had arrived safely at Peking. It now appears from a letter just received (British Legation, Peking, March 23) that the revolution riots became so bad in the Shensi and Kansu provinces that Mr. PURDOM had little hope of getting away with his life. The most dangerous situation was encountered at Shenchow, in Honan, where PURDOM and his Chinese escort of three men were attacked by brigands, who shot down two of the horses. At this point it was determined to make a stand, and thanks to the possession of a rifle Mr. PURDOM was able to turn the position and break away, but not without loss of life. Mr. PURDOM states that, at the time of writing, the Chinese soldiers were most to be feared as they were not receiving wages, and were causing riots in most of the cities. Mr. PURDOM, who has been for the past three years collecting for Messrs. VEITCH & SONS, is now on his way home from Peking.

ROYAL INTERNATIONAL HORTICULTURAL EXHIBITION. — Exhibitors are reminded that Wednesday, May 1, is the latest date for the making of any alterations or withdrawals which may be occasioned by exigencies of weather, season, or other causes.

L.C.C. GARDENERS AND THE R.H.S. EXAMINATION.—The London County Council decided in August, 1905, that gardeners employed in the Parks Department before becoming entitled to further increments of wages, in accordance with the approved scale, should be required to pass in the first or second class the examination in practical horticulture, held by the Royal Horticultural Society, and in January, 1911, the Council further decided that under-gardeners who pass the examination should receive an allowance of 1s. a week in addition to the wages of their class. Vacancies for gardeners are also filled so far as possible by the promotion of such under-gardeners as have passed the examination. The Parks Committee of the Council now report that of the men who have presented themselves for examination in the last four years 269 have been successful. The Committee are also pleased to report that out of 38 employees in the Parks Department who sat for the examination in January last, 30 passed, of whom 10 were in the first class, 6 in the second, and 14 in the third.

SURVEYORS' INSTITUTION. — The annual dinner of the Institution will be held at the Whitehall Rooms, Hotel Metropole, on the 23rd inst. The professional examinations will be held on March 25 and following days. The Council have accepted an invitation from the Nottingham and Lincoln Committee of the Institution to hold the next country meeting at Nottingham on May 30 and 31.

EDINBURGH SPRING SHOW. — The receipts, including the proceeds from the sale of tickets for admission to the Spring Show of the Royal Caledonian Horticultural Society, amounted to £183, which is about £34 more than was taken last year. The arrangements made with the railway companies for reduced fares could not be carried out owing to the coal strike, but the heating of the hall, which was brought into operation for the first time for a flower show, was no doubt the means of attracting more visitors.

ROOT NODULES OF MYRICA GALE.—According to the researches of Professor BOTTOMLEY, the root nodules of Myrica gale are the outcome of infection by the bacterium Pseudomonas radicicola, which is responsible for nodule formation in the Leguminosæ. The bacterium is capable of forming organic nitrogen compounds from the nitrogen of the air, and hence Myrica gale must rank with the Leguminosæ as a nitrogen fixing plant. According to Professor BOTTOMLEY plants of Myrica gale free from nodules planted in soil containing no combined nitrogen are unable to survive, whereas plants with nodules similarly treated are able to live.

AMERICAN GOOSEBERRY-MILDEW. — The summer stage of this disease has been discovered already in a Cambridgeshire garden, and growers are recommended to examine their bushes carefully, and should any sign of disease be found, to spray their bushes with a solution of liver of sulphur (1 lb. to 32 gallons of water). By Article 3 of the American Gooseberry-mildew Order of 1911 growers are required to report the presence of this disease on their premises to the Board or the Clerk of the Local Authority for the district either directly or through an inspector, the failure to report being punishable by a fine.

PRESENTATION BY THE ST. GERMAN'S HORTICULTURAL SOCIETY. — In recognition of his services to the above society the members have presented a silver centre-piece and pair of silver candlesticks to Mr. ALFRED J. HAMPTON, who is leaving the neighbourhood. Amongst many other good works in connection with the society Mr. HAMPTON instituted seed-raising competitions for children, which proved so popular that no fewer than 550 children have entered for this competition for the forthcoming show.

SALT AND SUGAR BEET. — Experiments carried out at Orton (*Joint Report*, 1911, Staffordshire, Shropshire, and HARPER ADAMS College), appear to show that the addition of salt to the manurial dressing applied to land used for the cultivation of Sugar Beet has a markedly beneficial effect, both in yield and quality of this crop. The plot to which salt was added (4 cwts. per acre) yielded 14 tons 17 cwts. as against 13 tons 7 cwts. from the plot which received similar manurial treatment, except that no salt was applied.

SCHOLARSHIPS IN AGRICULTURE. — The Staffordshire Agricultural Committee has issued an announcement of the scholarships which it offers in agriculture. They include the Staffordshire Major Scholarships (of a value of £45 per annum, tenable at the HARPER ADAMS College), the Minor Agricultural (Brewood) Scholarships (of a value of £4 per annum, tenable at Brewood Grammar School), and special short term agricultural scholarships. Full particulars may be obtained from the Director of Education, County Education Offices, Stafford.

THE EFFECT OF MANURES ON TOBACCO.—In the course of experiments—referred to elsewhere—made at the Wye Agricultural College, it was shown that the heaviest yield of Tobacco leaf and the largest amount of nicotine were obtained by manuring with farmyard manure plus artificials. Thus, whereas farmyard manure alone yielded from 124-138 lbs. of nicotine per acre, farmyard manure plus artificials yielded from 149-161 lbs.

MR. JAMES GRIEVE.—The many friends of Mr. JAMES GRIEVE, head of the firm of Messrs. JAMES GRIEVE & SONS, who were present at the Edinburgh Spring Show, were glad of the opportunity to congratulate him on his recovery from a long and serious illness. Had Mr. GRIEVE been present at the Chrysanthemum Show of the Scottish Horticultural Exhibition last November he would have attended 52 consecutive shows at Edinburgh.

FLOWER SHOWS AT BIRMINGHAM.—The Birmingham Botanical and Horticultural Society have decided to hold two flower shows during the present summer at the Botanical Gardens, Edgbaston. The first will be held on June 12 (Orchids and early summer flowers), and the second on July 17 (Roses and midsummer flowers). Honorary exhibits of flowers, fruits, and vegetables will be welcomed. Particulars may be obtained from the Hon. Secretaries, Botanical Gardens, Edgbaston.

Public Park for Chesterfield.—Alderman George A. Eastwood, Chesterfield, has presented to the borough of Chesterfield, in memory of his father, who was a great benefactor to the town, a fine country house, Hasland Hall, and its 15 acres of grounds, as a public park.

Forestry in Scotland.—The Departmental Committee on Forestry in Scotland, which was formed to report on a suitable location for a demonstration forest in Scotland, considered that such an area should contain not less than 4,000 acres, of which one half should embrace growing woods. The committee fear it may be difficult to secure a suitable area. The necessary capital outlay for establishment is estimated at £15,500, and the initial annual expenditure at £2,400. For the promotion of forestry in Scotland the committee recommend a flying survey to determine the best forest sites and their extent, the appointment of an advising forester, who would require at least one assistant, and the formation of a small number of State-owned trial forests.

Manuring of Grass Land.—The Joint *Report* (1911) on field experiments in Staffordshire and Shropshire and at the Harper Adams College contains the results of a comprehensive experiment carried out at various centres on the effects of different manures on the yield of hay. At Blurton, where the experiment has been in progress for 13 years, the value of applying complete artificial manures has been amply demonstrated. Thus, even in the dry season of last year the yield obtained from the plot dressed with nitrate of soda (1 cwt.), basic slag (5 cwt.), and kainit (3 cwt. per acre) was equal to that given by the plot manured with farmyard manure (12 cwts. per acre). The cost of the latter manure was 60s. per acre, whereas that of the complete artificial manure was 29s. 1d., leaving an ample margin of profit in favour of the artificials.

Importation of Cut Flowers in Russia.—Although British growers have no direct interest in the export of flowers to Russia, they are not without an indirect interest, and will learn with surprise that the value of the Russian imports of cut flowers reached over £30,000 in 1910. The indirect interest lies in this, that France and Italy, which are the chief sellers, are likely to divert more and more of their goods to this promising market, and thus to provide an increased chance for our own flowers in our own markets.

Leaks in Pipes.—According to a writer in the *Florists' Exchange*, "lead wood," which is metallic lead cut in fine shreds about the thickness of ordinary twine, is an excellent material to use for stopping leaks in pipes. The lead wood is caulked in by means of an ordinary chisel, and may be employed when the water is on or off.

Plum Rust.—Experiments by Mr Brooks (*New Phytologist*, x., 1911) show that the æcidial stage of the Plum rust (Puccinia Pruni) is Æcidium punctatum, which occurs in Anemone coronaria. This æcidial phase of the Plum rust has now been recognised to be the same in Russia, the United States, and in this country.

Canadian Railways.—In 1911 there were 25,400 miles in operation, and no fewer than 4,200 miles of railway in course of construction west of Lake Superior. Canada has borrowed in London for railroad making more than 72 millions sterling in the last seven years. Railway building on this scale in Western Canada has been made possible by the policy of the Provincial Governments in guaranteeing the interest on approved lines serving settled territory, and where production provides adequate freight for new lines.

Government Help for Settlers in Nova Scotia, Canada.—Under the provisions of a Bill introduced by the Nova Scotian Government the authorities will enter into arrangements with loan companies by which 80 per cent. of the appraised value of farms may be lent to farmers who wish to settle in the country. Easy terms will be arranged for the repayment of the amount borrowed. Newcomers will be given every assistance possible, and experts will give all information to them when they arrive. Skilled valuers will estimate the worth of any farm a settler may wish to purchase, and will see that he is fairly dealt with. After he has purchased he will be visited by agricultural experts as occasion demands, and will be given all necessary information.

Fairy Rings.—An explanation of the curious phenomena presented by fairy rings—dark glossy rings of grass surrounding a dead patch—is offered by the work of Miss J. S. Bayliss (*Journal of Economic Biology*, vi., 1911). The fairy ring is due to a fungus, generally Marasmius oreades, which is parasitic on the roots of grass. These roots it kills, and, decomposing them, sets free food materials which stimulate the growth of the grass roots as yet unattacked. Hence the ring of luxuriant grass. The fungus, however, is self-destructive, for it excretes a poison into the soil, and, as a consequence, is unable to live in the same place for three successive years. When this time is reached the grass invades the soil in which the fungus has succumbed, and, flourishing there, forms a circular verdant patch.

Poultry Keeping.*—The third number of the smallholder library deals in an interesting and succinct manner with poultry from the smallholder's point of view. The contributors are all experts in the various branches of poultry-rearing, and their instructions may be summed up as follow:—"Start right; follow the advice of those who know; attend strictly to business; breed the best general-purpose fowl in existence; and your success is assured." This is right so far as it goes, but to be successful with any living objects it is essential that the breeder or grower should be in full sympathy with his charges. The work under notice takes the reader through all the phases of the fowl; hatching, both by natural and by artificial means; the care of the young chicks; their treatment as juveniles; and the best methods by which to endeavour to render them profitable as adults. We say "endeavour" advisedly, for, after a long experience under very favourable conditions, we are exceedingly sceptical on the score of profit. We have yet to see a properly-drawn balance-sheet which shows a legitimate profit. Over a score of breeds and varieties are named as being of value to the smallholder, and we are glad to see that the author has a deservedly good opinion of the table value of the old English game fowl, an opinion which we can heartily endorse. We agree with the writer that many of the hens are comparatively poor layers, but it will be found that the "Old English Spangles" will compare very favourably with many other breeds as egg producers; their eggs are very round, and consequently of great individual value. Besides the domestic fowl, this work deals with several kinds of ducks, including those wonderful layers, the Indian Runners, geese, turkeys and the pretty guinea-fowls. Of the last-named it is claimed that one fowl is capable of keeping an acre of Potatos clear of beetles and wire-worms, and that the fowls will not damage the crops. The diseases of poultry are dealt with in an intelligent manner. The print is clear and distinct, and the illustrations are good.

* *Profitable Poultry Keeping*, 1s. (C. Arthur Pearson, Ltd.)

Submerged Forest.—A short account of the exposure of the submerged forest at Freshwater West, Pembrokeshire, appears in *Nature*, March 28, 1912. An unusually high tide, combined with extensive shifting of sand and shingle, permitted Lieut. Col. F. Lambton to examine the "forest." Stumps of trees embedded in a foot or so of peat covering an old land surface are frequent. No implements appear to have been found, but it seems that the deposit is of the same age (Neolithic) as the similar formation found elsewhere on our coasts.

New Rose from Formosa.—Since the Japanese have obtained possession of the island of Formosa their botanists have been very energetic in exploring it. For the first time their collectors have obtained access to the mountains. Amongst the new plants there discovered is a Rose of small compact habit belonging to the group Cinnamomeæ, nearly allied to the Himalayan R. Webbiana. It grows on Mount Morrison at an elevation of 12,000 feet, and has been described by Dr. Hayata under the name of Rosa Morrisonensis.

Carbon-Assimilation by Plants.—The leaf of a plant has been likened to a factory engaged in elaborating complex substances from the simple raw materials supplied to it. In the case of the carbohydrates, the final product, starch, and the simple raw materials, carbonic acid and water, are known definitely, but there is some uncertainty as to which of certain sugars are formed as intermediate products of assimilation. It is now some years since Brown and Morris brought forward experimental evidence, based on the study of Tropæolum, to prove that the first sugar to be synthesised by the leaf is cane sugar. When the concentration of this sugar exceeds a certain amount, it is transformed into starch, which is a more stable and permanent reserve material than sucrose. These conclusions have not escaped criticism, but it is only recently that fresh experimental evidence on the subject has been obtained by Parkin, in England, and Strakosch, in Austria. Parkin selected the Snowdrop for his experiments, choosing it because it is one of the few plants which do not elaborate starch in their leaves. It is therefore a more simple material for investigation than the Tropæolum. Parkin comes to the same conclusion as Brown and Morris, namely, that cane sugar is the first product formed. Subsequently, it is broken down by an enzyme in the leaf into the more simple sugars dextrose and laevulose, which, according to the older views of Sachs and others, are those first formed in the leaf. The older view, however, has received some confirmation in the work of Strakosch, carried out with the leaves of the Sugar Beet. Using a somewhat different method for determining the sugars to that employed by the English workers, he claims that dextrose is the first sugar to appear, part of it soon becoming transformed into laevulose, and the two combining to form cane sugar. Starch is only formed when a considerable quantity of cane sugar has accumulated in the leaf sap. The cane sugar produced in the leaf of the Beet travels in this form to the root to be stored: in the Tropæolum, Brown and Morris considered that cane sugar is not translocated as such, but in the form of its simple components—dextrose and laevulose. A similar conclusion is reached by a study of the Beet in the second year of growth. The cane sugar stored up in the root is translocated to the growing parts as a mixture of dextrose and laevulose, which are recombined on reaching their destination. The evidence at present seems to favour the retention of the view expressed by Brown and Morris; but it is evident that the problem is not finally solved.

OVERHEAD IRRIGATION.—A recent issue of *The National Nurseryman* states that irrigation by means of whirling sprayers is to be carried out on an extensive scale in the Quincy district of Grant County, U.S.A. The apparatus consists of sprinklers much larger than those used for watering lawns and borders. The water will be lifted from a deep well by a double-action pump driven by a gasoline engine. This method has been tried on a small scale in several American orchards with good results, but it was found necessary to lay straw beneath the trees to prevent the sprinkling from beating the ground into a compact surface.

FISH HATCHERIES IN CANADA.—Hatching fish by artificial means to stock the waters of Canada is engaged in on a large scale by the Dominion Government. In 1909, the Dominion fish hatcheries planted no fewer than 1,024,282,000 fry in various waters throughout the country. In 1909, only 271,996,000 fry were planted by the Government fish hatcheries. The number of hatcheries has increased from 12 to 37. Of the 37 hatcheries now in operation, British Columbia and Quebec have eight each, Nova Scotia, New Brunswick and Ontario five each, and Manitoba and Prince Edward Island each have three.

REMARKABLE EFFECT OF A PARASITIC FUNGUS.—Mr. S. KUSANO in the *Journal of the Tokyo Agricultural College* (vol. ii., No. 6) describes a remarkable case of phyllody caused by a fungus. The fungus, Caeoma Makinoi, infects the young buds of Prunus Mume, and causes malformation of the organs of the flower. In some cases only part of the flower is affected; in others all organs are subjected to more or less complete phyllody. Occasionally flowers of enormous size are produced, which possess not only green leaves brilliantly spotted with the yellow pustules of the fungus, but also leafy shoots.

"LA VIE A LA CAMPAGNE."—The issue for the 15th ult. is devoted entirely to "La decoration des Anciens Jardins," by Messrs. ALBERT MAUMENÉ, G. GIBAULT and LAMBERT. On the front page is a portrait of the painter LE BRUN, and the pages contain nearly 200 views of old-time gardens, pictures of terraces, staircases, balustrades, seats, fountains, cascades, vases, sundials, pergolas, and other garden appurtenances.

PUBLICATIONS RECEIVED.—***Cucumber Culture,*** by W. Dyke. (London: The Lockwood Press.) Price 1s.—***Quarterly Journal of Forestry.*** April. (London: Laughton & Co.) Price 2s.—***Bulletins of the Midland Agricultural and Dairy College, Kingston-on-Soar:*** Results of Field Trials on the Manuring of Swedes in the year 1911; Report on Field Trials with varieties of Oats in the year 1911; and Field Trials on the Manuring of Carrots. (Kingston, Derby: Midland Agricultural and Dairy College).—***How to Make an Orchard in British Columbia,*** by J. T. Bealby. (London: A. & C. Black.) Price 1s. 6d. net.—***The North of England Horticultural Society Monthly Magazine and Circular.*** April. (Secretary, Rev. J. Bernard Hall, Rawdon, Leeds.)—***Vines and Vine Culture,*** by Archibald F. Barron. Fifth edition, revised and enlarged. (Mrs. A. F. Barron, 13, Sutton Court Road, Chiswick.) Price 5s.—***"Present Day Gardening" Series.*** Edited by R. Hooper Pearson. Vol. XII.—***"Annuals, Hardy and Half Hardy,"*** by Charles H. Curtis. (London and Edinburgh: T. C. and E. C. Jack.) Price 1s. 6d.

CATALOGUES RECEIVED.

PROTHEROE & MORRIS, 67 and 68, Cheapside—Monthly Register of Nurseries, Market Gardens, Farms, Florists' Seed Businesses and Partnerships to be Let or Sold.
CHARLESWORTH & Co., Haywards Heath, Sussex—Orchids.
CLIBRANS, Altrincham—Dahlias and Bedding Plants.
JAMES STREDWICK & SON, Silverhill Park, St. Leonards-on-Sea—Dahlias.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

DAMAGE TO CONIFERS AT DROPMORE (see p. 245).—Lovers of these interesting trees will read with regret of the loss to the Dropmore collection. The Dropmore Pinus rigida is mentioned in the *Trees of Great Britain and Ireland* as being the finest known to the authors in these islands. The next best is one of three fine trees, all over 65 feet high, at Arley Castle, the tallest reaching 69 feet. I am under the impression that Mr. J. B. Fortescue owns at Boconnoc, his Cornish seat, another unusually fine Pinus rigida. I have no note of its height, but it would be interesting if that gentleman has lost a record tree in one estate, and still possesses the finest specimen. During the time I was engaged at Dropmore, the Tsuga brunoniana which has been damaged was considered to be the finest example in the country, but Messrs. Elwes and Henry in the work mentioned above, describe a specimen at Boconnoc as being much finer, so that the natural regret felt by the owner of these estates will be softened. I well remember conducting the late Professor Carl Hansen around the Conifer collection at Dropmore. The author of *Pinetum Danicum* was very enthusiastic over many of the fine specimens he inspected, expressing his regret that the climate of Denmark did not permit Conifers generally to attain such fine proportions, but when we came to the Tsuga brunoniana his enthusiasm was unbounded. It was an ideal day for seeing the real beauty of the Hemlock Firs—a warm, sunless day, with a gentle breeze which ever and anon stirred the delicate pendulous branches, disclosing to our admiring eyes the silver on the underside of the green leaves. Professor Hansen stood spellbound, then, throwing his arms forward in an ecstasy of admiration, fell on his knees gathering up the fallen cones which lay around. But, beautiful as this specimen was, one has to visit the examples growing in the warm, moist parts of the British Isles to see the "Indian Hemlock Fir" at its very best, for atmospheric moisture is essential to its full development, and it is not sufficiently hardy to thrive in a cold district. *A. C. Bartlett.*

"WAKE UP" MANCHESTER.—I do not desire to help *Pinus* restart the Lancaster and York Wars of the Roses, since my whole object is to promote co-operation, and annihilate the old feeling of antagonism between Lancashire and Yorkshire. I therefore much regret the militant tone of *Pinus's* letter in your last issue. I would like, with your permission, to make three points clear. (1) If there is "plenty of first-rate horticultural talent" in and around Manchester, why did this talent not stand by the "Royal Botanical and Horticultural Society of Manchester and the Northern Counties"? Then there had been no need of the N.E.H.S. I hope *Pinus* will answer this question, and say what he did to help. (2) As to a botanic or experimental garden being necessary near Leeds, *Pinus* shows great ignorance. Has he never heard of our unique Roundhay Park and gardens? Also, as regards an experimental garden, there is no need to start such, seeing that we have the goodwill and hearty co-operation of the experts in charge of the county council experimental gardens in the Northern Counties! I repeat—the N.E.H.S. is not a Leeds society. (3) I trust co-operation is not impossible? *J. Bernard Hall.*

———It is with a certain amount of amusement that I have read the various letters in explanation of the inability of Manchester people to run a flower show successfully. The letter of *Pinus* in your issue of the 13th is a brave attempt to cover up the dismal failure of the Botanical Society of doing anything to further the interests of horticulture, either practically or theoretically. He goes on to say that the Rev. J. Bernard Hall offering to hold shows and give lectures in Manchester under the auspices of the N.E.H.S. reminds him of the boy teaching his father how to wheel a barrow. Does it not strike *Pinus* that the boy in this case can teach the father how to work and organise a society to become a success. Now that we have got in the thin edge of the wedge in the Palatine county, it is our ambition to drive it home for all we are worth, so that we shall be true to one of the main articles of our society, that is, the North of England Horticultural Society. I am afraid that *Pinus* does not know what the society is out for; if he does not, I will quote for him the "object of the society"—"to organise horticulture (scientific, educational, and general) in the North of England." This is always to be found on the front page of the magazine which is issued monthly to its members. On March 30 *Palatine* bemoans the fact that the promoters of the North of England Horticultural Society did not enter into some arrangement with the Manchester Botanical Society before establishing a new society in the north. When the first meeting was called together on September 30, 1910, in Leeds, to discuss the advisability of forming a society for the North, I think I can speak for the majority of those present by saying it was their last wish to enter into any arrangement with any society, for we were out to be the "top dog" in trying to do for horticulture what so many societies have failed to achieve. Now that the Manchester society have played their game and lost, why not admit defeat manfully, worthy of the cause they have been fighting for, and come and join hands with the "boy," and so strengthen the common object we have in view? *P. C.*

———Up to a few years ago the exhibitions held in the Botanical Gardens, at Manchester, were a kind of "Mecca" for northern horticulturists. No doubt much of the success was due to the personality of the late Mr. Bruce Findlay. Nature is generally given credit for wisely filling gaps in her domain; but in this case she is taking some time to do it. Having had something to do at the outset in suggesting the formation of a society which developed into the N.E.H.S., I was much interested in the remarks of Mr. Bernard Hall. One thing in connection therewith is very clear: the almost unbounded enthusiasm and work of that gentleman has brought the N.E.H.S. to its present position. I recognise he has had the support of a strong council, some of whose members' names are household words in this country for wisdom and sound judgment. Judging by the remarks of some of your correspondents, it seems clear that Manchester, at any rate, is not prepared to amalgamate with the N.E.H.S. under present conditions. I fear that, ultimately, the same result will come about at both Newcastle-on-Tyne and Liverpool. Apparently the main question to settle now or shortly is how to best use the good work already done. My suggestions are as follow:—Retain the title N.E.H.S., with its secretary, council, and committees; form branch societies at, say, Manchester, Liverpool, and Newcastle-on-Tyne, with Leeds as the centre; each branch to have an assistant secretary, hold monthly meetings for the exhibition of new and rare plants, fruits and vegetables. *Henry J. Clayton, Ulleskelf, York.*

COLOUR OF PRIMROSE.—I was informed the other day that the modern idea with regard to the Primrose's colour is that it is not a primitive colour (although yellow in flowers is considered to be the earliest colour next after green), but an even higher development in the colour scale than red and blue. I shall be glad to know the arguments in favour of this idea or to be referred to some publication in which they may be found. I gather that it is the peculiar dull creamy yellow of the Primrose that is supposed to indicate its high development, and it is interesting to remember in this connection that amongst the genus Aconitum (the Monkshoods) there is the suggestive combination of creamy yellow and blue, some species exhibiting one colour and some the other, and some both, but in different plants. I shall also be glad to know whether it is at all common to see Primrose plants with flowers of different colours growing from the same root, either in a wild state or cultivated. I have seen a statement of the kind, but doubt it, because one so often meets with apparent cases of this sort, which, when examined, turn out to be two seedlings which have come up so close together as to appear one. Are the various coloured Primroses supposed to have been derived from Primula vulgaris—the common wild Primrose—or have some of the coloured exotic species, so much like it in other respects, been drawn upon to supply the numerous colours from white to nearly black which it is now possible to obtain? Finally, can anyone recommend a recent publication dealing with the evolution of colour in flowers? *Primula.*

Birds and Fruit Buds.—In the closing days of February, whilst our indoor Peach trees were in flower, birds caused much damage to them. Having kept a careful watch, we found that sparrows were the cause of the mischief. They appeared to eat the top half of each flower as it opened. Nets were put over the ventilators to keep them out until the flowers were set. The sparrows have just done the same with our Peach trees out-of-doors. I never saw or heard of similar damage being done by these birds before. *Inside Foreman, East Lothian.*

———Last year the fruit-buds on Apple trees here were destroyed by bullfinches and linnets. The birds commenced to eat the buds during the second week in March, and continued their depredations until the flowers were almost fully expanded. They had not previously touched them, and no other buds were interfered with, only those of Apple trees. This year bullfinches are the principal offenders, and they seem to take a special delight in eating the blooms of Cox's Orange Pippin, while trees of the variety Duchess of Oldenburg are untouched. Contrary to the experience of Mr. Phillips (see p. 246) sparrows, of which we have great numbers, never seem to touch the buds. I find that shooting the birds is the only means of prevention: sprayings with V², caustic and with Niquas has had no effect. An unusual thing occurred last year. On some of the worst trees we had a splendid second crop of bloom, and they furnished a very heavy crop of fruits, and the same thing occurred in two other gardens close by. It would be interesting to know the experience of other readers on this matter. *J. Smith, Mulroy Gardens, Co. Donegal.*

Frost and the Fruit Crops.—We experienced 13° of frost on the morning of the 12th inst., which spoiled what promised to be a splendid fruit year. The embryo fruits of Plums, Pears, and Cherries are practically all destroyed, and even the unopened flowers. Peaches and Apricots that were already set have also been destroyed. The gardens are situated near to a stream, which accounts for so much damage. Gooseberries and Currants seem to have escaped injury. *J. R. Wilson, Sulby Hall Gardens, Northamptonshire.*

Primula rosea.—I was not a little surprised on reading in the last issue, p. 246, the remarks of your correspondent in reference to the seeding of Primula rosea. I have cultivated this Primula for many years, and it is not my experience that the plant does not perfect its seeds unless pollinated artificially. Here it is grown on the north side of a cottage in a nursery, where it succeeds well. The drought of last summer militated greatly against its development, many of the crowns dying, but its beautiful flowers are invariably followed by a good head of seed. So far as I can determine, every flower gets naturally fertilised, for no trouble is taken to ensure this. The seed is invariably fertile, and I have a supply of home-grown seed which, when sown, germinates with the greatest freedom. Your correspondent does not give the position where he grows his plants. Probably, if planted in a warm border or in full sunshine, seeds would not develop. I have never submitted it to such a position, regarding it as enjoying a shady or partially-shaded situation. *A. J. A. B., Chorlton-cum-Hardy.*

NEW INVENTION.

A NEW FLOWER POT.

The Trivett Pottery Co., Lount, near Ashby-de-la-Zouch, have sent us one of their improved flower pots. Instead of the customary flat bottom, with one large hole in the centre for drainage, the inventors have made the bottom of their pot dome shaped, and have placed a series of small drainage holes around the lower half of the dome. Three grooves, at the base at regular intervals, ensure a free circulation of air around the roots of the plant. This dome device obviates the necessity of "crocking," except perhaps in the very large sizes; the pot is well made, light, and sufficiently porous to grow good plants.

SOCIETIES.

ROYAL HORTICULTURAL.

April 16.—The meeting at the Society's Hall on Tuesday last included a special competitive show of Narcissi. Daffodil growers made the most of the occasion to display their flowers, so that Narcissi were shown extensively and well. The Narcissus Committee awarded several medals to groups, and conferred three Awards of Merit on novelties. The Barr Memorial Cup (fig. 124) was formally presented to the Rev. G. H. Engleheart by Mr. H. B. May on behalf of the Memorial Fund Committee (see p. 241).

Orchids made a brilliant show, and the Orchid Committee found plenty to inspect, including novelties. Awards made to the latter included one First-class Certificate, and two Awards of Merit.

Hardy plants were the most numerous of the exhibits in the floral section; besides these Roses, Carnations, Ferns, forced shrubs, Pelargoniums, and Rhododendrons were freely shown. The Floral Committee recommended four Awards of Merit to new plants.

Messrs. Sutton & Son's collection of vegetables was the only exhibit of importance before the Fruit and Vegetable Committee.

At the 3 o'clock meeting in the lecture-room the Rev. Prof. G. Henslow delivered an address on "Darwin as Ecologist."

Floral Committee.

Present: H. B. May, Esq. (in the Chair); and Messrs. Chas. E. Shea, George Paul, John Green, R. C. Notcutt, George Gordon, C. R. Fielder, C. Blick, J. F. McLeod, John Jennings, Wm. Howe, Wm. Bain, Herbert J. Cutbush, John Dickson, Chas. Dixon, H. J. Jones, Arthur Turner, W. P. Thomson, Edward Mawley, G. Reuthe, and F. Page Roberts.

Messrs. Wm. Cutbush & Son, Highgate, London, arranged a large group of flowering trees and shrubs against the side wall. The many profusely-flowered bushes of Lilac, Prunus of sorts, Wistaria sinensis, Rhododendron (Azalea) sinensis, R. indicum and Cytisus præcox made a fine show. The comparatively rare Ledum latifolium compactum was shown in very good form. Messrs. Cutbush also showed many interesting hardy plants. Erythronium Johnstonii possesses an uncommon rosy-mauve shade of colour. A fine group of Cypripedium spectabile, fronted with Sanguinaria canadensis, attracted attention. This firm also showed choice blooms of perpetual-blooming Carnations, having a selection of most of the best varieties. (Silver-gilt Flora Medal.)

Messrs. James Veitch & Sons, Chelsea, exhibited a selection of Hippeastrums, including such choice varieties as Hermia, Juvantes, and Otanes. In the same group there were well-flowered plants of Rhododendron (Azalea) indicum, new Gerbera hybrids, and delightful plants of the pretty pink-flowered Crowea angustifolia. Lopezia lineata also found a place in the collection.

Messrs. Stuart Low & Co., Bush Hill Park, Middlesex, exhibited several very fine plants of Metrosideros robusta bearing large inflorescences. Other useful and uncommon greenhouse plants included Clianthus Dampieri, shown exceedingly well; Eriostemon myoporoides, E. linearis, and Boronia heterophylla.

Mr. H. N. Ellison, West Bromwich, staged a very pleasing arrangement of cut flowers of Gerbera hybrids, relieved with sprays of Asparagus plumosus nanus, in Bamboo stands rising from a groundwork of Ferns growing in small pots. The Gerberas were exceedingly good.

Messrs. Gill & Sons. Tremough, Cornwall, again showed trusses of Rhododendrons, having splendid inflorescences of such choice varieties as Beauty of Tremough, Cornubia, Hodginsonii (pale lilac), Lindleyi, and such noble species as R. Aucklandii and R. Falconeri. The exhibit also contained fine flowering sprays of Erica mediterranea and Embothrium coccineum. (Silver Banksian Medal.)

The Hon. H. B. Portman, Buxted Park, Uckfield, Sussex (gr. Mr. J. Phillips), exhibited a fine group of Schizanthus hybrids.

Messrs. H. B. May & Sons, Upper Edmonton, staged a cool-looking bank of stove and greenhouse Ferns. An especially fine specimen plant of Davallia fijiensis robusta occupied the centre of the exhibit. The gloriosa variety of Adiantum Farleyense, growing in very small pots, bore large fronds. (Silver Flora Medal.)

Mr. James Douglas, Great Bookham, Surrey, showed a large number of exceedingly fine Auriculas. Three large pots of Myosotidium nobile were perfect examples of this delightful plant, and bore stout racemes of Myosotis-like flowers. (Silver Flora Medal.)

Mrs. Henderson, Sedgwick Park, Horsham, exhibited a large plant of Echium fastuosum, bearing numerous spikes of blue flowers.

Mr. Phillip Ladds, Swanley, Kent, showed fine Zonal Pelargoniums, and fresh, sweet-scented Midlothian Stocks in 5-inch pots.

Messrs. H. Cannell & Sons, Swanley, Kent, again exhibited excellent cut blooms of Zonal Pelargoniums. (Bronze Banksian Medal.)

Mr. Vincent Slade, Taunton, Somerset, staged single and double-flowered Zonal Pelargoniums, and their new Ivy-leaved variety Miss L. H. Popham. The single Zonals included Mrs. V. Slade, a fine flower, with a pink edge, the petals being splashed with the same colour.

Mr. H. J. Jones, Ryecroft, Lewisham, exhibited an exceedingly bright collection of fine cut blooms of single Zonal Pelargoniums. (Bronze Banksian Medal.)

Roses.

Messrs. B. R. Cant & Sons, Colchester, set up a fine collection of Roses. Tall stands contained blooms of Austrian Copper and Austrian Gold, whilst in boxes we noted Hugh Dickson, Mme. Melanie Soupert, Fisher Holmes, Papa Lambert, and Caroline Testout as being especially good. The new seedling bedding variety, Rose du Barri, is a very attractive flower. The collection also included a good vase of St. Helena, a new H.T. Rose of pale pink colour, flushed with orange at the base. (Silver Banksian Medal.)

Messrs. George Mount & Sons, Canterbury, exhibited many fresh blooms of Roses. The rich-yellow variety Lady Hillingdon contrasted finely with the deep pink of Mrs. Geo. Shawyer. Other fine blooms were Caroline Testout, Lady Pirrie, the rich red Liberty, and the beautiful yellow Rayon d'Or. (Silver Banksian Medal.)

Messrs. W. Paul & Sons, Waltham Cross, filled a corner of the Hall with tall pot plants of Roses, chiefly of climbing varieties, such as Sylvia, Bocca negra, Tausendschon, and Fairy. (Silver Banksian Medal.)

Mr. G. Prince, Longworth, Berkshire, exhibited fine cut blooms of Roses in variety. Debutante and King Edward VII were the best of the cluster Roses. In stands there were fine blooms of Ulrich Brunner, Rayon d'Or, and Dean Hole. (Bronze Banksian Medal.)

Carnations.

Mr. G. Englemann, Saffron Walden, Essex, exhibited blooms of Carnations, in large stands, of distinct colours. (Bronze Banksian Medal.)

Messrs. Allwood Bros., Haywards Heath, Sussex, staged a good selection of cut Carnations, including Empire Day, a fine pink, free-flowering variety, of good substance. Fairmount is a great improvement on Mikado.

Mr. Bertie Bell, Guernsey, again exhibited a very fine group of cut blooms of his seedling Carnation Coronation.

A Silver Flora Medal was awarded to Mr. H. Burnett, Guernsey, for an exhibit of perpetual-blooming Carnations, the flowers being exceedingly fine.

An exhibit of Carnations was displayed by Messrs. W. Wells & Co., Merstham, Surrey, in which prominence was given to the fine variety named Wodenethe, which is described under Awards.

Hardy Plants.

The Buxton Hardy Plant Nurseries, Christchurch, exhibited attractive rockery plants and a fine strain of orange-coloured hybrid Polyanthus, which were arranged in a conspicuous position on the rockery.

Messrs. Whitelegg & Page, Chislehurst, Kent, set up a low rockery in the annexe. Saxifraga "Pencilled Beauty," displayed in considerable quantity, was very attractive. (Bronze Banksian Medal.)

Messrs. B. Ladhams, Ltd., The Shirley Nurseries, Southampton, showed a large basket of giant crimson Polyanthuses.

Messrs. BARR & SONS, Covent Garden, exhibited a neat rockery opposite the entrance. A small group of hardy Orchids included Orchis papilionacea, O. longibracteata, and the quaint-flowered Ophrys apifera. The white-flowered Erica lusitanica attracted the attention of lovers of hard-wooded shrubs.

Messrs. J. CHEAL & SONS, Crawley, displayed an attractive selection of dwarf-flowering shrubs and Alpines arranged in the form of a low rockery with the shrubs as a background. (Bronze Banksian Medal.)

The Misses HOPKINS, Shepperton-on-Thames, included a good clump of Gentiana acaulis in a rockery exhibit.

Mr. LESLIE GREENING, Richmond, set up a small rockery in sombre colouring, with a dripping well and pool.

Mr. CLARENCE ELLIOTT, Seven Hills Nursery, Stevenage, arranged an excellent rockery furnished with suitable plants.

Messrs. G. & A. CLARK, Dover, staged border flowers in variety and made a small rockery. The border flowers included fine strains of Anemones and Geum Mrs. J. Bradshaw, bearing large, brightly-coloured flowers.

Mr. R. d'E. DAY, The Nursery, Sutton Scotney, showed Spanish Irises of different colours in large vases, the flowers being wonderfully pretty. (Bronze Banksian Medal.)

Messrs. WM. FELLS & SON, Hitchin, Hertfordshire, set up a well-made rockery furnished with appropriate plants.

Mr. JAMES BOX, Lindfield, Sussex, exhibited Tree Pæonies bearing large flowers, Anemone Rouge Ponceau, of large size, and various Alpines.

Mr. G. REUTHE, Keston, Kent, contributed a good collection of hardy Rhododendrons, Magnolias, and rare and choice Alpines.

Messrs. PIPER'S, Bishop's Road, Bayswater, again set up an attractive exhibit of various plants, utilising a rockery for their display. (Silver Flora Medal.)

THE GUILDFORD HARDY PLANT NURSERY staged very good hardy shrubs and rockery plants growing in flower pots. The dainty Viola cucullata alba was freely flowered, as also were several pots of various species of Daphne.

Mrs. LLOYD EDWARDS, Bryn Oerog, Llangollen, N. Wales, showed mossy Saxifragas arranged in Moss-covered baskets. The varieties Vivid and Crimson Pearl were bright and attractive. (Bronze Banksian Medal.)

Messrs. T. S. WARE, Feltham, Middlesex, displayed good varieties of Primula Sieboldii, P. violacea laciniata, and the dainty Libertia pulchellum in a well-designed rockery. (Silver Banksian Medal.)

Other exhibitors of hardy plants were Mr. R. PRICHARD, West Moors, Wimborne; Messrs. G. JACKMAN & SONS, Woking (Bronze Banksian Medal); and Mr. M. PRICHARD, Christchurch, Hampshire, who showed well-flowered plants of Daphne Fioniana, Reatensia virginia, and a selection of dwarf Phloxes. (Silver Banksian Medal.)

Messrs. JOHN PEED & SONS, West Norwood, exhibited a good selection of Alpines planted in a rockery. Sedum (Rhodiola) tenuifolium rubra appeared especially desirable.

COMPETITIVE DAFFODIL CLASSES.

Owing to the exceptionally early season and drying winds, many competitors experienced a difficulty in finding blooms for the classes in which they had entered. Unfortunately, several classes had no exhibits, and in some others the entries were few. Those classes for varieties not in commerce were better filled.

OPEN CLASSES.

The Gold Medal offered for the best collection of Daffodils in 3 blooms of 48 distinct varieties, was awarded to Mr. C. BOURNE, Simpson, Bletchley, who was the only exhibitor. Considering the exceptional season, the collection was one of great merit, and the award was fully deserved.

The 1st prize for the best exhibit of 12 long trumpet Daffodils was won by Mr. J. MALLENDER, Scrooby, Bawtry. Blooms of The Miller's Daughter, and an unnamed seedling were very fine.

Mr. MALLENDER was the only exhibitor in the class for 12 Incomparabilis Daffodils, and was awarded the 2nd prize.

The best 12 Daffodils of the Barri section were shown by Mr. F. H. CHAPMAN, Rotherside Gardens, Rye. The varieties Cossack, Odalisque, and Satellite were excellent.

Mr. CHAPMAN also exhibited the best nine Poeticus varieties, having Horace and Kestrel in good form.

Mr. J. MALLENDER was awarded the 1st prize in the class for 12 Leedsii Daffodils.

SEEDLING AND NEW DAFFODILS.

The Silver Cup offered for the best 12 varieties of Narcissi introduced into commerce during or since 1907 was awarded to Mr. C. BOURNE, whose best blooms were Golden Idol (a magnificent trumpet Daffodil), Lemon Belle, and Queen of Hearts.

The best 12 Daffodils not in commerce were shown by Mr. E. M. CROSFIELD, Bridgwater, who showed five varieties under numbers. Of the named kinds, Dick Turpin and Mougli, of the parvi-coronata section, and Honey Maid, a short-trumpet Daffodil, were very fine. 2nd, Mr. F. CHAPMAN.

The Duke of RUTLAND, Belvoir Castle, Grantham (gr. Mr. W. H. Divers), exhibited the best six Daffodils not yet in commerce. The Duke and the Duchess of Rutland (pale trumpet Daffodils) are both good blooms.

FIG. 124.—BARR MEMORIAL CUP.

(Awarded to the Rev. G. H. Engleheart. See pp. 241, 265.)

Mr. C. BOURNE was awarded the 1st prize for the best three Daffodils not yet in commerce. The variety Golden Idol was especially good.

The best six seedling blooms, raised by the exhibitor and not in commerce, were shown by Mr. E. M. CROSFIELD, whose Touchstone, Mougli, and Anchorite (all parvi-coronata blooms) were exceedingly fine. 2nd, Messrs. E. H. KRELAGE & SON, Haarlem.

Mr. A. M. WILSON exhibited the finest collection of three seedling Daffodils.

The best Barri Daffodil was Queen of Hearts, shown by Mr. C. BOURNE; the best trumpet Daffodil, Mrs. Ernest H. Krelage, shown by Messrs. KRELAGE, Haarlem; whilst Anthea, as shown by Mr. W. B. CRANFIELD, proved to be the finest Leedsii bloom. Mr. CRANFIELD exhibited, in Venetia, the finest Triandrus hybrid, and in Crossbow the best Poeticus variety.

Mr. H. R. DARLINGTON, Potters Bar, won the prize offered by Mr. Chester J. Hunt for six Leedsii Daffodils.

AMATEUR CLASSES.

The exhibits in this section were restricted to varieties in commerce. The premier prize for 24 varieties, distinct, three stems of each variety, was won by the Rev. T. DUNCOMBE, Black Torrington, Devon. His best blooms were Red Chief, Juliet, and Chryseis. 2nd, Mr. DARLINGTON.

Mr. BUNCOMBE also showed (a) the best six long-trumpet Daffodils, (b) the best six Incomparabilis blooms, and (c) the best six Barri flowers. These were very meritorious collections.

Mr. H. R. DARLINGTON, who was awarded the 1st prize for (a) the best six Leedsii, (b) six Poeticus, and (c) three double Daffodils, staged many good examples.

Certain classes were open to amateurs who did not compete in those already mentioned. Mr. W. B. CRANFIELD won the 1st prize for the best 12 varieties representative of the various divisions. The 2nd prize was awarded to Mr. J. BANKS, Crawley. Mr. R. MORTON exhibited the best three trumpet varieties, and Mr. W. B. CRANFIELD excelled in a similar class. Mr. MORTON was awarded the 1st prize for (a) three Incomparabilis varieties, (b) three Barri, and (c) three Leedsii varieties. The best three Barri blooms in division 3A were shown by Mr. W. B. CRANFIELD, who also exhibited the best Poeticus Daffodils.

AWARDS.

AWARDS OF MERIT.

Freesia "*Le Phare*."—A very floriferous variety raised by Mr. VAN TUBERGEN. The flowers are smaller than those of F. refracta, and less sweetly scented. Its uncommon colour, a violet shade of rose, will make this variety a valuable addition to the Freesias in cultivation. (Shown by Mr. C. G. VAN TUBERGEN, JUN.)

Cineraria hybrida (Cineraria cruenta × *Senecio tussilaginis)*.—The white flowers have pale-blue tips to their petals and purplish centres. The plants are very floriferous, and of a graceful habit. (Shown by Messrs. JAS. VEITCH & SONS, LTD.)

Carnation "*Wodenethe*."—A fine, white-flowered variety of the perpetual-blooming type. The blooms are very large, with fimbriated petals of good substance, and possess the fragrance of Mrs. Sinkins Pink. (Shown by Messrs. W. WELLS & Co.)

Alpine Auricula "*Roxborough*."—A splendid variety with a stout umbel of deep-blue flowers, slightly paler at the edges. The "pips" are 1¾ inch across. (Shown by Mr. JAMES DOUGLAS.)

Narcissus Committee.

Present: E. A. Bowles, Esq. (in the Chair); Miss F. W. Currey, Miss E. Willmott, Canon Fowler, Rev. G. H. Engleheart; Messrs W. Poupart, H. Backhouse, G. Reuthe, C. Bourne, F. Herbert Chapman, W. F. M. Copeland, Arthur R. Goodwin, W. T. Ware, E. M. Crosfield, P. R. Barr, R. W. Wallace, P. D. Williams, Chas. Dawson, J. D. Pearson, H. A. Denison, J. T. Bennett-Poë, W. A. Watts, W. Goldring, Alex. M. Wilson, G. W. Leak, F. Barchard, Joseph Jacob, Herbert Smith, Jan de Graaff, and C. H. Curtis (secretary).

Messrs. BARR & SONS, Covent Garden, set up a very fine selection of Daffodils. Many good sorts were shown under numbers, and, besides the better-known standard varieties we especially noted Agnes Harvey (a white triandrus hybrid), Dosoris (incomparabilis with an especially bright corona), Cloth of Gold, Moonbeam (a chaste Leedsii variety), and Cœur de Lion. The new seedling varieties were very prominent, the poetaz blooms being characterised by deep, brightly-coloured "eyes" and white perianths of good substance. (Silver-gilt Flora Medal.)

Miss F. W. CURREY, Lismore, Ireland, included some exceedingly bright-eyed blooms of incomparabilis and poetaz varieties in a fine collection of Narcissi. The varieties Will Scarlet, Sunspot and Cossack were especially good. (Silver-gilt Flora Medal.)

Messrs. R. H. BATH, LTD., Wisbech, exhibited Narcissus and Tulips. The best blooms amongst the former were Sulphureus (a double flower), Matchless (parvi-coronata), Buttercup (a Jonquil hybrid), Queen of Poets (which has a fine, bright eye), Clarina (white and yellow, the tube has more colour), and Whitewell (a fine incomparabilis bloom). (Silver Flora Medal.)

Mr. H. D. PHILLIPS, Wulverle, Olton, Warwickshire, exhibited a good many blooms in the

annexe. Apricot Queen (which has a broad orange-coloured eye), Wave Crest (a broad-petalled triandrus hybrid), Lila (an almost pure white triandrus hybrid), Golden King (a rich yellow trumpet variety), Bernardino, and the old Queen of Spain were all shown well. (Silver Flora Medal.)

Messrs. Cartwright & Goodwin, Kidderminster, included such good varieties as Titanic (a broad-mouthed trumpet Daffodil), Nemesis (frilled trumpet, which opens a clear primrose yellow, and when mature becomes pale apricot in colour), and Scarlet Gem (a pale yellow, fiery "eyed" Narcissus). Ethelbert, with paler eye, is a pleasant change from its more fiery congeners. Josette, Marina and Longfellow were also very good. (Silver Banksian Medal.)

Mr. Christopher Bourne, Simpson, Bletchley, exhibited a collection of Narcissi, amongst which we noticed Dewdrop (Incomparabilis), Imperialist (a large flower with a broad, orange-coloured eye), and Orange King (a rich yellow trumpet Daffodil). (Silver Banksian Medal.)

The Lissadel Bulb Farm, Sligo, showed very fine Narcissi. Many seedlings, as yet unnamed, were of considerable promise, especially those of the poetaz and incomparabilis sections. (Silver Banksian Medal.)

Robert Sydenham, Limited, Birmingham, staged Narcissi, Liliums, Tulips, and Lily-of-the-Valley. Amongst the Narcissi Bert Ponting, Great Warley, Moonbeam, and Stonechat were noteworthy varieties.

The Rev. G. H. Engleheart, Dinton, Salisbury, again exhibited some fine seedling Narcissi under numbers. There was an immense trumpet bloom with a deep primrose-coloured trumpet, and paler perianth. Many of the poetaz flowers were round as a penny, and their vivid "eyes" contrasted startlingly with the white perianths.

Mr. Alex. M. Wilson, Bridgwater, exhibited a small, but select, collection of seedling Daffodils, mostly indicated by numbers. Of the few named varieties Anchorite and Tinsel (parvi-coronata varieties), Zouave (which has a very broad bright-rimmed "eye"), and Victor are especially noteworthy.

Messrs. Hogg & Robertson, Rush, Co. Dublin, exhibited an interesting collection of Narcissi and Tulips.

Messrs. E. H. Krelage & Son, Haarlem, exhibited, in Hope of Holland, a monster, rich-yellow trumpet Daffodil.

Awards of Merit.

Narcissus "Mrs. Ernest H. Krelage."—A creamy-white trumpet variety with a long tube; the flower stalks are long and stout. (Shown by Messrs. E. H. Krelage & Son.)

N. "Seville."—A very fine parvi-coronata variety with a white perianth, and a crown of Seville-orange colour, which measures 1¾ inches across. (Shown by Mr. H. D. Phillips.)

N. "Silver Spangle."—A dainty parvi-coronata variety. The perianth is white, and the crimped corona is of a pale yellow shade. (Shown by Mr. F. H. Chapman.)

Orchid Committee.

Present: J. Gurney Fowler, Esq. (in the Chair); and Messrs. Jas. O'Brien (hon. sec.), Harry J. Veitch, Gurney Wilson, F. Sander, H. G. Alexander, H. J. Chapman, T. Armstrong, J. Charlesworth, W. H. Hatcher, J. E. Shill, W. P. Bound, A. Dye, W. H. White, F. Peeters, J. Wilson Potter, J. S. Moss, F. J. Hanbury, J. Cypher, C. J. Lucas, Stuart Low, R. G. Thwaites, and R. A. Rolfe.

Mrs. Norman Cookson, Oakwood, Wylam (gr. Mr. H. J. Chapman), was awarded a Silver Flora Medal for a pretty group of exceedingly well-grown Odontoglossums, which included the fine O. crispum Leonard Perfect, O. c. Angela, O. c. Pittiæ, O. c. Chapmanii, several pretty, home-raised, blotched varieties; O. ardentissimum Cooksoniæ, other forms of O. ardentissimum, O. eximium, O. percultum, O. Titania, and O. Solum. Forms of Odontioda Cooksonia gave bright colour to the group.

Messrs. J. Cypher & Sons, Cheltenham, staged an effectively-arranged group, for which a Silver Flora Medal was awarded. Good varieties of Cattleya Schröderæ, C. Mendelii, C. Skinneri, Lælia purpurata and Odontoglossum crispum formed the setting of the group, and with them were noted Odontoglossum Edwardii, Masdevallia Veitchii grandiflora, M. ionocharis, M. Chamberlainiana, Maxillaria luteo-alba, Miltonia stellata, and choice Cypripediums.

Messrs. Sander & Sons, St. Albans, secured a Silver Flora Medal for an interesting group, which included a fine display of Cattleya Schröderæ with flowers ranging from pure white to those with violet front to the labellum. A good batch of Dendrobium Devonianum occupied one end of the exhibit, whilst a selection of Dendrobiums, including D. capillipes, D. velutinum, D. Parishii, D. carinatum, D. Falconeri, and other Dendrobiums were staged at the other. Specially interesting were Megaclinium maximum, Acanthophippium sylhetense, Cattleya guatemalensis, and, amongst hybrids, the beautiful Lælio-Cattleya Cora var. ignea (C. Mendelii × L. Latona), a pretty copper-yellow-tinted flower with the inner halves of the petals and the front of the lip bright purple. There were also observed L.-C. rigida (C. Lawrenceana × L. superbiens), a soft-rose-tinted flower, and many choice seedlings.

Messrs. Hassall & Co., Southgate, were awarded a Silver Flora Medal for a collection which embraced fine forms of Cymbidium eburneo-Lowianum, C. Lowianum concolor, and

Fig. 125.—Odontoglossum crispum Saga.
(Awarded R.H.S. First-class Certificate on Tuesday last.)

Cattleyas. At one end was arranged the deep-yellow-coloured Lælio-Cattleya G. S. Ball, and at the other end the bright-red-flowered Renanthera Imschootiana. Other choice plants noted were Odontioda Zephyra, O. Bradshawiæ, Odontoglossum percultum, Cattleya intermedia alba, the pure-white-flowered Trichopilia Backhousiana, several bright forms of Lælio-Cattleya Olivia, and Miltonia Bleuana.

Messrs. Charlesworth & Co., Haywards Heath, were awarded a Silver Banksian Medal for a select group, consisting principally of hybrids. Among them were Brasso-Lælio-Cattleya Joan (C. Octave Doin × B.-L. Mrs. Gratrix), a yellow flower with rose veining on the front of the fringed lip; Sophro-Lælio-Cattleya Marathon, Lælio-Cattleya Dominiana, the clear-white Brasso-Cattleya Queen Alexandra, the rose-tinted B.-C. Digbyano-Warneri, fine forms of Odontoglossum ardentissum, O. Louise, O. Dora, and other Odontoglossums, Odontioda Charlesworthii, O. Bradshawiæ, and O. Cooksoniæ.

Messrs. Stuart Low & Co., Bush Hill Park, were awarded a Silver Banksian Medal for an effective group, in which forms of Dendrobium nobile and other Dendrobiums were well displayed. Among the Odontoglossums we observed the rose-purple O. Groganiæ, various scarlet Odontiodas, the yellow-flowered Oncidium concolor, O. sarcodes, and Cymbidium Devonianum.

Messrs. MacBean, Cooksbridge, were awarded a Silver Banksian Medal for a group of fine forms of Cattleya Schröderæ, C. Mendelii (including one with a fine white flower having a deep magenta-crimson-coloured front to the lip), and C. Mossiæ. Excellent Odontoglossums included a superb form of O. ardentissimum with large, white flowers heavily blotched with claret-purple, and O. Solum, marked with deep chocolate-purple blotches. Odontioda Lambeauiana and O. Charlesworthii were also noted in this exhibit.

The Liverpool Horticultural & Nursery Co. (John Cowan) secured a Silver Banksian Medal for a group of the clear-yellow Lælio-Cattleya G. S. Ball, with which were arranged other hybrid Orchids; also Cattleya intermedia alba and C. Lawrenceana.

Baron Bruno Schröder, The Dell, Englefield Green (gr. Mr. J. E. Shill), showed Cattleya Schröderæ Empress, a fine form with peach-blossom-tinted flowers, having an orange disc to the lip. The plant bore three spikes, one with five and the others with three flowers.

Francis Wellesley, Esq., Westfield, Woking (gr. Mr. Hopkins), showed the beautiful Lælio-Cattleya Bertram (see "Awards"), and the richly-coloured L.-C. Mrs. Henriques, a fine hybrid, of which C. Hardyana was probably a parent.

J. Gurney Fowler, Esq., Glebelands, South Woodford, showed two fine but dissimilar varieties of Cattleya Schröderæ.

J. T. Bennett-Poë, Esq., Holmewood, Cheshunt (gr. Mr. Downes), sent a fine spike of Cymbidium Lowianum "Holmewood variety," the front of the lip of which is a deep chestnut-red colour.

A. Warren, Esq., The Cedars, Epsom (gr. Mr. A. Bridges), exhibited the white form of Aërides virens.

Sir Jeremiah Colman, Bart., V.M.H., Gatton Park (gr. Mr. Collier), showed Odontioda gattonensis (Odontoglossum polyxanthum × Cochlioda Noezliana), a beautiful scarlet flower, with a yellow ground.

E. H. Davidson, Esq., Borlases, Twyford, showed Cattleya Schröderæ alba "Borlases variety," a beautifully-formed, clear-white flower.

F. D. Godman, Esq., South Lodge, Horsham, displayed Lælio-Cattleya Endymion (luminosa × callistoglossa), Odontoglossum Godmanii, and specimens of the rose-purple Pleione yunnanensis.

Monsieur F. Lambeau, Brussels, showed Miltonia Hyeana Vogelzang, a large, white variety, much resembling the plants shown as M. vexillaria Queen Alexandra.

Messrs. Peeters, Brussels, showed Miltonia vexillaria Jurval, a well-formed flower, tinted with pink, and bearing a brownish-yellow mask on the lip.

Monsieur F. Claes, Brussels, exhibited three plants of his variety of Cattleya Mendelii, distinguished by bright violet colouring on the lip, several specimens of C. Schröderæ, and Odontoglossum Pescatorei Mouche d'Or, with a golden crest to the lip.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), staged a small collection, including Cypripedium Chapmanii, Lælio-Cattleya Rosslyn (L. Boothiana × C. Lawrenceana), and two hybrid Odontoglossums.

AWARDS.

First-class Certificate.

Odontoglossum crispum Saga (see fig. 125), from J. Gurney Fowler, Esq., Glebelands, South Woodford (gr. Mr. J. Davies). A beautiful variety, shown in splendid condition, the plant having a magnificent spike of 17 flowers. The flowers have the segments equally broad and fringed; they are white, with two-thirds of their surface bearing rich, reddish-purple blotches.

Awards of Merit.

Cattleya Mendelii Thule, from J. Gurney Fowler, Esq. A large white variety, with a

slight blush tint on the front of the lip, which has a pale-yellow disc.

Lælio-Cattleya Bertram (L.-C. Hopkinsii × *L.-C. Cappei)*, from Francis Wellesley, Esq., Westfield, Woking. A richly-coloured, distinct hybrid, with large, golden-yellow flowers, the petals being veined with light crimson. The lip is almost entirely of a deep ruby-red, the veining being darker in colour.

Cultural Commendation

to Mr. Stables, gardener to De B. Crawshay, Esq., Rosefield, Sevenoaks, for a plant of Odontoglossum Souvenir de Victor Hye de Crom, bearing a spike 6 feet 4 inches in height, and having 21 flowers and flower-buds.

Fruit and Vegetable Committee.

Present: A. H. Pearson, Esq. (in the Chair); Messrs. J. Cheal, O. Thomas, J. Jaques, H. S. Rivers, J. Harrison, J. Willard, A. Bullock, J. Davis, A. R. Allan, A. Grubb, A. Dean, W. H. Divers, A. W. Metcalfe, and W. Humphreys.

Two boxes of excellent fruits of Royal Sovereign Strawberry were shown by Mrs. Bischoffstein, Warren House, Stanmore (gr. Mr. J. W. King). The berries were especially good in a season when pot Strawberries have fruited so indifferently. (Silver-gilt Medal.)

Messrs. Sutton & Sons, Reading, again showed an excellent collection of vegetables displayed in the most attractive manner. The quality of the produce was exceptionally good. In the centre of the display there was a box of Mushrooms, grown from "Twentieth-century" spawn; a fine illustration of the prolific nature of this spawn. On either side of the Mushrooms there were baskets of well-hearted Cabbage Lettuces Early Paris. Other good Lettuces included White Heart and Golden Ball of the Cos type. The collection also included splendid heads of April Cabbage, Snow-white Broccoli, Satisfaction Cucumbers, Tender and True Runner Beans, Long White Turnips, Winter Beauty Tomatos, good Asparagus, French Breakfast Radishes and Mustard and Cress. (Silver-gilt Knightian Medal.)

CORNWALL DAFFODIL AND SPRING-FLOWER.

April 11, 12.—The 16th exhibition of this society was held on these dates in the great Market Hall at Truro. The Hon. John Boscawen, who has been hon. secretary of the society since its inception, carried out the arrangements with great success. The season being a very early one and the show comparatively late, the Daffodils were not present in such large quantities as usual, some of the winners in former years not being represented. There were, however, some excellent exhibits of spring flowers, and the quality of the blooms was but little inferior to what has been seen on former occasions.

In the class for a collection of 30 varieties of Daffodils, in commerce or not in commerce, the 1st prize was awarded to Mr. J. C. Williams, who also gained it last year, with a splendid collection of seedlings raised by himself. As in former years, however, the majority of the flowers were not named, but only numbered, which somewhat lessened the interest taken in them. Amongst the most striking of the flowers were 401, with white perianth and bright orange-scarlet cup; 266, a slightly drooping white trumpet; A.12, a very large Incomparabilis variety with canary-yellow perianth and deep yellow cup; 47, white perianth and flat, pale orange cup; 142, creamy-white perianth with spreading golden cup edged with bright orange; 184, white perianth with deep cup yellow edged orange; the two named flowers were Sonata and Miss Clinch. Lady Margaret Boscawen won the 2nd prize. In the class for a collection of 30 varieties of Daffodils in commerce, the 1st prize was won by Mrs. Soltan-Symons, with a choice exhibit which contained, amongst others, Dorothy, Treasure Trove, Whitewell, Oriana, Cresset, Salamander, Scarlet Eye, Eoster, Red Chief, Cœur de Lion, Beacon and Ptarmigan.

In 12 classes for Narcissi the price of the bulbs was limited to 10s. each. In these classes the varieties winning the prizes for single blooms were as follow:—Magni-coronati: 1st, Mme. de Graaff; 2nd, Weardale Perfection. Incomparabilis: 1st, Gloria Mundi; 2nd, Consul. Barri: 1st, Red Chief; 2nd, Ethelbert. Leedsii: 1st, Bianca; 2nd, White Lady. Triandrus and Cyclamineus hybrids: 1st, Dorothy Kingsmill. Poeticus: 1st, Horace; 2nd, Cassandra.

The 1st prize in the class for 15 varieties in commerce or not in commerce was won by Mr. P. D. Williams, with splendid flowers, including the varieties Princess, Ormolu, Madrigal, Susan, Snow King, White Wax, Moonbeam, and eight unnamed seedlings. In the classes where the price of bulbs was unlimited, the prizes for single blooms were won as follow:—Magni-coronati: 1st, Diogenes. Incomparabilis: 1st, Wagtail; 2nd, Noble. Triandrus and Cyclamineus hybrids: 1st, Dorothy Kingsmill. Poeticus: 1st, Cassandra.

Nurserymen showed some very fine Daffodils, Messrs. Barr & Sons, King Street, Covent Garden, who received Awards of Merit for the varieties Ruby and Florizel, had a very fine non-competitive exhibit, the choicer varieties being Marie Louise, Cœur de Lion, Cossack, Cingalee, Will Scarlett, Snow King, Cleopatra, Falcon, Peter Barr, Sheba, Snowsprite, Red Prince, Socrates and Cassandra.

Messrs. Cartwright & Goodwin, Kidderminster, also staged a fine collection of Daffodils, and received an Award of Merit for the variety Nemesis. Among their flowers were King Alfred, Robert Browning, Fusilier, Neptune, Circlet, White Nectarine, Glory of Leiden, Giraffe, Plenipo, Southern Star, Fairy Queen, Ben Avon, Heroine, and White Star.

Rhododendrons were shown better than ever at Truro, and magnificent trusses were exhibited.

For a group of Rhododendron blooms the 1st prize was won by J. C. Williams with a stand consisting principally of seedlings.

Exhibits of flowering shrubs were, as usual at this show, superb, though the severe frost experienced early in February killed numbers of tender shrubs.

The 1st prize for 20 varieties of hardwooded flowering shrubs was won by Mr. R. Fox with Cytisus racemosus, Pieris (Andromeda) japonica, P. formosa, Acacia diffusa, Daphne indica, Azalea carminata splendens, Camellia, Pittosporum eugenioides, Magnolia Soulangeana, Daphne laureola, Staphylea colchica, Embothrium coccineum, Erica mediterranea, Berberis Darwinii, Erica Veitchii, Magnolia stellata, Cerasus Watereri, Grevillea sulphurea, Erica australis and Cytisus albus.

For six varieties of flowering shrubs the 1st prize was won by Sir Arthur Vivian, who included Embrothrium coccineum, Viburnum rugosum, Cerasus Watereri and Acacia Riceana in his exhibit.

The 1st prize for a collection of 12 hardy spring flowers was won by Mr. P. D. Williams, whilst the 1st prize for six varieties of spring flowers was won by Mr. T. B. Bolitho.

The 1st prize for the best three bunches of Anemones was won by Mr. R. Fox with very large specimens of crimson A. coronaria, who also staged 30 vases of this flower not for competition, for which an Award of Merit was granted.

For six vases of Roses the 1st prize was awarded to Lady Margaret Boscawen; whilst for three vases of Roses the 1st prize was won by Mr. G. J. Cookson.

Mr. J. D. Enys showed Myosotidium nobile, Embothrium coccineum, Cerasus japonica, Magnolia Lennei, M. "Osaka," M. "Alexandra," M. stellata, Prunus sinensis flore pleno, Daphne Genkwa, Rhododendrons, Ericas, Azaleas and Myosotis. Lady Falmouth and Mrs. John Williams showed branches of Camellias; Messrs. R. Gill & Sons, Falmouth, staged a very attractive stand of Auriculas and Primula Winteri. Rev. A. T. Boscawen showed Prostanthera rotundifolia, for which he obtained a First-class Certificate, also vases of Gladiolus tristis. Mr. J. C. Daubuz and Mr. H. Williams staged collections of Apples.

The Devon Rosery Co., Torquay, received an Award of Merit for an exhibit of Pyrus Malus floribundus, double-flowering Almond, Lilacs, Ericas, Palms, Acacias, Azaleas and some fine Clematises in full bloom. This firm also showed a large assortment of pot Roses.

Messrs. Robert Veitch & Son, Exeter, were also granted an Award of Merit for a collection of plants, and received a First-class Certificate for Osmanthus Delavayi. In the collection were Ericas, Cydonia "Knaphill Scarlet," Hybrid Gerberas, Dracæna Draco, Eriostemons, Cytisus kewensis, Myrtus bullatus, Pernettya ciliaris, Daphne Cneorum, Illicium religiosum, and Rhododendrons.

Mr. G. Reuthe, Keston, Kent, staged interesting plants and received an Award of Merit for the rare Bryanthus erectus and Calypso borealis. Among the other plants were the rare Narcissus triandrus pulchellus, Iris bucharica, Genista kewensis, and Daphne neapolitanum.

Mr. H. E. Jephson showed Corydalis ochroleuca, Kleinia repens, Chrysogonum virginianum, Hacquetia Epipactis, Daphne Blagayana, Ranunculus amplexicaulis, R. graminæfolius, Geum pyrenaicum, and Corydalis Wilsonii.

Awards of Merit were given to Mr. P. D. Williams for Rhododendron Garnet; to Mr. J. C. Williams for Rhododendron Augustinii; and to Mr. R. Fox for Rhododendron Lilianii.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

April 4.—*Committee present:* Rev. J. Crombleholme (in the Chair), Messrs. R. Ashworth, C. Parker, H. Thorp, Z. A. Ward, J. Evans, W. Holmes, A. J. Keeling, D. McLeod, and H. Arthur (secretary).

Owing to the restricted railway service, the exhibits were not so numerous as usual.

A *Silver-gilt Medal* was awarded to Z. A. Ward, Esq., Northenden (gr. Mr. Weatherby), for a miscellaneous group; and *Silver Medals* to Col. J. Rutherford, M.P., Blackburn (gr. Mr. Lupton), for a mixed group, hybrid Cymbidiums being a feature; Rev. J. Crombleholme, Clayton-le-Moors (gr. Mr. Marshall), who showed a good batch of Cypripedium bellatulum and other Orchids; J. McCartney, Esq., Bolton (gr. Mr. Holmes), for a mixed group.

Other exhibitors were Messrs. W. R. Lee, Heywood; J. J. Holden, Southport; A. Warburton, Haslingden; R. Le Doux, West Derby; S. Gratrix, Whalley Range; J. Birchenall, Alderley Edge; and J. Evans, Congleton.

AWARDS.

First-class Certificates.

Cattleya Osiris (C. Enid superba × C. Octave Doin), *Odontoglossum ardentissimum* variety "Plumptonense," both from W. R. Lee, Esq.; *Odontoglossum Prince of Wales* (O. Wilckeanum × O. Harryanum magnificum), from Z. A. Ward, Esq.; and *Cymbidium Pauwelsii* (C. Lowianum concolor × C. insigne), creamy white, with colour in the lip, from Col. J. Rutherford, M.P.

Awards of Merit.

Cattleya Trianæ variety Iris and *C. Schröderæ* variety Œnone, both from W. R. Lee, Esq.; *Cattleya Maggie* (C. Warneri alba × Brassavola Digbyana) and *C. Schröderæ* variety Luminosa, both from J. J. Holden, Esq.; *Odontoglossum* × *Telemachus*, from Z. A. Ward, Esq.; *Odontoglossum crispum* variety Madouxianum, from A. Warburton, Esq.; and *Cattleya Trianæ* variety Ada le Doux, from R. Le Doux, Esq.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

April 15.—The usual monthly meeting of the committee was held at the Royal Horticultural Hall, Vincent Square, Westminster, on Monday last. Mr. Charles H. Curtis presided. Three deaths have occurred since the last meeting, and the sums standing to the credit of the late members were granted to their nominees, the largest amount being £62 4s. 6d. Several members over 60 years of age withdrew their interest, and one member, over 70 years of age, withdrew his deposit account amounting to £130 5s. 2d., leaving £10 in the society till death. The amount of sick pay for the month was £57 15s. The matter of the Government Insurance Act as affecting the society is now in the hands of the actuary.

Obituary.

George Wren Piper.—The death of this well-known rosarian and nurseryman, of Uckfield, Sussex, took place on the 9th inst. Mr. Piper, who was 74 years of age, had been in failing health for some time past and lived in comparative retirement. A quarter of a century ago he was a frequent exhibitor at the best Rose shows. He introduced to commerce the well-known, tea-scented Roses Sunrise (1899) and Peace (1903). Mr. Piper commenced business some 60 years ago at the Nurseries, Ridgwood, Uckfield. The firm will be carried on by the youngest son, Mr. Thomas Wren Piper.

John B. Lyall.—Mr. John B. Lyall, who died on April 10, at his home, Brae Cottage, Drumlithie, Kincardineshire, aged 85, was a well-known Scottish botanist. For a number of years he was master of the Grammar School, Peebles, and made a study of the botany of the district, contributing the chapters on the flora of Peebles to the local *Guide* in such a manner that his work is still recognised as authoritative. He retired nearly 30 years ago, and devoted a great part of his leisure to the pursuit of botany in the Glenbervie and Fordoun districts of Kincardine.

James Blacklock.—Mr. James Blacklock, for about 30 years gardener to the family of Sir Mark J. M'Taggart-Stewart, Bart., at Southwick, Kirkcudbrightshire, died at Castle Douglas, on the 12th inst. Mr. Blacklock has suffered from ill-health for some time past, this necessitating his retirement about three years ago.

Michael H. Lawlor.—We learn from the American papers of the death of Mr. Lawlor at the age of 63. Mr. Lawlor, in conjunction with Mr. S. B. Parsons, imported to Long Island, N.Y., many rare trees from this country, and was also very successful in transplanting large trees to considerable distances.

Patrick McKenna.—Mr. Patrick McKenna, a native of Ireland, died at Cote des Neiges, Quebec, at the advanced age of 93. After working for a time as a private gardener, he founded in Montreal the successful firm of P. McKenna and Sons, from which he retired twenty years ago.

DEBATING SOCIETIES.

BRISTOL & DISTRICT GARDENERS'.—The fortnightly meeting of this association was held on March 11, when Dr. Shaw presided over a good attendance of members. A lecture on "Vegetables" was delivered by Mr. Binfield, gardener to Colonel Tagart, Sneyd Park. The lecturer dealt principally with the Potato, Onion, Runner Beans, and Green Pea.

STIRLING & DISTRICT HORTICULTURAL.—A meeting of this association was held on the 2nd inst., Mr. Jas. Johnston presiding. Mr. Grant, Fernhall Gardens, Broughty Ferry, gave a lecture on "Winter Decoration of the Flower Garden." After referring to the various styles of bedding in vogue and the plants used for winter bedding, Mr. Grant spoke at length on the suitability of the variegated Kale as a bedding plant, and showed a large collection with colours ranging from white to creamy yellow, through all the shades of rosy-lilac to deep purple. Full cultural details were given from seed-sowing in April to the cutting down in May of the following year. Rigid selection should be practised when the seedlings are transplanted in poor soil in the reserve gardens, again at the time of planting in the beds, and finally when selecting the seed parents.

CROYDON & DISTRICT HORTICULTURAL.—The members of this society met on Tuesday, the 2nd inst., at the Sunflower Temperance Hotel, George Street, when a lecture was delivered by Mr. Harry Boshier on "A Few of Our Natural Grasses." Mr. Boshier said that in the formation of turf it is necessary to consider the character of the root action of the grasses, for they take different forms of growth. One type of grasses throw out stolons from the main base which are tufted at intervals, and from these tufts the shoots are again thrown up in similar character to the parent plant, whilst others confine their roots to the one growth, and to explain these systems Mr. Boshier exhibited specimens taken from an ordinary lawn. The action of rolling or trampling by cattle plays an important part in the production of a close turf. Seedling grasses throw out numerous basal shoots, and an aid to the productiveness of those shoots is given by the roller passing over them. This process is known as tillering.

READING GARDENERS'.—An excellent attendance of members met in the Abbey Hall on Monday, the 1st inst., Mr. F. G. Drew presiding. It has been customary for several years past for the Reading Association to exchange lecturers with the Redhill and Reigate Society. Recently Mr. T. J. Powell visited Redhill as representative of the Reading Association, and, on this occasion, Mr. W. Wells, jun., journeyed to Reading as delegate from the Redhill and Reigate Society. Mr. Wells' subject was "Early-flowering Chrysanthemums." He gave instructions as to the treatment of cuttings so as to secure good sturdy plants, whether required for pot culture or for planting out. He also gave a resumé of the remarkable developments made with the flower from the year 1846 until the present time, and drew attention to the simple manner in which Chrysanthemums may be raised from seed. Finally Mr. Wells gave a comprehensive selection of the best varieties to grow

THE WEATHER.

The Following Summary Record of the weather throughout the British Islands, for the week ending April 13, is furnished from the Meteorological Office:—

GENERAL OBSERVATIONS.

The *weather*.—During the early half of the week the conditions were very unsettled, with rain or passing showers in all districts, and a considerable quantity of sleet and snow in the north. The later days of the period were generally fair or fine, but a few local showers occurred—mostly in the east and north.

The *temperature* was below the normal except in Ireland S. and the English Channel, but the difference was slight except in the north of Scotland. The highest of the maxima were recorded at most stations either on the 7th or 13th, and ranged from 63° in the Midland counties and 62° in some other English districts to 52° in Scotland N. The lowest of the minima, which occurred generally between the 9th and 12th, ranged from 20° in Scotland E. and 23° in England S.E. to 40° in the English Channel. The lowest grass readings reported were 14° at Birmingham and Newton Rigg, 15° at Raunds and Wisley, and 16° at Kew and Worksop. Both at 1 foot and 4 feet below the surface of the soil the temperature was still above the average.

The *mean temperature of the sea*.—The water was again warmer than during the corresponding week of last year on almost all parts of our coast, and its temperature was generally above the average. The mean for the week ranged from about 50° on the south-west coast of England to 42° at Cromarty and Burnmouth.

The *rainfall* was less than the average except in Scotland N. and E. At Stornoway and Fort Augustus as much as 1·2 inch was recorded on the 7th, and at Glencarron 2·7 inches. On the 8th the snow at Lerwick yielded 0·96 inch of water. In various parts of eastern and south-eastern England the rain was very slight; at Tottenham, Wisley and Dungeness there was none.

The *bright sunshine* was above the average in the eastern section, and also in England N.W.; below it elsewhere. The mean daily duration amounted to about 7 hours in England E. and S.E., and the percentage of the possible duration in those districts was as high as 52. In Ireland the mean daily duration was less than 4 hours, and the percentage only 27; while in Scotland N. the daily duration, less than 3 hours, was equal to only 21 per cent. of the possible.

THE WEATHER IN WEST HERTS.

Week ending April 17.

The present dry weather has now lasted for sixteen days.—The past week was, on the whole, a cold one. There were five warm days, but the nights were, with one exception, cold. On the coldest night the exposed thermometer registered 16° of frost, making this the coldest night, with three exceptions, that I have yet recorded here in April. The ground, notwithstanding the cold nights, is still 2° warmer than is seasonable, both at 1 and 2 feet deep. The recent wet period lasted 8 weeks, and came to an end with March, since which time, that is to say during the first 16 days of the present month, less than a tenth of an inch of rain has fallen. There has been no percolation through either of the soil gauges for 9 days. The sun shone on an average for nearly 7 hours a day, which is 1¾ hours a day in excess of the average duration for the middle of April. This was a very calm week; in fact, in the last 5 days the mean velocity at 30 feet above the ground has in no hour exceeded 5 miles. The average amount of moisture in the air at 9 o'clock in the afternoon fell short of a seasonable quantity for that hour by 7 per cent. *E. M., Berkhamsted, April 17, 1912.*

LAW NOTE.

FAILURE OF A MARKET GARDENER.

A meeting of the creditors of Henry William Axten, market gardener and baker, recently of Colnbrook, Bucks., and also of Limpson, Middlesex, took place on the 11th inst. The gross liabilities amounted to £1,507 14s. 8d., of which £1,493 13s. 6d. was due to unsecured orders. The assets consisted of £80 14s. 7d., which included an item of £50 12s. 5d. as good book debts; the balance at bank amounted to 2s. 2d., whilst the stock in trade was valued at £15.

In the course of his examination debtor stated that he commenced business as a baker at Colnbrook in 1896; in 1905 he started the market gardening business on a capital of £500, which he borrowed from his father. He attributed his failure to losses on fruit gardens owing to bad seasons. In the absence of a quorum of creditors, the estate was left in the hands of the Official Receiver.

MARKETS.

COVENT GARDEN, April 17.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—Eds.]

Cut Flowers, &c.: Average Wholesale Prices.

	s.d.	s.d.
Arums (Richardias)	1 6	2 0
Azalea, per dozen bunches ...	3 6	4 0
— mollis, per bunch	1 6	1 9
Camellias, per box of 18's and 24's	1 6	2 0
Carnations, p. doz. blooms, best American var.	1 6	1 9
— smaller, per doz. bunches	10 0	15 0
— Carola, crimson, extra large	2 6	3 0
Eucharis, per doz.	3 0	3 6
Gardenias, per box of 15 and 18 blooms... ...	2 0	4 0
Iris (Spanish), per doz. bunches:		
— white, mauve, yellow and blue	12 0	18 0
Lilac, per bunch white	2 6	3 0
— mauve	3 0	3 6
Lilium auratum, per bunch ...	4 0	5 0
— longiflorum, long, per doz.	2 6	3 0
— short, per doz.	2 0	2 6
— lancifolium alba, long ...	2 0	2 6
— — short ...	1 6	2 0
— speciosum rubrum, dz. blooms:		
— long	1 9	2 0
— short	0 9	1 0
Lily of the Valley, p. dz. bunches:		
— extra special ...	15 0	18 0
— special... ...	10 0	12 0
— ordinary ...	8 0	—
Marguerite, per doz. bunches:		
— Yellow... ...	2 0	2 6
Myosotis (Forget-me-not), p. dz. bunches ...	3 0	4 0
Narcissus, per doz. bunches:		
— Emperor ...	2 6	3 0
— Grandee ...	2 0	2 6
— Orange Phœnix	2 0	—
— Poeticus ...	1 0	1 3
— Sir Watkin ...	1 6	2 0
— Poetarium ...	1 6	2 0
Narcissus, per doz. bunches:		
— Barrii	2 0	2 6
Orchids, Cattleya, per doz. ...	12 0	—
— Odontoglossum crispum ...	3 0	4 0
Pelargoniums, p. dz. bunches	4 0	5 0
— Double Scarlet	8 0	12 0
Primroses, per doz. bunches ...	0 9	1 0
Roses, 12 blooms, — Bridesmaid,	1 0	1 6
— C. Mermet ...	1 0	1 6
— Frau Karl Druschki ...	2 0	2 6
— General Jacqueminot ...	1 0	1 3
— Liberty ...	2 0	4 0
— Madame A. Chateney ...	2 0	4 0
— Niphetos ...	1 6	2 6
— Richmond ...	2 0	3 6
— Sunrise ...	1 0	1 6
— President Carnot	2 0	3 0
— Lady Roberts	2 0	2 6
— Lady Hillingdon	2 0	2 6
— Franz Deegan	3 0	3 6
— Kaiserine ...	1 6	3 0
Spiræa (Astilbe) japonica, per. doz. bunches	4 0	5 0
Sweet Peas (white), pr. doz. bnchs.	1 6	2 0
Tulips, per bunch:		
— double pink ...	0 6	0 9
— — yellow ...	1 0	1 6
— — scarlet ...	1 3	1 6
— p. dz. bunches:		
— white	8 0	9 0
— yellow	6 0	7 0
— scarlet ...	6 0	8 0
— bronze	8 0	9 0
— pink	6 0	8 0
— Darwin, all shades, per bunch	0 9	1 0
Violets, p. dz. bchs.	1 3	2 0
— Princess of Wales, per doz. bunches ...	3 0	4 0
— Parma	2 0	2 6
Wallflowers, per dozen bunches	2 0	2 6

Cut Foliage, &c.: Average Wholesale Prices.

	s.d.	s.d.
Adiantum Fern (Maidenhair), best, dz. bnchs.	7 0	8 0
Agrostis (Fairy Grass), per dz. bunches ...	2 0	4 0
Asparagus plumosus, long trails, pr. ½doz.	1 6	2 0
— medium, doz. bunches ...	12 0	18 0
— Sprengeri ...	10 0	12 0
Carnation foliage, doz. bunches...	4 0	—
Croton foliage, various, per dozen bunches ...	12 0	15 0
Cycas leaves, artificial, per doz.	3 0	12 0
Eulalia japonica, per bunch ...	1 0	1 6
Moss, per gross ...	6 0	—
Myrtle, dz. bchs. (English), small-leaved...	6 0	—
— French ...	1 0	—
Smilax, per bunch of 6 trails ...	1 6	—

Plants in Pots, &c.: Average Wholesale Prices.

	s.d.	s.d.
Acacia lineata, 48's, per dozen ...	18 0	21 0
Aralia Sieboldii, p. dozen	6 0	7 0
Araucaria excelsa, per dozen ...	18 0	21 0
Asparagus plumosus nanus, p.dz.	10 0	12 0
— Sprengeri ...	8 0	9 0
Aspidistra, p. dz., green	21 0	30 0
— variegated ...	30 0	60 0
Azaleas, per doz.	36 0	42 0
Boronia Megastigma, 48's, p. dz.	21 0	24 0
Cinerarias, pr. dz.	8 0	9 0
Cocos Weddeliana, per dozen:		
— 60's	6 0	12 0
— larger, each ...	2 6	10 6
Croton, per dozen	18 0	30 0
Cyperus alternifolius, per doz.	5 0	6 0
— laxus, per doz.	4 0	5 0
Daffodils, per doz.	6 0	8 0
Dracæna, green, per dozen ...	10 0	12 0
Ericas, per dozen:		
— Willmorei, 48's	15 0	18 0
— persoluta ...	27 0	30 0
Ferns, in thumbs, per 100... ...	8 0	12 0
Ferns, in small and large 60's ...	12 0	20 0
— in 48's, doz. ...	6 0	—
— choicer, sorts per doz. ...	8 0	12 0
— in 32's, per dozen	10 0	18 0
Ficus elastica, per dozen	9 0	12 0
Genistas, 48's, per doz.	10 0	12 0
Geonoma gracilis, 60's, per dozen	6 0	8 0
— larger, each ...	2 6	7 6
Hyacinths white & clrd., p. dz. pots	10 0	12 0
Hydrangeas, white, 48's, per dozen	18 0	21 0
Kentia Belmoreana, per dozen	5 0	42 0
— Fosteriana, 60's, per dozen	4 0	6 0
— larger, per doz.	18 0	60 0
Latania borbonica, per dozen ...	12 0	30 0
Lilium longiflorum, p. doz.	20 0	21 0
— lancifolium rubrum in pots, per dozen ..	15 0	18 0
— lancifolium alba	15 0	18 0

Plants in Pots, &c.: Average Wholesale Prices *(Contd.)*.

	s.d.	s.d.
Marguerites, white, per dozen ...	8 0	10 0
Mignonette, 48's, per dozen ...	6 0	8 0
Pandanus Veitchii, per dozen ...	36 0	48 0
Phœnix rupicola, each	2 6	21 0
Spiræa japonica, per dozen pots	10 0	12 0
— Pink	10 0	12 0

Fruit: Average Wholesale Prices.

	s.d.	s.d.
Apples, Nova Scotian, per barrel	17 0	22 0
— Californian Newtowns, pr. case	6 0	8 0
— (Canadian), per barrel	20 0	—
— Oregon (Hood River), per case	16 0	18 6
— American, per barrel	20 0	32 0
— Australian per case	7 6	20 0
Bananas, bunch:		
— Doubles ...	10 0	12 0
— No. 1	8 0	10 0
— Extra	10 0	12 0
— Giant	14 0	18 0
— Loose, per dozen	0 6	1 0
— Red coloured...	5 6	6 6
— Jamaica Giants, per ton ...	£10	£12
— Jamaica Ordinary, per box (9 doz.) ...	4 0	5 0
Cranberries, per case (30 qts.)...	10 0	11 0
— Cape Cod, per case (30 quarts)	9 6	—
Dates (Tunis) doz. boxes	4 6	5 6
Figs, Guernsey, pr. doz.	9 0	24 0
Grape Fruit, case:		
— 96's	14 0	20 0
— 80's		
— 64's		
— 54's		
Grapes, Australian, per case ...	8 0	10 0
— English (new) per lb.	4 0	5 0
— Almeria, per barrel	11 6	15 6
Per dozen lbs.	4 0	6 0
— (Cape) per case	4 0	5 0
— ,, White...	3 0	5 0
— ,, Red ...	3 0	6 0
Lemons:		
— (Naples), case	26 0	30 0
— Messina, p. case	7 6	17 0
Limes, per case ...	4 0	—
Mangoes, per doz.	6 0	10 0
Melons (Cape) ...	0 10	1 6
— (English) ...	3 0	5 0
Nuts, Almonds, per bag	52 6	—
Spanish, p sack	40 0	42 0
— Barcelona, bag	35 6	36 6
Nuts, Chestnuts, per bag ...	3 6	19 0
— Cocoanuts, 100	18 0	23 0
— English Cobs per lb.... ...	0 3	—
— Walnuts (Naples) kiln dried, cwt. cases	54 0	—
Oranges, Jamaica per case ...	9 0	10 0
— Californian ...	15 0	16 0
— Denia, case ...	16 0	34 0
— Valencia ...	10 0	12 0
— Jaffa, per case	9 6	--
— Blood, per case	8 0	9 0
— Mandarins, per box ...	0 6	3 6
— Bitter, per ½ chest	16 0	18 6
— Seville Sour ½ chest ...	15 0	18 0
Peaches (Belgian), per dozen ...	24 0	48 0
Pears (Californian), per case ...	10 6	16 6
— Glou Morceau	11 6	12 6
— Easter Beurré	8 6	—
— (Australian) ...	4 0	6 6
— Winter Nelis	12 6	13 0
— (American) per barrel, 180 lbs.	25 0	26 0
— cases	7 0	—
— (Cape)	3 6	4 6
Pineapples, St. Michael ...	2 6	5 0
Pines (Cape), each	0 6	0 9
Strawberries, p. lb.:		
— A quality ...	2 6	4 0
— B quality ...	1 6	2 0

Vegetables: Average Wholesale Prices.

	s.d.	s.d.
Artichokes (Globe), per dozen ...	3 0	4 0
— Jerusalem, per ½ bushel ...	1 0	1 3
Asparagus—		
— Toulouse ...	2 8	—
— Montauban ...	3 9	—
— Dijon	1 6	—
— Lauris ...	2 6	5 0
— (English) bndl.		
— Cambridge ...	0 10	2 6
— Worcester ...	1 6	3 6
Beans, Guernsey, Dwarf, per lb.	0 6	0 9
— French, per packet, lb. ...	0 8	—
Beetroot, p. bshl.:		
— Long	2 6	3 0
Broccoli, sprouting, per bag ...	6 0	—
Celeriac, per doz.	2 6	3 0
Cabbages (French) per dozen ...	1 3	1 6
— Cornish, p. dz.	1 3	1 6
Cauliflowers, per dozen	2 0	3 0
— (Cornish), per crate	10 0	12 0
Celery, doz. bndls.	10 0	14 0
— (washed), per dozen bundles	12 0	—
Carrots (English), pr. doz. bun....	4 0	—
— per cwt. ...	7 0	—
— (washed) p. bag	10 0	—
Chicory, per lb. ..	0 4	—
Cucumbers, p. doz.	6 0	—
Endive, per dozen	2 0	—
Greens (Spring), p. bag	6 0	7 0
Herbs (sweet), pkts., p. gross	7 0	—
Horseradish, 12 bundles ...	12 0	18 0
Leeks, per doz. ...	1 6	2 0
Lettuce (French), per doz. ...	0 10	1 3
Mint, per dozen bunches ...	3 0	6 0
Mushrooms, cultivated, p. lb. ...	0 8	0 10
Mustard and Cress, pr. dz. punnets	1 0	1 6
Marrows, each ...	3 0	6 0
Onions (English), per bag ...	8 0	—
— (Spanish), per case	9 0	10 0
— Egyptian ...	7 6	—
Parsley, ½ sieve ...	1 6	2 6
— per doz. bun.	3 0	4 0
Parsnips, per bag	7 0	—
Peas (French) per pad	4 0	—
— (Guernsey), lb.	0 9	1 6
Radishes (English), per dozen ...	1 6	—
— (French) p. dz.	1 0	1 6
— (Jersey) long...	0 4	0 6
Rhubarb, forced, per 12 bundles	0 6	0 7
— Outdoor, p. dz	1 9	2 0
Spinach, pr. bshl.	3 6	4 0
Seakale, p. punnet	0 10	1 0
— ½ bushel ...	1 6	—
Tomatos (Canary Islands), per bundle... ...	12 0	16
Turnips (English), per dz. bunches	2 6	3 0
Turnip Tops, per bag	2 0	3 0
Watercress, p. dz. bunches ...	0 4	0 6

REMARKS.—The Belgian crop of Gros Colman Grapes is almost exhausted, and the fruits are realising 6s. per lb. at the time of writing. New season Black Hamburg Grapes are arriving from Worthing and the Channel Islands. Melons and Figs are being received from the latter source. A few early Peaches reached the market this week from Belgium and sold at from 3s. to 4s. each. English hothouse Peaches are expected in Covent Garden Market next week. Supplies of forced Strawberries are about equal to the demand. Marrows from Worthing and other localities continue a full supply. Consignments of Cape fruit received per ss. "Briton" consisted of 6,243 boxes of Grapes, 3,760 boxes of Pears, 39 boxes of Plums, and 28 boxes of Melons. Shipments this week from the Canary Islands amounted to 27,256 packages, consisting of Bananas, Tomatos and Potatos. Produce received from Tasmania and Western Australia per ss. "Telamon" and "Miltiades" totalled 57,500 boxes of Apples, principally of dessert varieties. English Asparagus from the Cambridge and Worcester districts are a good supply considering the prevailing cold weather. Forced vegetables are plentiful, but outdoor vegetables are scarce, their prices remaining firm. Tomatos from Teneriffe are a fairly good supply considering the time of the year. *E. H. R., Covent Garden, April 17, 1912.*

Potatos.

	per cwt. s.d.	s.d.
Kents—		
Queen's	4 0	4 6
Up-to-Date ...	4 0	4 6
Lincolns –		
Up-to-Date ...	3 9	4 6
British Queen ...	3 9	4 3
King Edward ...	4 0	4 6
Northern Star ...	2 9	3 6
Evergoods ...	3 0	3 9
Lincolns—		
Maincrops ...	4 0	4 6
Blacklands ...	3 0	3 3
Bedfords –		
Up-to-Date ...	3 9	4 0
Dunbars—		
Up-to-Date ...	4 9	5 3
Maincrop ...	5 3	5 6

New Potatos.

Teneriffe ...	... 10 0	13 6	Algerian — ... 11 6	13 6

REMARKS.—Trade is very steady, and consignments are still fairly heavy. Prices show no alteration. *Edward J. Newborn, Covent Garden and St. Pancras, April 18, 1912.*

SCHEDULES RECEIVED.

Dover Horticultural Society.—The summer show of Sweet Peas and Roses will take place on Wednesday, July 3. The Chilton Challenge Cup, valued at 3 guineas, is offered for 12 bunches of Sweet Peas, and the Kearsney Challenge Cup, valued at 10 guineas, for 12 Rose blooms. The National Sweet Pea Society's silver medal will be given for the best bunch of Sweet Peas in division B to D, and the National Rose Society's silver medal for the best bloom in the same divisions. The autumn show of the society will be held in the Town Hall, Dover, on Wednesday and Thursday, November 6 and 7. In the open classes the Lord Warden's Challenge Cup is offered for 12 vases of Japanese Chrysanthemums. Secretary, Mr. C. P. Tomlin, 65, Folkestone Road, Dover.

Darlington Horticultural Society.—The spring flower show of this society will take place on April 24 in the Drill Hall, Darlington. The society's silver challenge bowl is offered in the class, open to all except nurserymen, for a collection of 18 varieties of Narcissus blooms. Secretary, Mr. A. H. Harrow, Priestgate House, Darlington.

Newmarket Horticultural Society.—The eighteenth annual show of this society will be held on Thursday, July 11, in Heath Lodge Paddocks, Exning Road. Secretary, Mr. G. A. Sarvent, 62, St. Philip's Road, Newmarket.

GARDENING APPOINTMENTS.

[Correspondents are requested to write the names of persons and places as legibly as possible. No charge is made for these announcements, but if a small contribution is sent, to be placed in our collecting Box for the Gardeners' Orphan Fund, it will be thankfully received, and an acknowledgment made in these columns.]

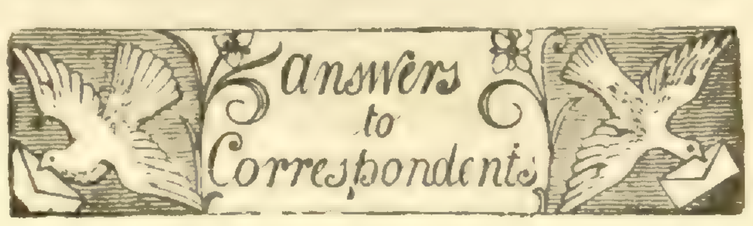
Mr. C. ABBOTT, for the past 2 years Gardener at Fairlawne, Tonbridge, Kent, as Gardener to A. M. GRENFELL, Esq., Roehampton House, Roehampton, S.W.

Mr. ARCHD. COKE, for 3½ years Foreman in Roby Hall Gardens, Torquay, and previously Foreman for 2 years at Kylemore Castle, Co. Galway, as Gardener to Mrs. N. HAMILTON, Ogilvy, Biel House, Ninewar, Prestonkirk, East Lothian.

Mr. WM. HOLDEN, for 10 years Gardener at Ewell House, and previously for 5 years at Ockley Court, and of South Lodge, as Gardener to the Rt. Hon. Lord HUTINGFIELD, Heveningham Hall, Yoxford.

Mr. W. HODGES, for the past 8 years Gardener to O. P. TRAHERNE, Esq., Bryngarw, Aberkenfig, Glamorgan, as Gardener to MRS. BENNETT, Mill House, Bourne End, Bucks.

Mr. ROBERT WESTMORE, for the past 2 years at High Grove Gardens, Pinner, as Gardener to CHAS. H. COMYNS, Esq., The Warren, Hertfordshire.



*** *The Editors will be glad to receive, for consideration, large photographs of horticultural subjects, suitable for reproduction in this Journal.*

BOWLING GREEN: *W. W.* The sample of turf submitted is too rich in humus and sand; to counteract this excess it would be advisable to top-dress the green with sifted soil. Be sure that the fresh soil does not contain seeds of weeds. Your recent top-dressing evidently contained too great a quantity of chemical manure.

HOLLIES FAILING: *E. A. A.* Your Hollies are showing the effects of last summer's drought. Examine the soil around their roots, and, if it is dry, apply copious waterings; a mulching of farmyard manure will be beneficial. It would be well to cut back the shrivelled shoots.

HOLLY LEAVES DAMAGED: *E. R. S.* The leaves submitted have been damaged by the larvæ of the "Holly Fly" (Phytomyza ilicis). If the attack has been severe remove and burn the leaves. During the time the flies are active—usually from Lady Day to Midsummer—you should spray the hedge with petroleum emulsion.

INSECT INFESTING LAWN: *T. B.* The insect is Andrena fulva, the common red-tailed bee. The creature is perfectly harmless to vegetation.

NAMES OF FRUITS: *D. and W. C.* 1, Dutch Mignonne (Reinette de Caux); 2, Parry's Pearmain.—*F. A. Jones.* Golden Nonpareil.

NAMES OF PLANTS: *G. W. H.* Amelanchier canadensis.—*A. G., Brentwood.* 1, Begonia fuchsioides; 2, Amelanchier canadensis.—*Head Gardener.* Narcissus incomparabilis fl. pl.—*A. W. H.* 1, Coronilla Emerus; 2, Prunus sp.; 3, Narcissus incomparabilis Cynosure; 4, N. odorus rugulosus; 5, N. Soleil d'Or; 6, N. Grand Monarque; 7, N. Tazetta "Paper White"; 8, Omphalodes verna.—*C. L., Penarth.* Pyrus salicifolia; Acer macrophyllum.—*W. E., Trowbridge.* Teucrium fruticans.—*F. F., Trowbridge.* Amelanchier canadensis.—*C. A.* 1, Odontoglossum Rossii; 2, Brassia brachiata; 3, Cœlia macrostachya; 4, Masdevallia simula.—*G. H. P.* The flower with yellow ground is known as Vanda tricolor, the white as Vanda suavis. Both flowers are probably varieties of the same species, as there is nothing but colour difference to distinguish them.

NARCISSUS BULBS FAILING TO FLOWER: *F. W. P.* The bulbs have the appearance of having been starved, due to poverty of soil. Daffodils planted in the wild garden should receive a surface dressing of manure of some kind annually. Lift the bulbs when the foliage has turned yellow in June and replant them. Opportunity could be taken then of digging into the soil bonemeal or some other suitable artificial manure. Some of the bulbs have apparently been planted rather deeply.

PEACH ROYAL GEORGE: *Foreman.* The Peach trees are attacked with the Peach mildew, which appears first on the leaves, afterwards passing to the fruit. The trees should be sprayed once a week with liver of sulphur, commencing soon after the leaves begin to unfold.

ROSES UNHEALTHY: *W. P.* There is no fungus disease present on your Roses. From the appearance of the plants, their unhealthiness is due to improper conditions.

YEW HEDGE: *R. H. L.* Your soil is rather heavy, therefore it would be advisable to mix old potting soil, leaf-mould, burnt refuse, and similar materials with the top spit to lighten the staple. Double dig the site of the hedge to a width of at least 4 feet, leaving the bottom spit of soil in its original position. Yews planted in a single row 2 feet 6 inches apart would make a good hedge. After planting, you should apply a mulch, and it will be wise to afford copious waterings during dry weather for the next six months. From 8d. to 1s. per rod is the average price for the bastard trenching of heavy soils, but the price varies according to local conditions of labour and the nature of the soil.

VINE LEAF: *K.* There is no fungus disease present on your vine leaf. Ventilate the vinery freely, especially early in the morning.—*C. T.* The vines are affected with Grape rot, caused by Gleosporium ampelophagum. Spray the plants with Bordeaux mixture. If the berries are swelling, this mixture should not be used, but the vines sprayed every third day with a solution of liver of sulphur, using 1 ounce in 5 gallons of water.

Communications Received.—A. B.—H. F.—H. C. L.—Co Longford—Anxious—E. Y.—C. T. D.—T. M.—R. P. B.—A. W. A.—F. B.—W. E. B.—W. K.—T. G.—W. A. M.—G. F.—G H.—H. J V.—W. G. K.—A. H. P.—A. H. G. H.—T. H.—E. D., Birmingham—W. A. D.—W. G. K.—A. C. F.—R. H. L., Essex—G. A M.—W. G. S.—R. F.—A. P.—H. N. E.—P. C. M. V.—G. V. S., Italy—O. T.—A. W., Ireland—A. & G.—I. H. W.—O. R., Letchworth—H. H.—H. W. W.—T. S.—C. H. P. L.—T. W. B.—W. G. J. C.—Thomas Harris.

RESEARCH IN FRUIT GROWING.

THE GARDENERS' CHRONICLE

ESTABLISHED 1841

No. 3722

No. 1,322.—VOL. LI. {THIRD SERIES.} SATURDAY, APRIL 27, 1912. {Registered as a Newspaper. WITH SUPPLEMENT. PRICE 3d. POST-FREE, 3½d.

SUBSCRIPTION—Inland, 15/-; Foreign, 17/6 [22fr. 10c.] [$4 26c.] per annum. Entered at the New York Post Office as second-class matter.

Postal Address—41, Wellington Street, Covent Garden, W.C. Telegraphic Address—"Gardchron, London." Telephone—Gerrard, 1543.

☞ For CONTENTS see page 271.

WEBBS' BEAUTIFUL ANNUALS
for present sowing.
WEBBS' DOUBLE SCARLET CLARKIA, 1s. per packet, post free.
WEBBS' DOUBLE ROSE GODETIA, 1s. per packet, post free.
WEBBS' CARMINE GEM ESCHSCHOLTZIA, 1s. per packet, post free.
WEBBS' SELECTED SHIRLEY POPPY, 1s. per packet, post free.

WEBB & SONS, The King's Seedsmen, WORDSLEY, STOURBRIDGE.

BARR'S VEGETABLE AND FLOWER SEEDS of FINEST SELECTED STRAINS and TESTED GROWTH. Descriptive Catalogue free.

BARR'S HARDY PERENNIALS, ALPINES, AQUATICS, CLIMBERS, ETC., for Spring planting. Descriptive Catalogue, post free.
BARR & SONS, 11, 12 & 13, King St., Covent Garden, London.

GREENHOUSE PAINTING & GLAZING "Vitrolite" superior to White Lead Paint, 9/- per gall. "Plastine" supersedes Putty, 16/- per cwt. Full particulars from W. CARSON & SONS, Grove Works, Battersea. Agents throughout the country.

THE Popularity of "XL ALL" Specialities increases every year. All gardeners proclaim that nothing equals these celebrated preparations. "XL ALL" NICOTINE VAPORISING COMPOUND, the gardeners' favourite Fumigant, both Liquid and Cake. "XL ALL" NICOTINE INSECTICIDE WASH for Syringing, Dipping and Dressing Fruit Trees and Plants; Mealy Bug, Scale, etc., cannot exist where this is used. "XL ALL" INSECTICIDE WASH B (*sine* Nicotine), best non-poisonous Wash on the Market. No licence required to sell this. Other preparations of great renown are:—"XL ALL" WEED KILLER, "XL ALL" FERTILISER, "XL ALL" ROSE MANURE. Richards' GREEN SUNSHADE, finest powder shading on the market, 1s. packet, does 100 feet of glass. Don't forget to ask your Nurseryman or Seedsman for my small pink list.—G. H. RICHARDS, Manufacturer, 234, Borough High Street, London, S.E.

OSMUNDA for Orchids.—Consignments arrive fortnightly. 2s. 6d. per bushel; per bag, 8s. 6d. SANDER & SONS, St. Albans.

WALTERS & CO., Morland Rd., Croydon, Makers of Lath Roller Greenhouse Blinds; also Pinoleum, Scrims and Tiffany Blinds. Prices and samples free. Established 20 years.

THE BEST OF ALPINES, and new and old-fashioned Perennials, Rock Gardens, Borders, Water Gardens, and Wild Gardens designed and planted. Illustrated Catalogue (free).—THE GUILDFORD HARDY PLANT NURSERY, Guildford.

LISSADELL ALPINE & HERBACEOUS PLANTS.—Write for our new illustrated and enlarged List, containing many beautiful novelties at moderate prices. Also List of Seeds collected from above in 1911.
J. A. COOPER, Lissadell (No. 2), Sligo, Ireland.

AUTO SHREDS FUMIGANT kills Leaf-mining maggot, insects in greenhouses, frames. For 1,000 cubic feet, 6d.; 10,000, 3s. 6d. No apparatus. WM. DARLINGTON & SONS, Patentees, Hackney, N.E.

New Phloxes.
GUNN & SONS were Awarded a Silver Cup at the Great Show at Olympia. New Lists now ready. Address: Olton, Warwickshire.

To ensure fine Bushy Plants, Sow Now
SUTTON'S WALLFLOWERS,
SUTTON'S FIRE KING (vivid orange), per packet, 1s. 6d.
SUTTON'S GIANT BLOOD RED, per packet, 1s. 6d.
CLOTH OF GOLD, per packet, 6d. and 1s.
SUTTON'S SUPERB MIXED, per packet, 1s.
Post free.

SUTTON & SONS, The King's Seedsmen, READING.

DOUGLAS'S CARNATIONS & PINKS, border and perpetual, are noted all over the world. 5 Gold Medals, R.H.S., 450 Medals and Cups. Newest and best varieties at most reasonable prices, all ready for planting or potting on. Finest hand fertilized seed only sold. Carnation and Picotee seed, all types, 1s. 6d. to 2s. 6d. packet. Auricula, Pink, Polyanthus, finest strain in existence, all 1911 fine crop, now ready for sowing. Send for catalogue, Edenside, Gt. Bookham.

Roses and Herbaceous Plants.
GUNN & SONS were awarded the 25 Guinea Challenge Cup in each collection at the Leamington Show. Up-to-date List for each now ready. Address: Olton, Warwickshire.

WM. DUNCAN TUCKER & SONS, Ltd., 27, Cannon Street, London, E.C.; Works, Tottenham. Conservatories, Winter Gardens, Vineries, Peach-houses, Portable Buildings, etc. Catalogue gratis.

LANDSCAPE GARDENING.—W. INNES STUCKEY, Landscape Gardener, Piccadilly Mansions, Piccadilly Circus, W. (With the late Mr. H. E. Milner).

GARDEN PESTS.—Cross's "Clubicide" is the Gardeners' Insurance against damage by Eelworm, Wireworm, Slugs, Maggot, and all Disease Germs and Insect Pests. Kills all harmful Bacteria, reinvigorates the soil, stimulates plant life. In 1s. flasks and ½-gall. and 1 gall. drums. From all Seedsmen.
Sole Manufrs.: A. CROSS & SONS, Ltd., Glasgow.

BUNYARD'S CATALOGUES, free on application.
BORDER CARNATIONS, 50 varieties.
ROSES AND OTHER CLIMBERS, in Pots.
HERBACEOUS AND AQUATIC PLANTS for present planting.

GEORGE BUNYARD & CO., LTD., Royal Nurseries, Maidstone. Established 1796.

DICKSONS Horticultural Manure & other high-class Fertilizers; also Dicksons Improved Mushroom Spawn. Priced Circulars free on application to DICKSONS, Royal Seed Warehouses & Nurseries, Chester

HARRISON'S "RELIABLE" WEED KILLER.—Best and cheapest. See p. vii. this issue.

COOPS, COOPS, for the season. The Keeper's Coop. Best on the market, 5s. 6d. each; 60s. per dozen, carriage paid. Runs, 2s. 6d. each extra. Send for list, showing numerous other designs.
BOULTON & PAUL, Ltd., Rose Lane Works, Norwich.

GISHURST COMPOUND is harmless in use; its soluble Sulphur, &c., has for 40 years cured Blights and Fungus on Plants, and is good for washing unhealthy dogs. Gishurstine keeps boots dry in all weathers; they will polish. Good for Harness.
Wholesale from—
PRICE'S PATENT CANDLE CO. LTD., London.

For Advertisement Charges see page viii.

KELWAY'S "Manual of Horticulture" is the best of all Garden Books, 2s., post free. From ——, Esq., Northwood, Middlesex, September 28th, 1911: "I find that I have never forwarded 2s. for your lovely Catalogue you sent me some weeks since. It would be cheap at five times the price, and I sincerely regret the oversight."—KELWAY & SON, Langport, Somerset.

THE MODERN HERBACEOUS BORDER.—Full particulars and prices of Kelway Borders packed, arranged for planting, to flower in tasteful schemes of colour, from—KELWAY & SON, The Royal Horticulturists, Langport, Somerset. From ——, Broadway, New York. "Your shipment of plants and bulbs came duly to hand, and, as usual, all in very good condition." November 14th, 1911.

Now is the time to plant.
KELWAY GAILLARDIAS are very enduring on the plant, even in dry weather, and as cut flowers they retain their freshness and brilliance for a long time after cutting. Choice named collections, 12s. and 18s. a dozen. From pots. Carriage and packing free for remittance with order.—KELWAY & SON, The Royal Horticulturists, Langport, Somerset.

Now is the time to plant.
KELWAY'S NEWEST GLADIOLI. These new Gladioli are a revelation. They should be planted by all who want glowing effect of colour in their beds and borders, and flowers for the house in July, August and September. We recommend trial of a selection of our "Cream of the World" collection of named varieties, flowering bulbs, for instance, one dozen for 9s.; per 100, £3 10s. Other choice collections, 30s. and 45s. per 100. Full descriptive list on application. Postage free for remittance with order.—KELWAY & SON, The Royal Horticulturists, Langport, Somerset.

IRON & WIRE FENCING for GARDENS, Tree Guards, Gates, Arches, Espaliers, Rose Stakes, and Ornamental Garden Iron and Wire Work of every description. Send for Illustrated Catalogue, free.
BOULTON & PAUL, Ltd., Manufacturers, Norwich.

FRUITING VINES IN POTS.—Muscat of Alexandria, and leading Market varieties. We make Vines a speciality.
G. COLEMAN, The Vineries, Burgess Hill, Sussex.

ALPINES & HERBACEOUS PLANTS, —Himalayan and other rare Rhododendrons, rare Shrubs, Construction of Rockeries. Catalogues ready.
G. REUTHE, Keston, Kent.

PERPETUAL CARNATIONS.—Our 1912 Illustrated Catalogue free. Read our "Cultural Treatise," 1s.—YOUNG & CO., Carnation Specialists, Hatherley, Cheltenham.

CUTHBERT'S SPECIALITE MUSHROOM SPAWN.—NEW SPAWN NOW READY. We continue to receive the most gratifying testimonials as to the productiveness and good quality of our Spawn. Per bushel, 5s.—R. AND G. CUTHBERT, Seed and Bulb Merchants, Southgate, Middlesex.

VERBENAS.—The best sorts are Miss Willmott (pink), Princess of Wales (deep blue), Queen of Whites, King of Scarlets, and Lovely Blue (light blue); clean, healthy, strong young plants; carriage paid; 10s. per 100, cash.—H. DUDDERIDGE, The Dorset Nurseries, Blandford.

PERPETUAL FLOWERING CARNATIONS; strong, established plants in pots, from 4s. per doz., carriage paid; 20s. per 100, carriage forward; illustrated catalogue, describing 75 leading varieties with cultural hints, post free.—C. F. A. VAN DER SLUYS, F.R.H.S., Ramee, Guernsey.

SALES BY AUCTION.

Wednesday next, May 1st, at 12 o'Clock.

New and rare Perennials, Herbaceous and Border Plants, Japanese Liliums, Gladiolus, Begonias, Gloxinias, Lily of the Valley, Iris, Carnations, Pinks, &c., Liliums nepalense and sulphureum.

At 4 o'Clock.—Ten cases Lilium auratum, five cases L. speciosum rubrum, ten cases L. longiflorum giganteum, five cases Iris Kæmpferi, ten cases Lily of Valley, each 500 dormant crowns, 200 Davallia Fern Balls, 4,000 Watsonia Ardernei alba, &c., 4,000 Gladiolus, hybrids of Childsii, Gandavensis, America, Graff's hybrids, &c., Begonias in variety, including crispa and Worthiana, the famous bedding variety, 2,000 Gloxinias, 50 Amorphophallus, immense bulbs, Amaryllis, hybrids of Vittata, Lycoris aurea, Crinum Powellii, Agapanthus, 18,000 Lily of Valley crowns, Phœnix rupicola, and Latania borbonica Palm Seeds.

At 5 o'Clock.—20 SPECIMEN PALMS, also 100 lots of Ornamental and Decorative Palms and Plants, Rhododendrons, Dracænas, Standard Bays, &c., from Belgium, Stove and Greenhouse Plants.

MESSRS. PROTHEROE & MORRIS will SELL the above by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, E.C. On view morning of Sale and Catalogues had.

The "Roseneath" Collection of Orchids.

By order of the Executors of the late H. J. Adams, Esq., J.P., of Roseneath, Enfield.

This collection, which is one of the best known in the vicinity of London, is a very varied and complete one, comprising many valuable varieties of all the principal species. There are many choice Cypripediums, including such well known varieties as C. Adrastus, C. Mme. Jules Hye, C. Euryades splendens, C. Helen II., C. Helen II. var. Fascinator, C. Mrs. E. V. Low, C. Dowlingianum, C. Maudiæ magnificum, C. George Singer, and the Cattleyas include amongst a number of fine things the following:—C. Dusseldorfei var. Undine, C. Mossiæ Reineckiana, C. Mossiæ Wagneri, C. Gaskelliana alba, C. Trianæ alba, &c., &c.

MESSRS. PROTHEROE & MORRIS have been instructed to SELL the above by AUCTION at their Central Auction Rooms, 67 and 68, Cheapside, London, E.C., on THURSDAY and FRIDAY NEXT, MAY 2nd and 3rd, at 1 o'Clock each day. On view mornings of Sale. Catalogues free on application.

Royal International Horticultural Exhibition, May, 1912.

Messrs. PROTHEROE & MORRIS beg to announce that they have arranged to hold a series of important Auction Sales of

RARE ORCHIDS

from many of the best known and finest collections in Great Britain and on the Continent, as well as from noted growers, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., during the period covered by the show as follows:—

Tuesday,	May 21st	Tuesday,	May 28th
Thursday,	,, 23rd	Wednesday,	,, 29th
Friday,	,, 24th	Thursday,	,, 30th

Friday, May 31st.

MESSRS. PROTHEROE & MORRIS will be pleased to forward Catalogues of these Sales as soon as published to any applicants. Central Sale Rooms, 67 and 68, Cheapside, E.C.

Glasgow.

MR. JOHN COWAN, of Liverpool, will SELL by AUCTION, without reserve, in the Trades Hall, Glassford Street, Glasgow, on Friday, May 3rd, 1912, at 12.30 prompt, a very special collection of Orchids, all in grand condition; a large proportion are in flower and bud; the Odontoglossums, Cattleyas, Lælio-Cattleyas, Cypripediums, &c., &c., are all exceptionally fine. On view morning of Sale. Catalogues may be had at the Hall, or post free from the Liverpool Orchid & Nursery Co. (Cowans), Ltd., Gateacre Nurseries, Gateacre, near Liverpool.

BUSINESSES FOR SALE, &c.

COMPACT NURSERY in good district for Sale as going concern; nine greenhouses and useful buildings; capital opportunity for all-round man to do sound local business; price for everything £350.—Full particulars of Messrs. PROTHEROE & MORRIS, 67, Cheapside, E.C.

GREENGROCER'S and FLORIST'S.—Exceptional opening in this block of shops; rent from £70. Boots', Sainsbury and Express Dairy Co. already open in this established market; population 150,000; immediate possession.—OWNER, 3, Walm Lane, Willesden Green, London, N.W.

A LEASEHOLD NURSERY for SALE, under exceptional circumstances, within 20 miles of London; 3½ acres of land planted with good Apples and Pears; 1,275 feet of modern well-built houses (heated), with about 175 feet heated brick pits; well stocked; any reasonable offer accepted.—Particulars, apply to C. BIRTS, Esq., 5, Salter's Hall Court, Cannon Street, London, E.C.

TO BE SOLD.—An old-established NURSERY, FLORIST and SEED BUSINESS, in main road near station; dwelling house and shop attached; long lease, as owner is unable to attend to it; no reasonable offer will be refused.—Particulars of P., Box 20, 41, Wellington Street, Covent Garden, W.C.

GARDENER'S CHANCE. — Convenient seven-roomed house, with good garden and four greenhouses, TO BE SOLD, including goodwill and stock; price only £275; lease about 60 years, ground rent four guineas; plenty scope to extend connection.—Apply, E. W. HARRIS & CO., Kent House, Beckenham.

FOR SALE, a well-equipped NURSERY and FLORIST BUSINESS, situated in a busy neighbourhood, within easy reach of the London markets; good local trade; established 30 years; dwelling house on the nursery; price, including valuable lease, growing crops, outbuildings, 10 glasshouses, frames, lights, &c., and goodwill, £1,500; exceptional opportunity for a person wishing to secure a pleasant ready-money business.—For particulars, write to ESSEX, Box 22, 41, Wellington Street, Covent Garden, W.C.

COURTBUSHES NURSERIES and SUSSEX POULTRY FARM, Hurstpierpoint, eight miles from Brighton, best market town on south coast; nice house; everything first-class order for carrying on successful large trade; ingoing at valuation, about £500; exceptional opportunity.—Apply, DROVER, Courtbushes Nurseries, Hurstpierpoint.

SIDCUP (Kent).—For SALE, with possession, FREEHOLD NURSERY; 12 greenhouses, 200 feet long, stables and sheds; four acres good loam; frontage on main road 420 ft., side road 360 ft.—Apply, SAMUEL CHILDS (Owner), Days Lane Nursery, or Messrs. BAXTER, PAYNE & LEPPER, Bromley.

NURSERY BUSINESS for SALE, with gardening connection; growing residential locality; hour from London; easy rent; saleable stock; Geraniums, Chrysanthemums, &c., and Hardy Stuff; ingoings about £150; good reasons for selling.—D. A., Box 26, 41, Wellington Street, Covent Garden, W.C.

TO FRUIT GROWERS.—Homes with Incomes.—Profits of £200 to £500 per annum; Freehold Fruit Farms in Southern Ontario, on shore of Lake Erie, Canada's farthest south; latitude same as South of France and Rome; rich early soil; no pioneer work; Fruit Farms of ten acres now being sold already planted and producing Peaches, Apples, Tobacco, Melons, &c.; equipped with house, water, gas and telephone; near large cities; free advice by Resident Expert; £120 gives possession, balance over five years.—Apply for further particulars and illustrated booklet to SOUTHERN ONTARIO LAND CO., LTD., 3, Lombard Street, London, E.C.

BUSINESSES TO LET.

TO MARKET GARDENERS, FRUIT GROWERS and OTHERS.—TO BE LET, from September 1st, large Kitchen Garden, eight acres, 1½ miles from main line station, on G.N.R., six miles from important Midland Market Town of Grantham. The garden comprises five acres walled garden, including 700 feet glasshouses, well stocked with vines, peaches, etc.; three acres apple orchard; Gardener's house; two cottages, bothy for single men; ample water supply; all necessary appointments for the management of a large garden on the most economical lines; an exceptionally low rent would be taken from a desirable tenant.—For futher particulars apply (C. S. ORWIN), Panton Estate Office, Wragby, Lincolnshire

NURSERY to LET; splendid position; five minutes from rail and trams; 350 ft. glass, 1½ acres fruit; good house, rent £40.—Further particulars from MILES, Royal Hotel, Sheerness.

NOTICES.

THE RHODODENDRONS planted in Rotten Row, Hyde Park, are supplied by ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey. Kindly note Christian name and address.

PUBLISHERS' NOTICES.

3rd Edition. Now Ready.

"Ferns & Fern Culture"

By J. BIRKENHEAD.

Revised by F. Parsons. 1/3, post free, of

THE PUBLISHERS,

H. B. MAY & SONS, Upper Edmonton, N.

Present-Day Gardening.

Edited by R. HOOPER PEARSON, Managing Editor of the GARDENERS' CHRONICLE. Now Ready. Post free, **1/9** each.

Numerous Beautifully Coloured Plates are contained in Each Volume.

1.—**SWEET PEAS.** By HORACE J. WRIGHT, late Secretary and Chairman of the National Sweet Pea Society. With Chapter on "Sweet Peas for Exhibition," by THOS. STEVENSON.

2.—**PANSIES, VIOLAS, AND VIOLETS.** By WILLIAM CUTHBERTSON, J.P., and R. HOOPER PEARSON.

3.—**DAFFODILS.** By the Rev. J. JACOB.

4.—**ORCHIDS.** By JAMES O'BRIEN, V.M.H., Secretary of the Orchid Committee of the Royal Horticultural Society.

5.—**ROOT & STEM VEGETABLES.** By ALEXANDER DEAN, V.M.H., Chairman of the National Vegetable Society.

6.—**CARNATIONS & PINKS.** By T. H. COOK, Head Gardener at Sandringham; JAMES DOUGLAS, V.M.H., and J. F. McLEOD, Head Gardener to Mr. Pierpont Morgan. Contains 8 full-page coloured plates.

7.—**RHODODENDRONS & AZALEAS.** By W. WATSON, with preface by Sir F. W. MOORE, M.A. (the first popular volume published on this subject). Contains 8 full-page coloured plates.

8.—**LILIES.** By A. GROVE, F.L.S., with preface by H. J. ELWES, F.R.S. Contains 8 coloured plates.

9.—**APPLES & PEARS.** By GEORGE BUNYARD, V.M.H. Contains 8 coloured plates.

10.—**ROSES.** By H. R. DARLINGTON, with 8 full-page coloured plates. A double volume, price **2/10**, post free. Special presentation edition, with beautiful cover design, in cloth gilt, gilt top, price **3/10**, post free.

11.—**IRISES.** By W. R. DYKES, M.A., with preface by PROF. BAYLEY BALFOUR. 8 full-page coloured plates.

12.—**ANNUALS, HARDY AND HALF-HARDY.** By C. H. CURTIS, with 8 coloured plates. **1/9.**

THE PUBLISHER,

"Gardeners' Chronicle" Offices, 41, Wellington St., Covent Garden, London, W.C.

PLANTS, &c., WANTED.

WANTED, large KENTIA PALMS, from 5 feet to 25 feet in height; large, well-coloured Dracænas and Crotons, also Aspidistras; for cash or exchange.—ROBERT GREEN (1911), LTD., 28, Crawford Street, London, W.

PLANTS, &c., FOR SALE.

CUT FLOWERS AND FOLIAGE.—A. W. REDFORD, Wholesale Bulb Grower, Stevenage, offers choice Daffodils, Narcissus, and Tulips in variety daily; boxes free; price lists forwarded on application.

TINY SEEDLINGS, for immediate pricking; Storrie's invincible strains as under.

CYCLAMEN, for winter and spring blooming; strong from boxes, 100 10s.; from 2-inch pots, 3s. doz.

AURICULA (Border), to bloom next spring; choice mixed, 3s. 6d.; super extra mixed, 5s. 6d. per 100.

POLYANTHUS, to bloom next spring; choice mixed, 4s. 6d.; super extra mixed, 5s. 6d. per 100.

EXCELSIOR ICELAND POPPIES, in superb art shades; bloom this summer; tiny seedlings, 3s.; advanced plants, 12s. 6d. per 100.

HOLLYHOCKS, Carnations, Pentstemons, Pansies, &c., Primula obconica, Gloxinia, &c. Write for catalogue.—STORRIE & STORRIE, Glencarse, Perthshire.

GERBERAS.—Adnet's Hybrids, all colours; seed 6d., 1s.; plants 10s., 15s. doz.; choice Flower and Vegetable Seeds, all at reasonable prices. I give value in Seeds, not in elaborate catalogue or large adverts.—ELLISON, 45, West Bromwich.

JAPANESE IRIS.—Imported clumps, 24 different choice varieties (named), 15s.; LILIUM AURATUMS, 9 to 10 in., 4s. 6d. doz.; TUBEROSES, 1s. 6d., 2s. doz.; BEGONIAS, choice LILIUMS, GERMAN IRIS, MONTBRETIAS, GLOXINIAS, &c.—ELLISON, 45, West Bromwich.

VERBENAS, strong plants, guaranteed absolutely free from mildew, &c., Miss Willmott, Scarlet King, Princess of Wales, Queen of Whites, 8s. 100; Salvia, Pride of Zurich, strong plants, 10s. 100; Lobelia, Mallard, ready for planting out, 3s. 100.—BANNISTER, Nurseryman, Royston, Herts.

ASPARAGUS.—Now is the time to make an Asparagus bed; strong two year roots, 5s. per 100, packed and carriage paid.—BIRD & VALLANCE, Nurserymen, Downham, Norfolk.

THE
Gardeners' Chronicle

No. 1,322.—SATURDAY, April 27, 1912.

CONTENTS.

Aberdeen Horticultural Society, proposed	281	Missouri Botanic Garden	283
Adams, H. J., the late	281	Obituary—	
Alpine garden, the	277	Smith, Jonathan	285
Apples, late dessert	285	Orphan Fund, Royal Gardeners'	281
Birds and fruit buds	285	Parks, games in the Royal	281
Books, notices of—		Phloxes, border	285
Asiatic Palms	273	Plants, new or noteworthy—	
Flora of New Guinea	275	Lilium myriophyllum	272
Bulgaria, botanising in	274	Primula secundiflora	281
Campbell, Dr., retirement of	283	Primula Wattii	286
Carnations, perpetual	281	Sanguinaria canadensis	284
Ceylon Agricultural Department	281	Scotland, flowers in south-western	284
Daphne indica	285	Societies—	
Eschscholtzia cæspitosa	275	Devon Daffodil and Spring Flower	288
Flowers in season	281	Hants. Spring Flower	286
Forest trees, exotic	277	Herefordshire Spring Flower	286
Friend or foe?	276	Horticultural Club	281
Fruit crops, frost and the	285	National Auricula and Primula	281
Fruit growing, research in	271	N. of Scotland Hort.	288
Fruit trees, spraying, in summer	290	Royal Horticultural	281
Gazaland, notes on the economic flora of	283	(Scientific Committee)	286
Hollyhock rust, the	280	Royal Hort. of Ireland	286
Ideal Homes Exhibition	282	Royal Meteorological	286
Insects, collecting and preserving	289	Surveyors' Institution	281
International Horticultural Exhibition	282	South African fruit trade, the	282
Irises, notes on—		Strawberries, pot	284
Some new Iris hybrids	274	Trees and shrubs—	
Kew Gardens, earlier opening of	281	Forsythias	283
Larch, abnormal development of cones on young	285	Wallflowers, rogue	285
Linnean Medal, award of the	281	Week's work, the—	
Magnolia salicifolia	285	Flower garden, the	278
		Fruits under glass	279
		Hardy fruit garden	278
		Kitchen garden, the	279
		Orchid houses, the	279
		Plants under glass	278

ILLUSTRATIONS.

Chrysanthemum leaf-miner ... 290
Cups to be presented at the Royal International Horticultural Exhibition ... 282, 283
Eschscholtzia cæspitosa, a bed of ... 275
Lilium myriophyllum, bulb of, 272; flower of ... 273
Millipedes ... 276
Onosma tauricum ... 274
Petrea volubilis ... 287
Primula secundiflora (Supplementary Illustration)
Primula Wattii, a flowering plant of ... 286
Sanguinaria canadensis in Cambridge Botanic Gardens 284

RESEARCH IN FRUIT GROWING.

IN addition to financial assistance from the Development Fund for advisory work in the south-eastern counties, a grant for research in connection with fruit and Hop growing has been promised to the South-Eastern Agricultural College, Wye, Kent. It is proposed to use the grant for the purpose of establishing and equipping a research fruit and Hop plantation on about 20 acres of good fruit land in Kent. It is intended that the land shall be planted gradually with fruit trees and bushes, including a collection of varieties on which spraying trials may be conducted, new varieties for trial, and different Apple stocks for investigation of their characteristics and their effect upon the trees raised upon them.

Other subjects which will be investigated are productiveness among trees of the same variety (the question to be decided being whether variation of productivity is due to the constitutions of the buds or scions used in budding or grafting); the pruning of bush fruits; the causes of blossom not setting; injury done to trees by spraying, and the alleged injury to live-stock fed in grass orchards from the sprays used; the tillage of fruit plantations; and the American system of growing cover crops in tillage plantations.

These are all interesting subjects, and some of them are important; but others may be suggested which have a higher claim, in my opinion, to prompt attention than some of those named. The trials of new varieties of fruit upon a commercial basis might well, I think, be left to commercial growers. Some years will be necessary for testing new varieties, and even then the results on one particular farm will not be of much value, as a variety which succeeds in one district often fails in another.

With respect to Apple stocks, it is said that there are numerous varieties of the paradise stock, and that there is great confusion in relation to them. I know of no confusion, except that French nurserymen send out the Doucin stock as identical with the Broad-leaf English Paradise, and the question is whether the latter is only a particular strain of the former, or whether it has been developed into a distinct type. It would be worth while to settle this point. English commercial growers do not plant Apples raised on the French Paradise, which is of too dwarf a habit for any purpose than that of growing them in the limited space of a garden. As to the free stock, it is true, as stated, that it varies greatly. Seeing that it consists of seedlings from Apple pips obtained from cider mills, it cannot fail to be variable. There is no doubt that this is a slovenly way of raising seedlings for stock, and the suggestion that a search should be made among the numerous varieties for a strong stock of constant habit is a good one. Similarly, it will be interesting and instructive to compare the results of using scions and buds from productive and unproductive trees of a given variety respectively, in order to see whether there is any difference between them.

As to experiments in the pruning of bush fruits, it is said that there is considerable difference of opinion with respect to the best methods of pruning Black and Red Currants and Gooseberries. The only difference of opinion that has come to my notice is with respect to the desirability of spurring Gooseberries.

The subject of the setting or non-setting of blossoms is one of the highest importance. It is a very comprehensive subject, and well worth research. Light upon the nature of spray injury would be interesting, but hardly of much value. At the same time, it is important to settle the question whether the use of any particular washes on trees in grass land grazed by stock is injurious to the animals.

There cannot be any doubt as to the importance of testing whether the common plan of grassing established Apple orchards is a good or a bad one. So far as a relatively small number of experiments at Woburn and in the United States have shown, grassing is disadvantageous to growth of trees and size of fruit; but the case has not been made clear in reference to profits, taking the comparative expenses of the two systems into account. As to trying cover crops in tillage orchards, there is not the same scope or need for the plan here as there is where the trees are 30 feet to 40 feet apart, as they are commonly planted in the United States; moreover, our trees do not often suffer from drought as trees do in the hotter American summers. Even for protection from drought, the growth of grain crops for cover, common in the United States, can hardly be an advantage, though the cultivation of Clovers or Lucerne, for ploughing in, may be advantageous in all respects, including the fertilisation of the soil. Where bush fruits are grown among trees, cover crops are out of the question. With respect to depth of cultivation, there can hardly be any doubt that it should be no greater than is necessary for the destruction of weeds, lest the roots of trees and bushes should be injured.

The suggestions named above appear to me to fail to include some of the most urgent subjects for research. In the first place, I should put experiments in the manuring of different kinds of fruit, concerning which there is a dearth of definite information. For years, no effect was noticeable at Woburn from the application of manures to Apple trees, and it is only lately that the good effect of farmyard manure has been reported as evident. In some trials carried on for the New York Experiment Station, beginning in 1900 on Apple trees planted in 1899, the results, up to and including 1910, were hardly appreciable. Farmyard manure and a mixture of artificial manure containing nitrogen, each showed a very slight effect in the last year or two, but not sufficient to render the applications remunerative. The soil, although not a first-rate one for fruit, was found at the commencement of the trials to contain in the top foot enough nitrogen to last mature Apple trees 183 years, sufficient phosphoric acid for 295 years, and potash enough for 713 years. My own trials have not been sufficiently systematised or protracted to enable me to come to many certain conclusions. The differences in the natural vigour of individual trees renders it difficult, without precise measurements of wood and leaves, to be certain as to the effects of different dressings of manure; but I have seen unmistakable benefit from the application of a complete artificial dressing to young Black Currant bushes in two seasons, and some effect on Gooseberry bushes, while evidence in the case of Plums has been almost conclusive. In the case of Apple trees, they have appeared to respond to farmyard manure, but not to artificial mixtures at present. Among the trials should be some with such organic manures as shoddy, dried blood, and fish manure, commonly used in some fruit districts. The respective effects of lime, iron, and magnesia should also be tested.

Next may be suggested thorough research into the life histories and migrations of the several species of the aphis. No one has yet been able to explain how Plum trees particularly, and Apples only less strikingly, become covered with

aphides a week after an examination of the trees with a lens has failed to show a single insect or even any eggs. In the cases of such crops as Beans and Peas planted in the spring, there cannot be any eggs to hatch on the plants; yet, quite suddenly, these crops are often infested. There must be a great deal to learn about this pest. Moreover, one dark-coloured aphis which attacks my Black Currants cannot be identified at all by one of our best entomologists.

A sustained trial of the rival plans of cutting newly-planted trees back in the first or second spring succeeding the planting is also urgently needed.

The cause or causes of canker and the methods of its distribution may be regarded as a subject of great importance for investigation. For my own part, I cannot believe that canker is merely a wound parasite. Evidence seems to favour the view that it is carried up from trunk to branches and side shoots in the sap. One point of interest to determine is whether the infecting spores are carried up to trees from pieces of cankered bark left on the ground when these are cut out. It is a great labour to pick up every little bit that falls.

A similar investigation in relation to Apple and Pear scab is desirable, including the question whether infection can arise from scabby shoots cut off and left on the ground. As to scabby leaves that fall, their collection is quite impracticable. Actual evidence is needed to prove that spores of canker or scab arise from the ground to infect trees. It is announced by mycologists that they do so, but I have never seen any statement as to this theory having been demonstrated. Of course, large shoots which are cut off trees are commonly taken off the ground in tillage plantations, as they would be in the way of cultivation; but unless it is necessary to remove the thousands of small pieces of shoots cut off trees in pruning, their gathering up involves labour and expense which commercial fruit growers would be glad to avoid.

Another assumption which needs verification is that pruning, including spurring, promotes the development of fruit buds on the cut shoots. It may be a great heresy to doubt this statement, but my observations lead to the opposite conclusion. What does happen is the formation of fruit buds where they are wanted, on fairly sturdy branches and short spurs, instead of on weak and lanky ones. Moreover, by opening all parts of a tree to air and sunshine, the operation encourages the development of fruit buds on the tree as a whole. The question is whether the operation has this effect *per se*. Taking the case of an outside branch, which cannot be robbed of air and sunshine, my contention is that cutting it or the laterals upon it reduces, rather than increases, its tendency to form fruit buds. Investigation might be extended to determining the comparative effects upon Apple trees of (1) pinching the laterals when starting to lengthen, removing some entirely and spurring others; (2) pruning in corresponding ways in August; and (3) pruning only in winter or early in the spring.

Other subjects of research highly desirable are the best method of controlling Black Currant mite; the comparative results of thinning Apples with varying degrees of severity; degrees of frost fatal to the blossoms of various fruits and to embryo fruits after the petals of the blossom have fallen; and the best method of producing heat and dense smoke in orchards for preventing or reducing frost injury. *A Southern Grower.*

[*Copyright.*

FIG. 126.—FLOWERING BULB OF L. MYRIOPHYLLUM (OF WILSON).
Colour dark mahogany, the inside scales lighter at the base; a scale has been removed to exhibit this change in colouration.
A, B, C, new roots; D, offset.

NEW OR NOTEWORTHY PLANTS.

LILIUM MYRIOPHYLLUM.

In quoting from my article on "Lilies and Sunshine," Mr. Thomas Chandler (see p. 131) may not perhaps have noticed that I particularly referred to this Lily as being now in commerce under the above name.

I wrote of it in this way intentionally, because the Lily collected by Mr. E. H. Wilson for the Messrs. Farquhar, of Boston, U.S.A., and subsequently distributed by them as myriophyllum, does not tally with Franchet's description of the species originally found in Yunnan by the Abbé Delavay in 1888, and there has always seemed a strong probability that what for convenience we may call Wilson's Lily has, unintentionally, no doubt, been christened with a name to which it has no right; it is, in fact, a nameless, though at the same time, most beautiful plant.

It is unfortunate that in drawing up his description of L. myriophyllum, Franchet should not have described the bulb rather more minutely, instead of being content to refer to it in general fashion as that of L. longiflorum and Brownii, for though in some of their many forms the two seem to run more or less into each other, they are not considered botanically identical, and that of the typical Brownii is unmistakable.

Franchet certainly does tell us that myriophyllum of Delavay recalls Wallich's Lily, but he adds that the former differs widely (s'en éloignant beaucoup) in the character of its bulb from L. Wallichianum, which is ovoid with acutely tipped scales, and no doubt his reference to it as that of longiflorum and Brownii entitles us to consider it as oblate in shape and white in colour.

In the so-called myriophyllum of the catalogues, the bulb is not oblate but ovoid, and entirely distinct from either Brownii or longiflorum; the colour, too, is that of L. Henryi and sulphureum, and for want of a better name one may describe it as comparable to that of very old and dark mahogany; in short, if the character and colour of Lily bulbs go for anything in the determination of a species, as, of course, they do, though colour is perhaps of secondary importance to shape and character, the myriophyllum of Delavay is totally distinct from the Lily now bought and sold under the same name.

Seven years ago Max Leichtlin distributed bulbs of L. myriophyllum; botanically this Lily answers Franchet's description in every important particular, for we except as unworthy of consideration a slight suspicion of purple colouring which emphasised the back of the midrib of each segment of the perianth; the trumpet is semi-erect and not spreading as in Wilson's myriophyllum, the bulb is that of longiflorum in miniature, and, of course, white, and the two Lilies are distinct.

Though undoubtedly a Lily of quality, this species of Leichtlin cannot compare either in beauty or constitutional hardiness with the more modern plant which has appropriated the name.

What the latter really is does not at present seem clear; variable in stature, foliage, and flower, as well as with respect to the presence or absence of axillary bulbils, it has a bulb which, while bearing a suspiciously near resemblance to that of L. sulphureum, is common to several Chinese Lilies, all possessing a strong family resemblance. Several of these have been fathered on to L. Brownii, rather thoughtlessly perhaps, for with the respective bulbs before him no one could stifle his conscience sufficiently to admit the relationship; a comparison of the various plants

in all their aspects leads one to the almost irresistible conclusion that they share a common ancestry with L. sulphureum.

Mr. Chandler would no doubt have brought the bulbs into full vigour a good deal sooner if, instead of planting them out in beds, he had potted them singly in deep pots plunged in sand, taking care to powder the bulbs well with charcoal dust, and, of course, trimming off any damaged or shrunken scales.

A rather stiff loam seems to suit this Lily well as far as subsoil is concerned, the stem roots revelling, as indeed they all do, in leaf-mould; it is not a lime hater, and so far as the writer's experience goes is better when planted over lime-bearing loam than humus. *A. Grove.*

[*Copyright.*

FIG. 127.—LILIUM MYRIOPHYLLUM (OF WILSON): HEIGHT ABOUT 4 FEET.

THE RATTANS OR ROTANGS.*

THE "Rattan Canes" of commerce are the stems of two Old World genera of Palms—Calamus and Dæmonorops—of which, jointly, about 300 species are known. With few exceptions, they are climbers from tree to tree, in dense forests. The distinguished traveller and botanist, Dr. O. Beccari, has devoted a large portion of a long and laborious life to the study of Asiatic Palms, both in the forest and in the herbarium, and has contributed much to the literature of the subject. Foremost in his work is the *Monograph* of the genus Calamus, noticed in some detail in the *Gardeners' Chronicle*, vol. xlvi (1909), p. 87, and forming the twelfth volume of the *Annals* of the Calcutta Botanic Garden. The magnificent illustrations, reproductions of the author's own photographs, constitute the valuable feature of these monographs. They are portraits of specimens preserved in various herbaria, but largely in Beccari's own herbarium, and they include the types or co-types of most of the species. The advantage of having these types brought together in one volume is obvious. In Beccari's monograph, each species is very fully described in English, to which is added all particulars of its affinities, distribution, uses, and native or trade names. Approximately, 200 species of Calamus are known, as against somewhat fewer than 100 of Dæmonorops. Some authors regard Dæmonorops as a section of Calamus, and there certainly is no character by which the one genus can at once be distinguished from the other. Dr. Beccari states that they are not separable by any character easily explained, but by combinations of characters not repeated in the two genera, and he gives the characteristics, positive and negative, side by side. As to the cultivated species of both genera, he says that they are mostly under incorrect names, and there are also names on record of species which have disappeared from cultivation; names which must remain *nomina nuda* for all time. The geographical area of Dæmonorops is much more restricted than that of Calamus, and is comprised between Lat. 10° S. and 25° N., and between Long. 85° and 132° E., with much the greatest concentration of species in the Malayan Peninsula and Archipelago, though no species has been found in New Guinea. Calamus extends to the western peninsula of India and to tropical Africa on the west, to Formosa, Australia, and New Guinea on the east. Myrmecophilism (symbiosis with ants), Beccari states, is far more accentuated in Dæmonorops than in Calamus, and is particularly easy of verification in D. verticillaris, D. mirabilis, and D. formicaria. The uses of the stems of Dæmonorops are nearly equal to those of Calami, but precise information is wanting, and the real origin of trade produce is often unknown. Dragon's Blood, "Djernang," of the Malays, is the most important product of Dæmonorops. It is furnished in abundance and of the best quality by D. Draco, D. Draconcellus, and D. propinquus. With regard to dimensions, Dr. Beccari states in his *Monograph* of Calamus that none of the stems he measured exceeded 150 feet; yet Roxburgh describes his C. extensus as having stems 200 yards to 300 yards long. Certain of the mountain species of Dæmonorops are of dwarf, erect habit, and suitable for cultivation in a house of moderate size. For example, D. microthamnus, D. monticolus, and D. tabacinus scarcely exceed a yard in height.

* *Asiatic Palms—Lepidocaryeæ*, by Dr. Odoardo Beccari. Part II. *The Species of Dæmonorops. Annals* of the Royal Botanic Garden, Calcutta, vol. xii, part I. Letterpress, 4to., pp. 237, and two plates of analytical figures with a separate volume of 109 large folio plates. (Calcutta: Printed at the Bengal Secretarial Press.) 1911. Price Rs. 47 or £3 10s.

NOTES ON IRISES.

SOME NEW IRIS HYBRIDS.

COMPLETE dominance does not seem to prevail when two widely-separated species of Iris are crossed together. On the contrary, each character of the hybrid seems to be a compromise between the corresponding characters in the two parents. Moreover, the investigation of the results in subsequent generations is rendered impossible by the complete sterility of the hybrids, both with their own pollen and with that of either of the parents.

It is, perhaps, premature to base any conclusions on a few instances, but the results that I obtained by crossing I. chamæiris with pollen of I. Korolkowii and I. Congialti with pollen of I. tectorum have been confirmed by a fresh cross which I now propose to describe.

In 1909 I crossed a flower of I. Clarkei which comes from an elevation of about 10,000 feet on the Himalayas in the neighbourhood of Darjeeling with pollen of a form of the Californian I. Douglasiana, which has flowers of a pale pinkish-buff colour. I must confess that I hardly expected to obtain any result from a cross between such dissimilar species. However, when the flowers appeared in due course in June, 1911, there was no doubt that the two parents had combined to form an entirely distinct new Iris. In the first place the flowers are of a curious colour, that can best, perhaps, be described as crushed strawberry—that is to say, the pinkish buff of the pollen parent, I. Douglasiana, has almost, but not quite, obscured the blue-purple of I. Clarkei, the seed parent. The bluish tinge is obviously present, and the colour is quite different from that of I. Douglasiana.

Another obvious compromise between the characters of the two parents is found in the leaves. Those of I. Clarkei have a peculiar polished upper surface and are glaucous beneath. Moreover, they die away entirely in early autumn. Those of I. Douglasiana are of a thick, leathery texture, deep green in colour, persistent through the winter, only dying away when the fresh growths have developed in spring. They are usually more or less glaucous, at least in the early stages of their growth. The leaves of the hybrid seem unable to decide which parent they intend to follow, for the central leaves of a tuft are often entirely glaucous, while the outer leaves of the same tuft have the curiously dissimilar surfaces of I. Clarkei. This was the state of the foliage of my half-dozen plants when I began to observe them closely; but I am sorry to say that this was not until I found flower-spikes, so that I do not know what appearance the leaves have in the early stages of their growth.

When I. Clarkei lost its leaves in September the hybrid was still quite green and vigorous, and I wondered whether it was going to follow the example of I. Douglasiana and keep its foliage until the spring. At first it seemed as though this would be so. But not long before Christmas the leaves turned yellow, and have now withered entirely away.

Another curious feature of the hybrid plant is that its flowers are mottled with a number of fine dots of a deeper shade of pinkish lavender on the blade of the falls, though there is no trace of any such dots on the flowers of either of its parents.

The standards also are mottled in the same way but more faintly. They are not held erect, as in I. Douglasiana, nor yet are they so much depressed as in I. Clarkei. They have wavy edges, which seem to result from the struggle between the plane surface of the standards of I. Douglasiana and the long, deeply-channelled haft of I. Clarkei, in the same way that the mottling appears to be the consequence of the competition for dominance of the pinkish-buff of the pollen parent and the deep blue-purple of the seed parent. *W. R. Dykes, Charterhouse, Godalming.*

BOTANISING IN BULGARIA.

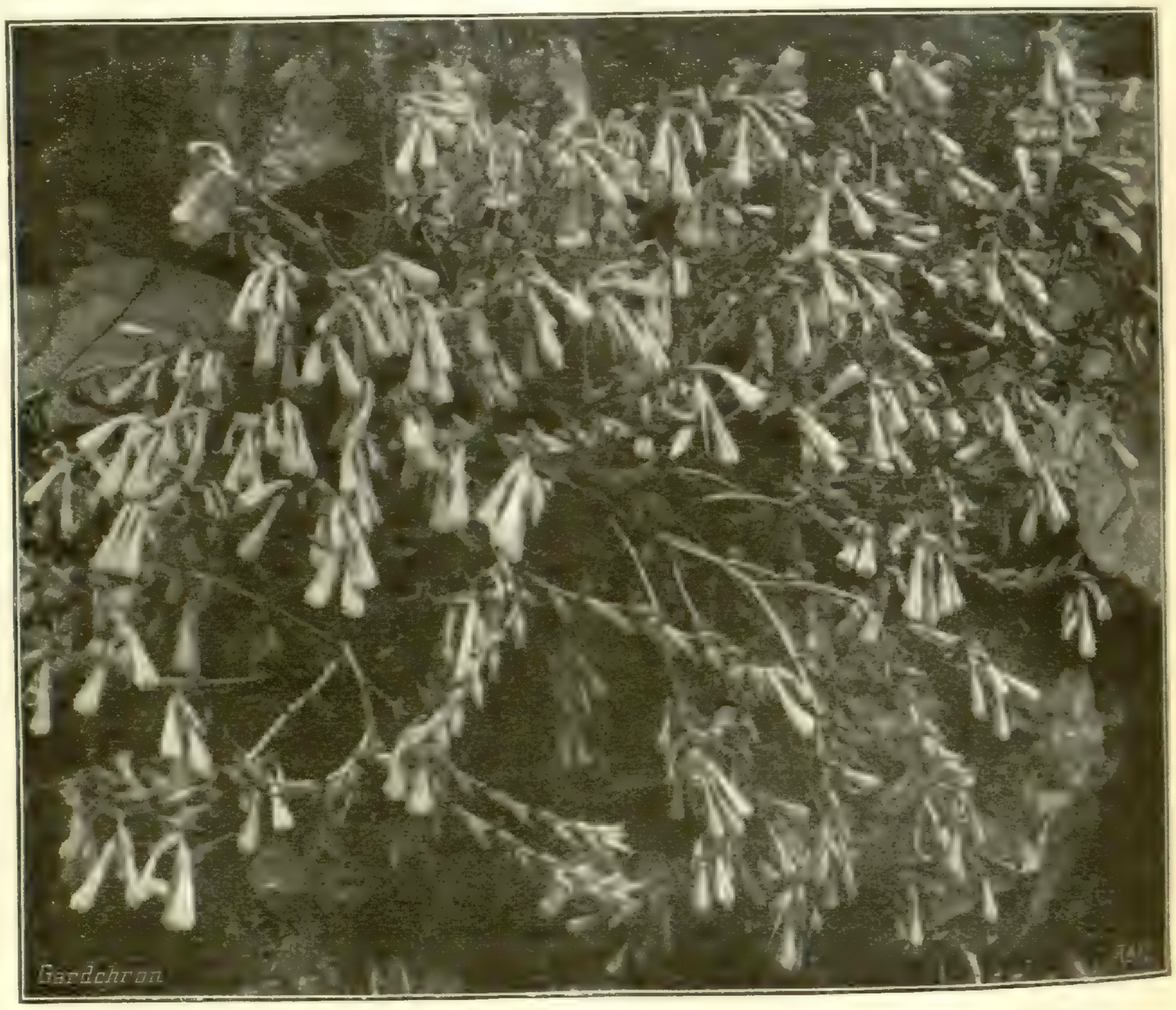
(Concluded from p. 253.)

IN company with Herr Kellerer an excursion was arranged to the Rilo Mountains. After a day's drive from Kostenetz in pouring rain, we reached Tchamkouri to learn that the rain had been so heavy that the road was washed away by the floods, so it was decided to visit Moussala, the highest mountain in Bulgaria, nearly 10,000 feet high. A good road runs through some miles of forest of Spruce and Silver Fir to the King's and Prince's residences at Sitnyakovo and Sokoletz. In these places his majesty has small rockeries, in which many choice alpines flourish. Near Sokoletz, 4,000 feet high, growing on a hillside were some interesting wild plants. Carlina acanthifolia was plentiful, with its rosette of leaves and large Thistle heads resting upon the ground. A silvery-leaved Vetch, resembling Vicia argentea with flowers similar to the Tufted Vetch, was very pretty but most difficult to dig up, for its roots descended for 2 feet and more into the ground. Orchis sambucina was plentiful in company with colonies of Botrychium, Lunaria and Dianthus tenuiflorus, whilst the yellow-flowered Sempervivum patens and others took possession of the stony places. The upland meadows were a mass of flowers, in fact similar to those of Switzerland. Orchids abound, and a pretty Campanula, with light-blue, sessile flowers, on stems 2 feet high, was discovered, as well as a distinct Silene, with white flowers in round, capitate heads. In moist meadows, Polygala major, with Gentians for company, raised its beautiful flower-stems 1 foot high in blue, white and pink. In another place, the pretty little Silene Lerchenfeldiana was growing in the crevices of the rocks, its trailing stems covered with glaucous leaves, and bearing pink flowers at the tips. Once through the Fir woods the path to Moussala is most interesting, winding between mountain ranges affording glorious views, the snow-peaked cap of Moussala appearing and disappearing in the distant landscape. So heavy had been the rain that the rocky path was for several miles a mountain stream, and the traveller had the choice of wading through it or going waist-deep through Juniper Scrub. The latter, however, is not by any means so trying as clambering through "Klek," as Pinus montana is called. The latter is the last of all trees on the mountain side. Some of the stems were 15 inches in diameter, and trail over the ground for many yards before their branches become erect; other trees are erect from the start. This Conifer covers many acres, and is valued by the peasants for firewood.

Bruckenthalia spiculifolia takes the place of our Ling on the mountain sides; it is usually pink, but deeper forms may be seen, and we found two plants with pure white flowers. On dry banks Linaria dalmatica grandiflora was very effective. It was growing about 2 feet high, with larger flowers and of a paler yellow than the type. In moist places, in fact sometimes in bogs and by streams, patches of scarlet were produced by Geum coccineum, while on the sides of rocks G. bulgaricum was seen. Erroneous ideas exist in regard to this plant, for in some catalogues it has been described as a plant with large, bright yellow flowers. In reality, the flowers are poor, pale yellow, drooping and cup-shaped, the petals never expanding properly. Until I saw it at Sokoletz I always thought it was a poor garden plant, but as grown by Herr Kellerer it is valuable for its decorative foliage alone. The leaves are about 10 inches across, very sticky, and glandular, and at a distance the foliage resembles that of a small Gunnera.

Pulmonaria rubra seems always to frequent shady places, but Campanula abietina seems to grow anywhere but in the driest spots.

At last we came to a large, grassy glade with inland lakes, which are the source of the River Maritza which flows into the Ægean Sea. Among the short grass were fine tufts of Gentiana pyrenaica bearing purplish-blue flowers. In cultivation Dianthus microlepis may make a flower-stem 2 inches and 3 inches high, but growing wild in the turf it makes cushions just like Silene acaulis, the soft pink flowers resting upon the tufts, and so freely produced that the



[*Photograph by C. F. Ball.*

FIG. 128.—ONOSMA TAURICUM, PALLAS, NATIVE OF BULGARIA: FLOWERS YELLOW.

glaucous foliage is hidden. Pure white flowers were not uncommon in this locality. Of the Soldanellas, the commonest species by far was S. montana, but the dainty little S. pusilla was seen frequently, and albino forms of both these species were collected. Primula uralensis was forming its seed pods, while the frail little P. exigua (syn. P. farinosa denudata) was in flower. The flowers are very similar to the Bird's Eye Primrose, but the meal is absent from the leaves. But the Primula of Bulgaria is P. deorum, and here it was in countless thousands bordering the edges of streams, some actually growing in the running water, and all with their roots able to reach the moisture. Formerly I held a poor opinion of this rarity, and seeing it previously on Belmaken a week before did not realise what it could be until I saw the half-nodding purplish-violet flowers open in the full sun.

After leaving the grassy glade the path becomes steep, and winds among rocks with patches of snow here and there. Arenaria biflora borders the path, and in crevices of rocks Saxifraga cymosa forms a green cushion studded with white flowers. Senecio carpathicus was just beginning to open its orange-yellow flowers. Alsine setacea and Gnaphalium supinum form neat little tufts, while Gentiana punctata was about to show its yellow flowers spotted with purple. Higher up, a rare species, G. frigida, was found with white flowers, while the Willow Gentian was common at a lower altitude. Veronica bellidioides had opened a few flowers of the deepest blue; it was only 3 inches high, and if it proves a free grower should make a good plant for the rockery. Near by was Potentilla Haynaldiana with silvery leaves. Ranunculus crenatus was plentiful at 8,000 feet altitude; it is like R. alpestris, with leaves not so deeply cleft, and produces four or five white flowers on a sturdy little stem only a few inches high. Primula minima forms good tufts, and well merits the name of the Fairy Primrose. Other plants met with on the top of Moussala were Saxifraga juniperina, S. retusa, Geum reptans, Anemone vernalis, and Campanula orbelica. On reaching the summit of Moussala a glorious view reaches as far as Macedonia, Belmaken looks a large round-topped mountain, and Pirin is seen in the distance.

Fig 128 shows the true Onosma tauricum, Pallas, not O. tauricum, Willd, which is a synonym of O. echioides or the usual "Golden Drop" of gardens. The plant growing on the Glasnevin Rockery was raised from seed sent from Bulgaria by Mr. P. O'Mahony. Throughout July it was in flower, making a plant 2 feet across; although the flowers are not of such a bright yellow colour as those of O. echioides, yet it blossoms much more freely, and will be a useful plant for a dry rockery bank or garden wall. Another plant for the wall-garden, judging by its native habitat, is Campanula lanata (syn. C. velutina, Vel.). When grown in the ordinary way in gardens it forms a pyramidal inflorescence, with some of the lower flower-stems trailing along the ground. But in Bulgaria the plants spring out of the crevices of rocks, and no central outstanding stem is made, but numerous branches radiate from the root-stock, and so close are they pressed to the rock's face that one looks, but looks in vain, for some attachment to the rocks. Some of the plants had a spread of 2 feet or 3 feet.

The three most wonderful floral sights which I saw in Bulgaria were Primula deorum at Moussala, Rhus cotinus, a blaze of colour covering some acres near Philippopolis, and Haberlea rhodopensis near the Shipka Pass. Although acquainted with the latter plant in many gardens, yet I was greatly surprised when I saw it growing naturally. In a shady wood Mr. P. O'Mahony brought us to the foot of an almost perpendicular crag, and the rocks here were literally covered in every available space for some hundreds of feet high with Haberlea in full flower, the effect of which was glorious. Many of the plants had formed tufts 2 feet and 3 feet across, and were studded with flowers. Searching about we came across plants varying slightly in shade of colour and size of flowers; suddenly Herr Kellerer shouts out "Weiss, weiss" in an excited tone, and comes along bearing a lovely 2-foot tuft covered with white flowers. The sight of the Haberlea is one which is stamped on the memory. *C. F. Ball, Glasnevin.*

NOTICES OF BOOKS.

The Flora of New Guinea.*

This further contribution to the flora of New Guinea comprises the Anonaceæ and Rubiaceæ of Dutch New Guinea, and a continuation of the Orchidaceæ, collected on the last expedition. The Orchids occupy considerably more than half of the present part, including 38 out of 44 of the plates, making, with the 46 which appeared in the first part, a total of 84 plates representing members of this family. As was pointed out in a notice of the first part of this publication (*Gardeners' Chronicle*, February 26, 1910, p. 136), the Orchids of New Guinea are very numerous and varied, but rarely showy, either in size or colouring, so far as our knowledge goes. This remark applies equally to those species figured in the present part. Thus of the 30 species of Dendrobium figured only two or three have flowers conspicuous in size. D. eximium Schlechter, syn. D. bellum J. J. Smith, is the most notable exception. This species is in cultivation at Buitenzorg. But among the numerous small-flowered Orchids figured there are many of extraordinary interest. Taeniophyllum has no real leaves, the functions of which are performed by modified aerial roots. In T. maximum the roots are flattened, as much as 30 inches long and about 2 inches wide throughout their whole length, and might be mistaken for leaves. The structure of the lip of this species is also very remarkable. T. breviscapum has fleshy terete aerial roots, common to so many Orchids. All the species of Taeniophyllum have very small flowers, and those of T. minutiflora are only a twelfth of an inch in diameter. Grammatophyllum papuanum, a species closely allied to G. speciosum, is the giant of the collection. Vouroemeria is the only new genus described. It is allied to Chitonanthera, Schlechter, and Octarrhena, Thwaites—all Orchids having very small flowers. There is a new species of the last-named genus, previously only known to be represented in Ceylon. There is also a new species of the triandrous genus Nieuwiedia.

Of the Rubiaceæ figured Versteegia grandifolia and Chætostachya Versteegii, both new genera, are particularly interesting. The former is allied to Psychotria and is characterised by having a very singular inflorescence in the form of a very dense compound terminal cylindrical spike of small flowers, which are almost concealed by very numerous linear bracts. The spike is about 4 inches long and borne on a distinct stalk, which is abruptly bent down close to the branch bearing it. By an oversight of the artist the leaves are represented as alternate. Versteegia is a small tree having handsome leaves, nearly a yard long, and small flowers borne on the trunk. *W. Botting Hemsley.*

* *Résultats de l'Expedition Scientifique Neerlandaise à la Nouvelle Guinée en 1907 et 1909, sous les auspices de Dr. H. A. Lorentz.* Vol. viii., Botanique Livraison 3, pp. 427–611, tt. 69–112. (Leyden, 1911: E. J. Brill.)

[*Photograph by C. P. Raffill.*

Fig. 129.—Eschscholtzia cæspitosa: flowers yellow.

ESCHSCHOLTZIA CÆSPITOSA.

Eschscholtzia cæspitosa was introduced into cultivation from California by W. Lobb when collecting on behalf of Messrs. James Veitch & Sons over 40 years ago. The plant is of the easiest culture and not at all fastidious as to soil, but it requires a warm, sunny position. It is a matter of surprise that more attention has not been paid to this lovely annual. The soft yellow colour of the flowers shows to advantage against the beautiful glaucous grey of the fine Fern-like foliage. The plant grows from 6 to 12 inches high, and branches freely at the base, producing flowers in abundance, so much, in fact, that the whole plant becomes a mass of colour. A group of this Eschscholtzia is always a conspicuous object when grown in company with other annuals. Individually the flowers are from 1 to 1½ inch in diameter and borne on long, slender peduncles well above the handsome foliage. Seeds are produced in abundance. The genus contains about 25 species, only two or three of which are in cultivation. All are natives of temperate and sub-tropical parts of North America. *C. P. Raffill.*

FRIEND OR FOE?

THE gardener who is engaged in turning over his farmyard manure in various stages of decomposition, or is mixing his leaf-mould, often finds a variety of living creatures in addition to the larger earthworms with which he is already familiar. What are they? May he feel uneasy at the sight, or should he be glad that they are present? How can he tell whether they are beneficial or injurious? Is it possible that they may help him in one stage of development or in one situation, and yet be a real source of danger in another? I imagine that many a thoughtful gardener has, like myself, had such questionings as these, and has wished for some one to guide him.

Let us first notice a few of the things we are likely to meet with. Of the earthworms, brandling, gilt-tail, and other large species, I need not at present speak. But here are a number of smaller things, most of which are more or less worm-like in outline and appearance. Out from the leaf-mould a number of creatures, possessed of a greater or lesser number of legs, emerge. They are at once seen to be centipedes or millipedes. Among them is the familiar Julus, which bears

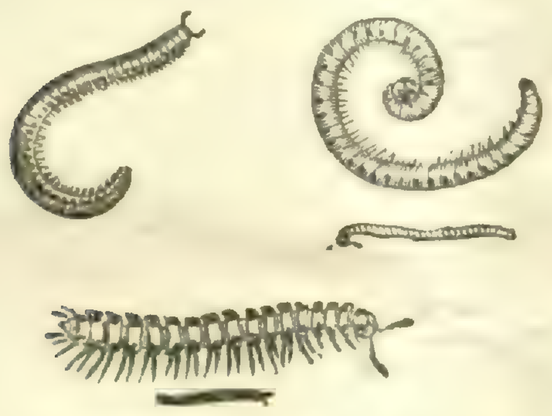


FIG. 130.—MILLIPEDES.

rather a bad name, and is certainly dangerous under certain conditions. Then there are smaller or larger maggots, and in the case of the latter there is no difficulty in deciding what they are. They are stoutly-built, their heads may be easily seen, and their movements are such that we can at once recognize them. Not so, however, with the smaller forms. Even with the pocket lens, which every careful gardener always carries, it may be difficult to decide whether we are looking at a grub or at one of the many species of worms which they so closely resemble.

I think, however, it is a safe rule to assume that all the living creatures found in decaying mould and manure are useful, so long as the processes of decomposition are in progress. The worms break down the waste material and hasten the processes which are going forward to fit the decaying material for further use in the nourishing of living plants. I should allow the worms and other creatures to do their work in peace. Then the centipedes and grubs are also useful both as scavengers and as police. They help to maintain the balance of nature, and keep in their place certain forms of life which would otherwise become too numerous, and so prove injurious. The evil comes when the manure heap is a breeding ground for flies, insects and other creatures which presently emerge and become a pest in the byre, the stable, the home, or the garden. Maggots and larvæ as such, while in the refuse, are not usually a source of danger. It is, however, a question of great importance, what is to be done to keep the harmless larvæ from becoming a harmful pest? May the friend become a foe? And may the worms and grubs which are beneficial while in the manure heap, become a source of danger when the manure or leaf-mould are wheeled on to the borders, taken into the potting house, or allowed to remain until the life-history of the creature is complete, and swarms of living things wing their way in every direction?

Manure heaps become a source of danger in spring. It is then, as a rule, that two things happen. (1) As the weather becomes warm armies of flies of a variety of kinds emerge from the mixen, carrying with them all sorts of germs, or making straight for the places where they can lay their eggs and work destruction among the plants. (2) Or, if the worms are true worms, and not grubs, they are wheeled into the garden with the manure in which they have been breeding, and deposited there to find a living as best they can under the new conditions in which they find themselves. Doubtless many fall a prey to the beetles, centipedes, birds and other fierce assailants which are always on the look-out for something in the soil to feed upon. Others, perhaps, finding no suitable pabulum in the soil which as yet is in a rough condition, perish, and give up their stores of nitrogen to the soil. But if it happens that the manure is placed on a plot of ground which is already planted, or a plot which will be planted immediately, who shall say that the worms will not begin to prey upon the flowers or vegetables and prove a dangerous pest?

That a number of white worms, as well as wireworms, leather jackets, centipedes and other creatures now infest growing plants, and work much havoc among Asters, Strawberries, bulbs, Celery and other garden and field crops, is well established. The question, therefore, arises "How can we distinguish the creatures which are likely to be injurious, and what can we do to check their ravages?" Perhaps the chief difficulty lies in the fact that, in the first place, the worms and grubs are very small, and cannot be distinguished by the naked eye; and then that they are so much alike that, even if the expert can distinguish them in the study and laboratory, no such distinction is possible in the field. If anything is done the innocent and the guilty must alike be subjected to the same treatment, and it must be left to the innocent to find a way of escape. It may seem a hard doctrine, but at present we do not see that any other can be preached.

I have before me now a number of living creatures which I have obtained from manure heaps and decaying matter. In the usual course of things these creatures would be taken on to the garden, and the question is, would they be beneficial or injurious? Is it wise to take such material into the garden without first mixing it with some one or other of the preparations which are destructive of germ and insect life? If my bulbs and beds and trenches suffer may the blame be laid to the living things which swarmed in the manure? These are such vital and practical questions that they demand an answer.

Examining the organisms then with my pocket lens I find that they vary from ¼ inch to 1 inch in length, and that while the smallest are like a tiny snip of the finest white cotton the largest might be an inch of fine twine galvanized into life. I put aside the larger forms because it is easy to see that they are the grubs, maggots or larvæ of different kinds of flies. If allowed to live they will in due time change into bluebottles or some other form of diptera, and do more or less harm both as germ carriers and by depositing their eggs where they are not desired. But it requires a little skill and patience to distinguish the smaller forms, and a few simple rules may now be advanced to aid the student in his determination.

In the first place we count the number of segments into which the body is divided. If there are 13 we may be pretty sure we are looking at a grub or larva. It is possible that we may be in doubt as to the exact number, for sometimes one or other of the segments is masked, but if we find 12 or 13 we shall have our first clue. There are few white worms whose segments number fewer than 20, whereas nearly all larval forms have about 13.

Next we look for the head. In the case of worms the two extremities of the body are so nearly alike that it is sometimes necessary to magnify the creature highly to distinguish the head from the tail. But as a rule the larva of a fly has a well-defined head, usually browner than the rest of the body, and provided with sundry organs such as worms never possess. Moreover, the white worms move backwards as readily as forwards, whereas the grub usually prefers to let the head lead it.

Our surest guide, however, lies in the structure of the body. If the creature under review possesses a number of tubes and vessels which can be easily seen under the integument, running through the entire length of the body, we are in all probability looking at a grub. If on the other hand we see four sets of tiny bristles on each segment, and find that the tubes and vessels are either wanting, or are limited to a few of the foremost segments we may conclude it is a worm. We shall find, usually, that the integument or skin of the larva is much less tender than that of the worm, and as the former is usually harmless in the garden we may take comfort from the thought that if we attempt to destroy the injurious worms the insecticide may not cause the larva to suffer. Strong measures doubtless will involve the innocent with the guilty, but the careful use of germicides will leave the gardener's conscience free.

We have now learned to distinguish grubs from white worms. But before I pass to our next point it may be well to give the main differences in tabular form for ready reference in the future.

CHARACTERS.	GRUB.	WHITE WORM.
Number of segments	Thirteen ...	Twenty and upwards.
Head	Well-defined ...	Not distinct.
Bristles or setæ ...	Absent	Present.
Tubes and vessels	Clearly seen ...	Few or absent
Colour	Variable	White.

Since the grubs of which I am writing are not of the kind to work injury in the garden we may now dismiss them from consideration. The white worms, so long as they were confined to the manure heap and the leaf-mould, were beneficial. But of late years it has been clearly demonstrated that certain species are either persistently injurious, or become so under certain conditions. I gave, in these pages, some years ago, an account of a small white worm which was doing immense harm up and down the country to Asters and other plants. I have also found Celery trenches infested with other forms, while Clover and a variety of other crops have, from time to time, been known to suffer greatly by their depredations. I always look upon the white worms with suspicion, and hold that every endeavour should be made to keep them out of the garden. The Aster worm is usually very abundant where leaf-mould is forming, and if the gardener has such mould brought to him from copse or woodland he should use it with the greatest caution. I therefore advise that whenever it is proposed to carry manure on to the garden it should first be well inspected to see whether or not white worms are present. If they are, the manure should be mixed with lime or treated with one of the usual preparations for the destruction of pests.

In the case of mould which may be infested the need for care is even greater. The worms are minute, and may easily escape detection. The mould may be mixed with ingredients for potting purposes which encourage the worms for a time till they find their way to the rootlets of the growing plant. In this case I strongly recommend that the mould be baked. This process kills the worms and their egg capsules, while it does not prove injurious to the soil. Indeed in many cases a new set of conditions arises which makes the baked soil all the more productive; and such a process is far safer than the application of germicides to the growing plant. If these hints are followed I believe that there will be a greatly reduced risk in future when manure and leaf-mould are brought into use. *Hilderic Friend, Swadlincote.*

FORESTRY.

EXOTIC FOREST TREES.

About thirty years ago a great many foresters were suddenly stricken with a strange disease, which evinced itself in a desire to plant anything but indigenous trees, without any regard to their probable behaviour under strange conditions, and indeed often without first ascertaining whether they were of any value, even in their native land. There are still many such people left, but on the whole the mania has gradually died out, and given place to a relapse in the opposite direction. There is certainly a good deal to be said for the private owner, intent on the beauty of his woods, who is glad to add something here and there in the shape of some exotic tree, whose chief value lies in the colour of its leaves or the curve of its branches, rather than in its timber-producing properties. Such a procedure can only be commended, and it is as well to look at the forest from the point of view of beauty, as from the commercial side, even when it is the property of the State, and a mere source of revenue; but when large areas are covered with a tree that can never be expected to grow into anything more than firewood, it is time for somebody to step in and stop the mischief. The following trees were planted for demonstration and experimental purposes in the teaching forests round Eberswalde, near Berlin, the soil being on the whole sandy, with loam and marl here and there, and covered almost exclusively with Scotch Pine and Beech. Pinus Banksiana was introduced into the forest some years ago, and was said to be an excellent tree for growing in dry, sandy soils. It does not seem to have occurred to anybody to make enquiries as to its growth in its native country, and in consequence large areas were planted with it. American foresters visiting the Continent are always amused at finding such plantations, and cannot understand that a tree which is worthless in its own country, should be expected to do better in another. Added to this is the fact that it is not less particular with regard to soil than the indigenous Scotch Pine. Pinus rigida is an example of an enormous mistake, caused by the mixing up of names. It was looked upon as the true Pitch Pine, and was extensively planted in consequence, and, as it was often given the most favourable soils and situations, great things were expected of it. The results were, to say the least of it, disappointing, and the tangled masses of low, crooked, spreading trees now to be seen all over the country are a warning to future experimenters. In spite of this, Pinus rigida still has a few friends who recommend its use mixed with the common Pine, the idea being to force the height growth of the latter, and to furnish humus from the luxuriant needles of the former. The development of such plantations is, however, uneven, owing to the light and root competition, and practical foresters all agree in condemning this Pine. Pinus Strobus has, on the whole, justified its introduction, as it is easily satisfied, hardy, stands more shade than the common Pine, and numerous healthy and clean-stemmed plantations in various parts of the country bear witness to its suitability as a timber tree. It is, however, inferior to the Scotch Pine from the point of view of the timber merchant, and its use is only justified under exceptional circumstances. Picea sitchensis looks like making good timber, but it is difficult to say whether it has any advantage over the common Spruce. Picea pungens, Abies concolor, A. grandis and A. Nordmanniana are often to be found in batches in the forest, but their use can only be justified for decorative purposes. Thuya occidentalis, Thuya gigantea and Cupressus Lawsoniana were looked upon as promising timber trees, until the 20 years' old plantations came to be thinned, when most of them were found to be unsound at the heart, and consequently useless. They always suffer badly from heavy falls of snow, and, although their growth at the start is extremely rapid, they cannot be expected to do any good in Europe. Juniperus virginiana is not present in plantation form in this district, but there is a small forest of it worked on commercial lines by the famous pencil makers A. W. Faber and Sons, and it is said that the wood is of good quality. It is quite possible that the wood is of good quality, and that planting may be worth while in such a special case, but on the whole it may be looked upon as useless for the forest. Larix leptolepis is too well known to need any description, but its immunity from canker and its rapid growth have not proved so startling as its early behaviour led people to believe. At the age of 12 or 14 years it is caught up again and passed by the European species. Pseudotsuga Douglasii is probably the most promising of all foreign trees introduced into Europe, and although it cannot here be expected to attain anything like the dimensions that it reaches in its native country, there seems every reason to believe that it will yield more timber per acre than any indigenous tree. The wood is of good quality but generally knotty, owing to the toughness of the dead branches, which remain for years on the stem. Broad-leaved trees have not been planted so freely as Conifers, and there is only one of any account which is indeed so widely distributed as to be looked upon as a native. We refer to Robinia Pseudacacia, which is most useful on account of its soil-improving properties and the excellence of its timber, which is indeed seldom to be found in any great size, but which is the best and most durable wood for fences, posts, or anything else exposed to moisture and air. Juglans nigra, Populus canadensis and Fraxinus americana are to be found here and there, but mostly isolated. The latter is sometimes planted instead of the common Ash, but as its timber is inferior and its growth probably slower, such plantings are not to be recommended. There are, of course, many other plants which have been tried at one time or another, but the above-mentioned are all that have been planted in any quantity, under what may be termed forest conditions. The folly of planting large areas with strange trees on the strength of their rapid growth in the first few years, cannot be too highly condemned, as their behaviour at that stage is by no means a proof that they will continue to thrive, and mistakes once made cannot so easily be rectified. *G. W.*

THE ALPINE GARDEN.

THE EDINBURGH ROCK-GARDEN.

The rock-garden at the Edinburgh Royal Botanical Gardens is interesting and beautiful at all seasons of the year, and amongst much that was attractive on the occasion of a visit recently, notes of the following plants may prove of interest.

I had never realised that Primula marginata was so hardy and effective until I saw it in a great splash of pale-mauve colour clothing a broad, shady ledge in a cold and somewhat draughty spot; it was a lovely and remarkable sight. Primulas, of course, were in great force throughout the rock-garden, and for vividness of colouring it would be hard to beat the brilliant flame-pink of P. rosea. It was flowering profusely in two large patches, one in the bog—where, for some reason or other the leaves seemed badly withered—and one in a low-lying, damp corner at the foot of a miniature mountain-range. Two other species with habit and leaves resembling P. marginata, only smaller in every way, were P. Salomonii and P. viscosa; the former has large flowers of a most wonderful bright violet-purple, those of the latter being rich lilac-red in colour. P. Palinuri, of Italian origin, was quite different in appearance and habit, bearing yellow Cowslip-like blossoms on stems about 10 inches high. P. Allionii is a peculiar little species, with large, pale lilac flowers, which appear to be stemless. It was growing underneath an overhanging rock, which effectually protected it from wind and rain. P. denticulata and its variety cashmeriana are too well known to need description. I must not forget, however, P. erosa, which is of similar appearance, but handsomer, with larger flowers disposed in looser heads; if possible, it is even more free-blooming, for, at the foot of some boulders, the plants were each carrying from five to seven flowering stems.

Primulas erosa and Salomonii were growing together with P. leucophylla in the new part of the rock-garden, which has been extended very considerably during the last 12 months. A valley has been formed and new mountain-ranges are springing up on two sides of the rockery. In the valley-like region, already well filled with new tenants, I found Tulipa suaveolens, brilliant orange-scarlet, 8 inches to 12 inches; Draba cuspidata and D. Aizoon, with their tiny lemon-yellow flowers; Skimmia Fortunei, with its masses of scarlet berries drooping over the crest of a high rock: a sheet of white, where Arabis albida and its double variety flung themselves down a sloping bank; Anemone hepatica, still blooming gaily in crevices in deep shade. On a bank higher up, leading away from the valley, was a colony of Rhododendron Metternichii, of Japanese origin, one of the most lovely as surely it is one of the most free flowering of this extensive genus. The handsome trusses of large, clear-pink blossoms, with buds of fiery, intense pink, are borne on sturdy, bushy little plants about 2 feet, and produce a most attractive effect. Epigæa repens was blooming freely in a damp nook, and, returning to the older parts of the rock-garden, I noticed some patches of that lovely little plant, Shortia uniflora, with quantities of its white, bell-like flowers. Writing of damp places reminds me that I was interested to note what plants thrived in such localities, for all rockeries must have their shaded and less-favourable spots. The following all seemed at home in such places:—Saxifraga crassifolia and S. lingulata, both nearly over; Ranunculus ficaria var. alba, which is exactly like a pale coloured "Celandine"; Ornithogalum Hausknechtii was pushing up spikes of starry, green-and-white flowers; Pulmonaria angustifolia was in full bloom; Draba Loiseleurii, D. hispanica, and D. aizoides var. montana, all very similar. Arenaria cæspitosa, from Spain and Portugal, had its mossy, green carpet covered with fat buds, of which a few were open, while Anemone vernalis was bearing numerous white, hairy bell-flowers. In the most shaded part of all, along a ridge overhung by trees and exposed to much wind, I was much struck to find a thriving colony of Iris reticulata— a refreshing sight indeed in this rather bleak and gloomy position. Close by were several plants of Corydalis bulbosa, and a little further on, among Ferns, were Anemone nemorosa and A. pulsatilla, the latter just opening, the former fully out. Here, too, clothing a neighbouring rock, was Berberis Darwinii, covered with orange-tinted, drooping flowers. Passing on to more genial aspects, I saw a most gay and prolific little plant, Lathyrus vernalis var. azureus, compact in habit, with countless upright spikes of bluish-lilac flowers, and about 15 inches high. This species is also valuable for naturalising, and when walking through a shady miniature pine-wood in another part of the Botanical Gardens, I noticed several plants blooming just as profusely as in the more-favoured and sunny position in the rockery. Many Heaths were out in great form, especially Erica carnea and its white variety, E. mediterranea hybrida was also fine, the type being somewhat shabby-looking. Close by was a large stretch of Bryanthus empetriformis opening its pink buds to the sun, while a small patch of B. taxifolius was not so far advanced. Daphne Blagayana was blooming very freely on a sloping ledge.

I have only mentioned two members of the Saxifrage family, but others were to be met at almost every turn. The species that was at its highest perfection on the day of my visit, presenting a sheet of large, white flowers, was S. Petraschii, while three showy and well-known species—although just past their prime—were S. sancta, S. apiculata and S. Elizabethæ. S. Burseriana and its varieties crenata, speciosa, and multiflora were nearly over, as also was the hybrid S. Salomonii. Three very similar-looking species were present in S. Rocheliana, S. scardica (from Greece), and S. dalmatica, while, like them in habit, were S. Haagii, but which bore bright-yellow flowers, and S. eudoxiana, with pale-yellow blossoms. A very distinct little Saxifrage was S. pseudo-sancta, bearing several bright lemon-yellow flowers.

The whole rock-garden was full of bulbous plants peeping out from numberless nooks and crannies. Here it might be Narcissus cyclamineus or N. bulbocodium; there Erythronium Dens-canis or Puschkinia scilloides compacta; while Scillas of different species and varieties abounded on every side, and made gay many bare corners with their bright and cheerful little blue or white flowers. *M. E. Stebbing.*

The Week's Work.

THE HARDY FRUIT GARDEN.

By F. JORDAN, Gardener to Lady NUNBURNHOLME Warter Priory, Yorkshire.

CHERRIES.—At this stage, trees of Sweet and Morello Cherry are often seriously damaged by aphis, including the black kind, and often-times the mischief is done before the trees are out of blossom. Syringing the trees twice at intervals with Quassia extract or some similar insecticide a week or so before the flowers open will generally suffice to keep aphis in check. Trees of Sweet Cherry require to be disbudded and stopped as was advised for Apricots, to avoid, as far as possible, the use of the knife during the winter months. The grub that attacks the leaves must also be guarded against, for, no matter how carefully other operations are performed, this pest will soon destroy the crop and damage the foliage of the most vigorous trees.

MULCHING.—If the work of mulching is in arrears, no time should be lost in completing it. Light but moisture-holding materials form the best mulches to apply to newly-planted as well as established fruit trees; but no hard-and-fast rule should be followed, as much will depend upon the nature of the ground, whether it be of a light or heavy texture. Heavy mulchings should be avoided, unless the soil is warm and dry: those intended to supply food as well as to conserve moisture should be composed of rich, stimulating materials, and it should be remembered that two or three light dressings at intervals are preferable to one heavy mulch applied early.

GENERAL WORK.—It is too early to estimate what the fruit crops will be, but, judging from appearances, fruits of all kinds will be plentiful if the weather remains favourable. The recent severe frosts may have caused much injury to the blossoms in the Midlands and south, but in the north the trees were not sufficiently advanced to be much harmed. The year's results will depend largely upon attention to the most trifling details at this stage, the chief amongst them being the protection of the blossom from damage by frost and the prevention and spread of insect pests. Aphides especially must be combated, for if these pests destroy the early growths, the prospects for another year will be ruined, as secondary shoots rarely ripen satisfactorily. The hoe should be used freely in the fruit quarters on all favourable occasions to keep the surface of the ground well stirred and to destroy weeds. At no other season of the year is so much good done with the hoe as in spring, no matter whether weeds are present or not.

PLANTS UNDER GLASS.

By THOMAS STEVENSON, Gardener to E. MOCATTA, Esq., Woburn Place, Addlestone, Surrey.

VIOLETS. — The hot, dry weather of last summer was not favourable to Violets; the plants in many instances grew feebly, and red spider infested them, therefore it is hardly to be expected that the flowers will be as good as usual this season. When the plants have finished flowering no time should be lost in planting suitable side shoots for stock in their summer quarters. It is often advised to plant young Violets in a shaded border, but the best flowers I have ever seen were grown during the summer in an open situation, proving that shade does not matter, provided that the soil is well prepared and the plants receive proper attention. I prefer to plant young side growths rather than older shoots that have flowered, and though the former may not make strong plants so quickly as the latter, they have the advantage of not being so subject to attacks of red spider. If the plants have been troubled with this pest in the frames they should be dipped in a solution either of soft soap and sulphur or sulphide of potassium at a strength of ½ ounce in 1 gallon of water. If due attention is paid to spraying the plants and a fair amount of water afforded the roots during the summer, good results should be obtained, even in a hot season. In planting, allow plenty of room between the rows; a distance of 15 to 18 inches apart is not too much space, especially for the single varieties, and this distance permits of stirring the soil with the hoe.

ACHIMENES.—Achimenes are not so much in favour as they were in former years; nevertheless, they are very beautiful plants when in flower. The plants may be had in bloom either early or late, according to the date at which the corms are started into growth. They may be planted as early in February or as late as May; as the plant-houses are generally crowded with other subjects early in the year, it is convenient to plant now. The corms may be started fairly close together in shallow pans or pots, transferring them to their flowering pots when the shoots have grown about 2 inches high. The plants will flower well in pots, pans, or baskets, needing very little attention beyond staking and watering. They should be potted in a light compost; a mixture of peat, leaf-mould, sand, and a little loam is suitable. During their early stages of growth they should be grown in an intermediate or rather higher temperature, but as they come into bloom, a lower temperature, with plenty of air, should be afforded, to prolong the season of blooming. A little shade is necessary at all times, but the plants must be grown near to the roof glass, in order that they may grow stocky. When they are well rooted in their flowering pots, manure water may be afforded in considerable quantities. Some of the choicer varieties are Mauve Queen, Rose Queen, Firefly, Mme. A. Verschaffelt, Ambrose Verschaffelt, and longiflora major, rosea and alba.

CALADIUM.—Plants of Caladium that were started as advised in a previous calendar should now be finally potted. If large plants are required, two or three specimens may be placed together in one pot. It is very necessary to exercise care in watering for some time after they are potted, and the plants must be shaded during periods of bright sunshine. Though Caladiums require warm, moist conditions, they should not be syringed overhead too frequently, especially if the water contains lime, as that will be deposited on the foliage, but the spaces between the pots may be syringed often. If the ventilators are opened, close them again with a rising temperature in the afternoon.

SEEDLINGS.—Seedlings of stove and greenhouse plants must not be neglected. They should be pricked off as soon as they are big enough to handle, so that they may grow without receiving any undue check. Many plants that were raised in a stove temperature may, after this date, be grown in a rather cooler house; heated pits, where they are available, are quite suitable for seedlings of many warm-house subjects.

TUBEROUS-ROOTED BEGONIAS.—Many plants of tuberous-rooted Begonias are sufficiently forward to be placed in their flowering pots. If this is done before the roots are in the least degree pot-bound the plants will grow with extra freedom. As a rooting medium, provide a fairly retentive, though porous, compost. Pot fairly firmly, as the foliage does not grow gross when the soil is firm. The largest tubers may be grown in pots having a diameter of 8½ inches (24's) or 9½ inches (16's); smaller tubers from one to two years old may be grown in 6-inch pots (32's). Plants in these smaller pots are especially valuable for decorative purposes in the plant houses. If a house could be devoted to their culture, it would be an advantage, but, failing this, a good light pit will be suitable for a month or two. Endeavour to grow the plant sturdy, affording a little shade during the hottest part of the day. Seedling Begonias should be kept growing freely, transplanting them as advised in a previous calendar in boxes, or they may be planted out in a frame at a distance of 4 inches apart. When grown in frames, they may be transferred direct to the beds early in June, or potted in 4½-inch pots (48's). They will do best in the beds, where they will not only flower more freely, but develop finer corms than in pots.

BOUVARDIA.—This winter-flowering plant may be propagated now, either from cuttings obtained from specimens that were cut down some time ago, or from portions of the roots. The latter should be cut into portions an inch or two in length, planting the portions in sand or very light soil. Of the two systems, the latter gives the better result, the plants being stronger and freer in growth. Root cuttings will need to be rooted in a brisk bottom heat. They may be potted singly, or three may be placed in the same pot as soon as they have made top growth about 2 or 3 inches high. If three specimens are placed in one receptacle the leading shoots should be pinched on one or two occasions, to induce a bushy habit of growth.

THE FLOWER GARDEN.

By J. G. WESTON, Gardener to Lady NORTHCOTE, Eastwell Park, Kent.

TRANSPLANTED SHRUBS.—The long period of wet weather experienced at the time of planting has been succeeded by several weeks of drought, accompanied by east winds. In consequence, the ground is dry, and very hard on the surface, with cracks, especially where the soil is of a clayey nature. Under these conditions, recently-planted shrubs are liable to suffer damage from drought; therefore, see that the roots are well supplied with moisture. The surface of the ground should be forked over lightly, and the large clods of earth broken as finely as possible, carefully removing the roots of perennial weeds. If the ground is very dry, water must be afforded the roots, but timely attention in the matters of spraying and mulching is of greater benefit than copious root-waterings, the ground being very cold. A light mulch is of the greatest benefit in conserving the moisture about the roots, and may consist of leaf-mould, old potting soil, or spent manure from an old Mushroom bed. If neither of these materials is available, grass clippings from the lawns may be used, putting a light layer of the material around the base of each newly-planted tree and shrub. The soil should be stirred with the flat hoe before the mulch is applied, and this tool should be used constantly in the spaces between the plants.

HOLLIES.—The next few weeks is usually considered the most suitable time for transplanting Hollies, and preparations for the work should be made without delay. Everything should be in readiness before the roots of the trees are exposed, as the plants are liable to a check if their roots become dried, causing them to become stunted in growth. Large specimens may be shifted without much risk, provided that care is taken to preserve a large mass of soil about the roots. Remove the trees carefully to their fresh stations, make the soil thoroughly firm around the ball of soil and roots, afford a copious watering, and finally make the surface of the soil level. After the planting is completed, place a mulch over the roots, as recommended above. Constant attention will be necessary during times of dry weather, spraying the trees during the afternoons of hot days. Secure carefully to stakes all recently transplanted trees and shrubs, and label them, placing the tallies in position where they may be seen easily. The Stratford imperishable label is one of the best obtainable for labelling specimen trees and shrubs.

THE HARDY FERNERY.—The young fronds are developing fast, therefore old and withered leaves should be removed and the fernery made tidy and attractive for the summer. Hardy ferneries often exist in the vicinity of large trees, which lead to the accumulation of dead sticks and other rubbish. Do not cut off the old fronds of evergreen kinds until the young leaves have developed properly. This is done sometimes so that the work of tidying the fernery may be finished at one operation, but it will be noticed that Ferns growing wild appear to do best when well protected by the old fronds. A top-dressing of leaf-mould should be afforded as the work proceeds. This material will be a great help to the new roots, and give the fernery a clean and tidy appearance. In districts where tree Ferns withstand the cold of winter, these should be employed, as they give an additional charm to the fernery: in colder parts the hardier kinds, such as Dicksonia antarctica, may be grown in pots or tubs and plunged out-of-doors in the summer and autumn. Plunged plants must never be allowed to suffer from want of water at the roots, and have the stems syringed daily during hot weather. If the plants have been in the same tubs for several years, an occasional watering with liquid manure will assist the development of the young fronds and cause them to be a deep-green colour.

THE ORCHID HOUSES.

By J. Collier, Gardener to Sir Jeremiah Colman, Bart., Gatton Park, Surrey.

Phalænopsis. — Plants of Phalænopsis, including P. amabilis, P. Stuartiana, P. Schilleriana, P. grandiflora, P. Esmeralda, P. intermedia Portei and P. Brymeriana have passed out of flower and are becoming active at the roots, therefore fresh compost should be afforded them. The plants should be afforded fresh rooting material each year. A suitable rooting medium consists of equal parts of A1 fibre and Sphagnum moss chopped up rather short. Plants that are growing in baskets should, if the receptacles are decayed, be provided with new ones. First immerse the basket for a short time in tepid water, when the roots may be easily detached from the wood. The wires that hold the basket together should be cut and the bars of wood removed singly. At the same time carefully detach the roots with the blade of a thin knife. Wash all the old compost from the roots and remove dead portions of the plants with a sharp knife. Before placing the plants in the basket half fill the receptacles with portions of Fern rhizome for drainage purposes. The roots should then be woven singly between the bars, working the compost between the roots until it is level with the top of the basket. Finish with a layer of clean heads of Sphagnum-moss. If the baskets are in a sound condition carefully remove all the old rooting materials from between the roots and afterwards wash the inside of the basket and roots by syringing with clean, tepid water. Then fill the spaces between the roots with the fresh compost. These plants may be grown successfully in shallow pans, preferably those without side holes. Employ clean crocks for drainage, half filling the pots with these, and employ a similar compost to that recommended for the basket plants with the addition of crushed crocks and small lumps of charcoal. Phalænopsis should be afforded a position in the warmest house, where a constant circulation of warm air obtains. The plants should be shaded from the sun's rays during the spring and summer months. They may either be suspended from the roof rafters or placed on the stage on inverted pots standing in saucers of water. The bare spaces between the plants should be syringed on bright days, and the undersides of the leaves should be wetted frequently with tepid rain water. Maintain a moist atmosphere in the house by damping the walls and paths frequently during the day. Water the surface of the pots sparingly with a fine rose until the roots have grown well in the new compost, when they may be more liberally supplied with moisture. On the approach of winter moisture should be afforded in reduced quantities. Plants of P. Reimstadiana are in flower, and should not be disturbed at the roots until a later period.

Cattleya.—Plants of C. gigas, C. Hardyana, C. Dowiana and its variety aurea are starting into growth, and should be placed in the warmest end of the Cattleya house near to the roof glass. They should be afforded very little water at the roots until the young growths are several inches long, when the amount of moisture may be gradually increased, giving the maximum quantity when the flower sheaths and young leaves are forming. After the blooms have faded water at the roots should be withheld. Any plants that require potting should be attended to when young roots are developing from the new pseudo-bulbs.

THE KITCHEN GARDEN.

By Edwin Beckett, Gardener to the Hon. Vicary Gibbs, Aldenham House, Hertfordshire.

French Beans.—If the fruiting plants in pots are kept well supplied with manure-water, they may be grown in a comparatively low temperature. The seedling plants in 5-inch pots may now be planted in a frame, placing them at a distance of 1 foot apart, allowing a space of 18 inches between each row. Another sowing should be made in the frames to furnish gatherings until the outdoor supplies are available. Protect the frames well at night.

Runner Beans.—Towards the end of the present month a sowing of Scarlet Runner Beans may be made in boxes placed in a cold frame to furnish plants for planting in the open ground next month. Seedlings raised in this manner may be easily protected from inclement weather and from the ravages of slugs. In these gardens the boxes used are 2 feet long, 1 foot wide, and 4½ inches deep; 50 seeds are sown in each box. The trenches for the Runner Beans should be dug at an early date, bearing in mind that this plant responds to liberal treatment, and that during the hot and dry summer of last year the best results were obtained from the plants which were grown under these conditions. Seedlings raised in this manner come into bearing before those sown out-of-doors.

Broad Beans.—The earlier plants of Broad Beans in pots will now require stimulants to assist the swelling of the pods. These plants should be gradually removed to cooler quarters. Pinch out the growing point now that a good set is secured, and top-dress the plants with rich material.

Celery.—The trenches for planting Celery should be made without delay, excavating the soil 1½ foot or 2 feet deep. The trenches should be three-parts filled with half-rotted manure, preferably horse dung. A layer of soil should be placed over the manure, using some of the richest mould taken from the trenches. It is a mistake to plant Celery in very deep trenches, especially when intended for early and mid-winter supplies, also where the land is of a wet, heavy nature. By the end of this month the earliest plants should be ready for their final planting. In transplanting, preserve as much soil as possible about the roots, plant firmly, and afford a good watering. During times of dry weather the plants should be damped frequently until they are established. The leaves should be dusted during the early mornings on frequent occasions with fresh soot, which, if applied early, will prevent the Celery fly from making its appearance: this will also apply to subsequent plantings. Successional plants should be well hardened before they are planted in the trenches, and those of the final sowing intended for use next spring pricked out on a border facing south or west.

Celeriac.—This vegetable, which is commonly known as Turnip-rooted Celery, should be grown in soil which has been well enriched with farmyard manure. The situation should be open, so that the plants may receive plenty of sunshine. The first week in May is the best time for planting. Allow the plants plenty of room to develop, and keep them well supplied with moisture, dusting the leaves with soot exactly as recommended for Celery.

Beetroot.—Plants of Egyptian or Globe-rooted Beet raised early in the year in frames should receive their final thinning, allowing a distance of about 6 inches between them. A mulching of light, finely-sifted soil will be beneficial afterwards. Immediately the roots commence to swell, growth may be hastened by syringing the plants overhead and closing the lights partially early in the afternoon. Do not close the lights entirely, as too close conditions are harmful to the crop at any time. A sowing of this variety may be made in an open part of the garden, as the roots will be very useful when quite young as salad. The Globe-rooted Beet is a most desirable variety, as its roots develop soon, and it grows well in any garden. The main crop of long-rooted Beet may be sown at intervals between now and the end of the next three weeks. If roots are desired for exhibition purposes, they may be grown in specially-prepared holes filled with a finely-sifted sandy soil.

Peas.—Peas growing under glass should have the leading shoots stopped and the side growths removed after the third or fourth truss of flowers has formed. Damp the foliage overhead on the mornings and afternoons of fine days, and afford the roots copious supplies of diluted liquid manure. Admit plenty of fresh air whenever the weather is favourable. Continue to plant, on well-prepared ground, Peas raised under glass, and in order to maintain an uninterrupted supply of pods, make sowings in the open at intervals of 10 days. Select varieties that do best in the district; two excellent sorts for sowing now are Duke of Albany and Quite Content.

Cauliflowers. — Make a final sowing of early and autumn giant Cauliflowers in an open situation. The plants will be very serviceable in the autumn for lifting and planting in frames to continue the supply. Plants of earlier sowings should be set out in deeply-trenched and heavily-manured land. Cauliflower plants growing under glass, either in pots or borders, should be fed liberally with strong manure water. Admit plenty of fresh air on all favourable occasions.

Aubergine.—Plants of Aubergine or Egg plant intended for early fruiting are in flower. Immediately the fruits show signs of swelling, feed the roots liberally with stimulants and maintain a high temperature.

FRUITS UNDER GLASS.

By E. Harriss, Fruit Foreman, The Royal Gardens, Windsor.

Bananas.—To be successful with the fruiting of Musas under glass, the plants need to be grown specially well. The plants require a fairly lofty structure, with plenty of space to develop their large leaves. Plants grown in tubs seldom fruit, and this method of culture is only recommended for specimens intended for ornamental purposes. Fruiting plants require a rich rooting medium. Good loam mixed with plenty of well-rotted manure and crushed bones will provide a suitable compost. The plants require an abundance of water at the roots during their growing season, therefore ample provision should be made for the surplus moisture to drain away. When the fruits are developing, stimulants in plenty must be given. Although the plants are benefited by very high temperatures, they should be shaded from the direct rays of the sun. After the plants have fruited, they should be cut down, selecting the strongest suckers that form for stock. The suckers should be lifted with a good ball of soil, and planted in a compost as advised above. Musa Cavendishii is the most suitable species for fruiting under glass.

Pineapples.—Plants of the Queen variety which were placed in the fruiting house in December must be watered very carefully. The pots are full of active roots, and, should the soil become dry, the fruits will receive a check. The plants should receive stimulants on at least every alternate watering. Liquid manure from the farmyard and guano water are both suitable fertilisers, and may be used alternately. The paths and walls in the house should be sprinkled frequently with water to promote a moist atmosphere. Spray the plants with tepid rain-water in the mornings, and again in the afternoons, when the ventilators are closed, which should be done not later than 3 p.m. The night temperature may be maintained at about 70°. Admit air at the top of the house in the mornings, when the temperature approaches 80°, increasing it at intervals as the sun's heat augments. If the tops of the fruits are inclined to grow disproportionately large, the growth may be stopped by means of a pointed stick, but this must be done effectively, or growth will again commence and the fruits be disfigured. Excessive syringings overhead will cause the crowns to grow too freely.

Successional Pines. — Plants which were potted early in the year must be given every encouragement to grow freely. The minimum temperature of the pit should not fall below 70°. Regulate the ventilators carefully in the forenoon, closing them early in the afternoon, after spraying the plants and charging the atmosphere with moisture. In the afternoon a temperature of 100° or even more will not be too high, so long as the atmosphere is kept moist. When the soil in the pots is becoming filled with roots, weak stimulants may be afforded, increasing the strength as growth develops. Plants needing repotting must be attended to before they become pot-bound. Young plants of the varieties Smooth Cayenne and Charlotte Rothschild, which were planted out last month, are developing plenty of roots. Although it has been necessary, up till now, to shade the plants, they must be inured gradually to direct sunshine, until shading is dispensed with altogether. The Pineapple enjoys exposure to the full sunshine, except when the roots have been disturbed through repotting or planting, and undue shading may defer or even be the means of preventing the fruiting of the plants.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, *as well as specimens of plants for naming, should be addressed to the* **EDITORS, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Special Notice to Correspondents.—*The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.*

Local News.—*Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, APRIL 30—
Royal Hort. Soc. Coms. meet. and National Auricula and Primula Soc. Sh. (Lecture at 8 p.m. by Dr. Redcliffe Salaman on "Potatos.") Hort. Club meeting.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—49·2°.

ACTUAL TEMPERATURES:—
LONDON.—*Wednesday, April 24* (6 P.M.): Max. 66°; Min. 44°.
Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—*Thursday, April 25* (10 A.M.): Bar. 29·9°; Temp. 56°; *Weather*—Sunshine.
PROVINCES.—*Wednesday, April 24:* Max. 60° Cambridge; Min. 50° Scotland, N.W.

SALES FOR THE ENSUING WEEK.

WEDNESDAY—
Herbaceous and Border Plants, Hardy Bulbs, &c., at 12; Liliums, &c., at 4; Palms and Plants at 5; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

THURSDAY AND FRIDAY—
A collection of Choice Established Orchids, at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

The Hollyhock Rust.

This disease is well known to gardeners for the damage it does to Hollyhocks, Mallows, and other Malvaceous plants. It is comparatively a newcomer in Europe, for its original home is South America. The gradual spread of the Hollyhock disease over Europe during the latter part of the last century is almost as striking an example of the distribution of a plant disease as that of the Gooseberry-mildew in recent years. It was first described in 1854 from some leaves of Althæa officinalis sent from Chile, was identified as a member of the well-known groups of fungi, the Rusts, and received the name of Puccinia Malvacearum.

The fungus began its wanderings by appearing in Australia in 1857, but did not reach Europe till 1869, when it was found in Spain. In 1872 it reached France, and in the next year began to spread more rapidly, being found in at least eight departments of France, in six counties of England, and in two localities in Germany. In 1874 it appeared in Belgium, Holland, Denmark, and Italy, and became more widely spread in the countries it had already invaded. In 1875 it reached Ireland and Switzerland, in the next few years Austria-Hungary and Greece, but it did not reach Sweden till 1882, nor Finland till 1890.

The ravages of the disease were very serious at the time of its first appearance, so that as early as 1874 it caused in France an increase in the price of Mallow flowers used for pharmaceutical purposes, and for many years it rendered the cultivation of Hollyhocks very difficult. At present the disease seems to have abated somewhat in virulence, but it is still very troublesome, reducing the vitality of the affected plants.

The disease shows itself as a number of brownish lumps or pustules, chiefly on the under-surface of the leaves. The pustules consist of masses of brownish spores, which in the presence of a suitable supply of moisture germinate and produce minute, colourless reproductive bodies. These can be carried in the air to other leaves and so produce again the disease. The germination of the spores can easily be recognized with the naked eye, for then the hemispherical clumps of spores turn from brown to grey owing to the production of these smaller colourless bodies.

It is by means of the spores that the disease is carried from plant to plant during the growing season, but there has always been considerable doubt as to the manner in which the fungus survives the winter. Whether the living threads of the fungus exist in the seed or remain throughout the winter in other parts of the plant, or whether the spores persist in the living state during the winter on the seeds or on old living or dead leaves has been much disputed.

Eriksson, the Swedish botanist, has for some years been investigating the rust of Hollyhocks, and has lately published his results in full. Eriksson is well known to those who study diseases of plants for his unconventional views as to the means by which the rusts of Wheat persist from season to season. The difficulties in accounting for the sudden appearance and rapid spread of epidemics of rust on Wheat led him, about eleven years ago, to put forward the view that the rust fungus might exist in the seed in a special form known as mycoplasm.

Seeds from affected plants were supposed to bear within them, not the ordinary fungal threads which can be easily observed with the microscope, but a peculiar combination of the living material of the fungus with the living material of the seed. This combination, mycoplasm, is hardly detectable as such even under high powers of the microscope, but is supposed to pass from the seed to the leaves as the plant develops. Finally, in the leaves, the dual nature of the mycoplasm is made manifest by the separation of the fungal portion as threads which are the ordinary form of growth of fungi. From these threads the pustules arise. Eriksson's theory as to the origin of the rusts of cereals was found difficult of acceptance by botanists generally, since the complete merging of the living material of two distinct plants has no analogy in the animal or vegetable kingdoms.

In the case of Hollyhock Rust, most gardeners hold that seeds from a "rusted" plant in some way carry the disease so that the offspring develop the pustules even in the absence of infection from other plants. Eriksson, as a result of his studies, holds strongly to this view. He made experiments, lasting over several years, with a large number of seedlings from "rusted" plants, and found that they suffered from virulent attacks of the disease even when there were no infected plants within a considerable distance. The rapid dissemination of the disease, at the time of its appearance in Europe, also suggests very strongly that it must have been carried with the seeds and rootstocks.

Eriksson observed in his experiments that seedlings sown in spring remain for the first three months completely free and then suddenly develop the disease, the pustules appearing in large numbers scattered regularly over the surface of the leaf. As in the rusts, if infection takes place from outside, each pustule means a separate infection. It is pointed out that in situations where there are no infected plants in the neighbourhood the air can hardly be so full of reproductive bodies that hundreds of them can fall on a single leaf. Eriksson shows, moreover, that it is only the mature leaves of the young plant that show the disease, while if infection is external one would expect the young delicate leaves to be the first attacked. For these and other reasons Eriksson holds that the first appearance of the disease in the spring is the result of an internal infection, due to the existence in the seed of a mycoplasm similar to that which he had supposed to exist in the grains of Wheat.

The observations of Eriksson certainly support the views of gardeners as to the transmissibility of the disease by the seed, and this transmissibility may be accepted as a fact. The exact mode of transmission is, however, much more debatable. Some of the difficulties in the way of the acceptance of the mycoplasm theory have already been presented, and in the absence of more rigid proof that neither the threads of the fungus nor spores are present in or on the seeds it must be considered as unproved. It is noteworthy that while Eriksson states that the spores of the Hollyhock Rust are unable to survive the winter in Sweden, yet it has been shown that in America spores formed late one year are able to germinate the next spring.

The same worker has also shown that pustules of spores are to be found attached to the seeds. Such seeds gave, however, seedlings in which the seed-leaves showed spots of rusts 14 days only after sowing. These results in which outside infection is certainly concerned are in striking contrast with those of Eriksson, who found that seedlings usually remained free from the disease for the first three months when preserved from obvious outside infection.

Further investigation is necessary before this difference can be explained on the basis of an hypothesis so improbable as that involved in the conception of "mycoplasm." It would also be interesting to have exact information for this country of the first appearance of the disease in seedlings exposed to infection in the open and protected from infection in the greenhouse. As the spores may be attached to the seed, treatment with formalin before sowing would be advisable.

Photographs by George Forrest.

PRIMULA SECUNDIFLORA IN ITS CHINESE HABITAT.

Printed by Temple Press Ltd., London, E.C.

OUR SUPPLEMENTARY ILLUSTRATION.—Primula secundiflora is one of the finest of Alpine Primulas found on the Lichiang Range, N.W. Yunnan, where, though common in places, it is peculiarly local. Its closest ally is Primula vittata, which was discovered by Prince HENRI D'ORLEANS much further to the north and east, on the mountains around Tatsienlu and Batang. The two species differ in only a few minor details. Mr. FORREST has furnished the following particulars:—The blooms are fragrant, and in habit and form closely resemble those of Primula sikkimensis, but, instead of being yellow, they are a most beautiful shade of deep crimson, faintly tinged with purple. The altitudinal range of the species is great, from 11,500 feet to almost the limit of perpetual snow at fully 15,000 feet. On the lower meadows the plants form dense colonies, with scapes from 7-14 inches in height; at the highest altitudes, though the flowers retain their size, all other parts of the plants are much dwarfed. The blooms are semi-pendulous on the umbels, and mostly secund, though the last feature does not always obtain. The calyx is of a deep, livid, ruddy purple, beautifully picked out along the margins and down the divisions to the bases with thick lines of clear-white farina. Normally, the umbels are solitary, but it is not uncommon to find specimens with two, or occasionally three, umbels superposed. This species grows in conjunction with Primula pinnatifida and Primula sikkimensis, decorating large tracts of Alpine pasture with its crimson flowers, which show in beautiful contrast to that of its companions, the brilliant lemon-yellow of Primula sikkimensis and the varying shades of purplish-blue of Primula pinnatifida. In common with many of the Alpine plants from the same region, in this country it will not be so much a question of hardiness, but that our climate may prove too genial and open.

ROYAL HORTICULTURAL SOCIETY.—The next meeting will be held in the Society's Hall, Vincent Square, Westminster, on Tuesday, the 30th inst., in conjunction with the show of the National Auricula and Primula Society. At the 3 o'clock meeting of the Fellows a lecture on Potatos will be delivered by Dr. R. N. SALAMAN.

HORTICULTURAL CLUB. — The next house dinner of the Horticultural Club will take place on Tuesday, the 30th inst., at the Hotel Windsor. During the evening Mr. H. R. DARLINGTON will give an address on "The Rose as a Decorative Plant, with special reference to the foliage."

AWARD OF THE LINNEAN MEDAL.—At the meeting of the Linnean Society, held on the 18th inst., the president announced that the Linnean Medal would be awarded to Dr. R. C. L. PERKINS.

FLOWERS IN SEASON. — A box of beautiful blooms of Ranunculus asiaticus is sent from Castello, near Florence, by Dr. RAGIONIERI, who states that the flowers are the strain known as Roselline di Firenze, which has been in cultivation for several centuries in Florentine gardens. The blooms are as big as large double Hollyhocks, to which they bear a great resemblance.

AN ABERDEEN WAREHOUSE HORTICULTURAL SOCIETY.—At a meeting of the employees of Messrs. JOHN FALCONER & Co., Aberdeen, held recently, it was decided to form a floral society, with the title of Ellewand Horticultural Society. Mr. WILLIAM FALCONER was appointed president, Mr. H. W. FALCONER, vice-president, and Mr. LESLIE M. HATT, secretary. It was arranged to hold two exhibitions, in August and September respectively.

THE SURVEYORS' INSTITUTION.—The next ordinary general meeting of this society will be held at the Institution on the 29th inst., when a paper will be read by Mr. G. T. LOBAN on "Some Principles in the Valuation of Land and Buildings." The council has accepted an invitation to hold the next country meeting at Nottingham on May 30 and 31. Visits have been arranged for the afternoon of the 30th to Wollaton Hall, Nottingham Castle, Messrs. Players' tobacco factory, and a lace factory. On May 31 the members will inspect the Derwent Valley Waterworks, and make an excursion through Thoresby and Clumber to Welbeck.

NATIONAL AURICULA AND PRIMULA SOCIETY (SOUTHERN SECTION).—The annual exhibition of the National Auricula and Primula Society will be held in the Royal Horticultural Society's Hall, Vincent Square, Westminster, on the 30th inst., in conjunction with the fortnightly meeting of

CEYLON AGRICULTURAL DEPARTMENT.—Mr. R. N. LYNE, Director of Agriculture in Portuguese East Africa, has been appointed the Director of the new Agricultural Department of Ceylon. Mr. LYNE was for some years Director of Agriculture in Zanzibar and manager of Government plantations. Two years ago, on the recommendation of the Director of the Imperial Institute, he was lent, with the approval of the Foreign Office, to the Portuguese Government to organise a Department of Agriculture in the Province of Mozambique and to report on the agricultural possibilities of that country. Mr. LYNE is the author of numerous reports and papers on tropical agriculture and is a member of the British Committee of the International Association of Tropical Agriculture.

FESTIVAL DINNER OF THE ROYAL GARDENERS' ORPHAN FUND.—The twenty-fourth annual dinner in aid of the Royal Gardeners' Orphan Fund will take place at the Hotel Cecil, Strand, on Wednesday, May 8. Sir EDWIN DURNING-LAWRENCE, Bart., will preside. The following gentlemen have kindly consented to act as stewards on this occasion, and will be glad to receive contributions for the chairman's list:—Mr. A. R. ALLAN, Hillingdon Court Gardens, Uxbridge; Mr. WILLIAM Y. BAKER, Thames Bank Iron Co., Upper Ground Street, London; Mr. GEORGE H. BARR, King Street, Covent Garden; Mr. W. BATES, Cross Deep, Twickenham; Mr. G. L. CASELTON, Garden Superintendent, Crystal Palace; Mr. GEORGE H. CUTHBERT, The Nurseries, Southgate, N.; Mr. WILLIAM H. CUTBUSH, The Nurseries, Barnet, Herts.; Mr. C. DIXON, Holland House Gardens, Kensington; Mr. W. HOWE, Park Hill Gardens, Streatham Common; Mr. D. INGAMELLS, 27, Catherine Street, Covent Garden; Mr. W. LANE, Kings Ride Gardens, Ascot, Berks.; Mr. R. B. LEECH, The Cottage, Wood Hall, Dulwich; Mr. JOHN LYNE, Foxbury Gardens, Chislehurst, Kent; Mr. H. B. MAY, Dyson's Lane Nursery, Upper Edmonton; Mr. J. F. McLEOD, Dover House Gardens, Roehampton; Mr. G. E. MESSER, Hyde Side Nursery, Lower Edmonton; Mr. J. W. MOORMAN, 33, Wetherall Road, South Hackney; Mr. WHITPAINE NUTTING, 106, Southwark Street; Mr. R. HOOPER PEARSON, "Bræwyn," Earlsfield Road, Wandsworth Common; Mr. WILLIAM POUPART, Marsh Farm, Twickenham; Mr. G. REYNOLDS, Gunnersbury Park Gardens, Acton, W.; Mr. E. ROCHFORD, Mill Lane Nurseries, Cheshunt; Mr. T. W. SANDERS, 124, Embleton Road, Lewisham; Mr. EDWARD SHERWOOD, 152, Houndsditch, E. (treasurer); Mr. DAVID W. THOMSON, 113, George Street, Edinburgh; Mr. W. P. THOMSON, 25, Bollo Lane, Chiswick, W.; Mr. HARRY J. VEITCH, Royal Exotic Nursery, Chelsea; Mr. J. H. WITTY, St. James's Villa, Swain's Lane, Highgate; Mr. H. L. WRIGHT, Fruit Market, Covent Garden, W.C. The secretary is Mr. BRIAN WYNNE, 19, Bedford Chambers, Covent Garden, W.C., and he will be very glad to hear from those who intend to be present at the dinner.

THE LATE H. J. ADAMS.—On May 2 and 3 Messrs. PROTHEROE & MORRIS will conduct the sale of the collection of Orchids formed by the late H. J. ADAMS, Esq., J.P., of Roseneath, Enfield. The sale will take place at their Central Auction Rooms. The late Mr. ADAMS was a well-known Orchidist, and his collection of plants was a varied and comprehensive one. Even better known as an ardent entomologist, his collection of exotic butterflies undoubtedly ranked amongst the finest and most complete in the kingdom. This he bequeathed to the nation, and it is expected to be taken over shortly by the British Museum authorities.

EARLIER OPENING OF KEW GARDENS. — Replying to a question asked in the House of Commons by Mr. RAWLINSON recently, Mr. RUNCIMAN (President of the Board of Agriculture) stated that the question of extending the period during which Kew Gardens are opened to the public at 10 a.m., was carefully considered last year, and the gardens will in future be opened to the public at that hour from May 15 to October 15. Having regard to the purposes for which the gardens are primarily maintained, and to the importance to scientific students of the spring months, he could not see his way further to extend the privileges of the general public. He did not think that there was any occasion to provide accommodation for the members of the public awaiting admission to the gardens; by timing their arrival according to the hour of opening, which is easily ascertained, they could avoid the necessity of waiting for admission.

CHILDREN IN THE ROYAL PARKS.—Replying to a question asked in the House of Commons on the 22nd inst. as to whether it was proposed, where necessary, to extend the facilities given for playing games in the Royal parks, Mr. W. BEAN, representing the First Commissioner of Works, stated that steps have already been taken to make use of the Royal parks for children's games, and the First Commissioner is anxious to extend these facilities as much as possible. He believes that all the requirements of the London Education Authority have so far been met, but will favourably consider any further request which they make. Mr. A. J. PEASE said he was informed that the arrangements with reference to the provision of spaces in Hyde Park and Regent's Park for games for London school children this year are not yet complete, but that no difficulties are anticipated. The First Commissioner of Works would be glad to consider favourably any request by the London Education Authority for more ground. He understood that 10 departments asked for pitches in Hyde Park during 1911—two for three times a week, two for twice a week, and six for once a week. Thirty-one departments asked for pitches in Regent's Park—two for four times a week, three for three times a week, seven for twice a week, and the remainder for once a week. The accommodation required was provided for all the schools from which application was received.

PERPETUAL CARNATIONS. — Messrs. STUART Low & Co. announce that they will present a copy of their book on Carnations to bonâ-fide gardeners' societies if application is made for it.

ROYAL INTERNATIONAL HORTICULTURAL EXHIBITION.—The official prizes at the International Exhibition consist of silver or silver-gilt cups, medals, and money, together with a Diploma. These Exhibition cups are all of the design shown in fig. 131, but they will be made in three sizes selected by the Directors of the exhibition. Each of these "Standard" cups will be engraved with the official design of the exhibition directors. Amongst the cups presented unofficially is that illustrated in fig. 132, and presented by the chairman of the Exhibition Board, J. GURNEY FOWLER, Esq. It is offered for the most meritorious exhibit in classes 349 and 351 for collections of twelve dishes of fruit, and for a table of twelve dishes of dessert fruit, of not fewer than six distinct kinds respectively. The hon treasurer, Sir JEREMIAH COLMAN, Bart., is offering two cups of the design shown in fig. 133. One will be given to the second best exhibit in the show (the winner of the president's prize to be excluded), and the other to the amateur exhibitor whose collection contains the most interesting hybrid Orchids, other than Cypripediums, raised by himself. Lady COLMAN is also offering a cup (see fig. 134), and this will be awarded for a group of Souvenir de la Malmaison Carnations arranged in a space not exceeding 150 square feet. The beautiful cup reproduced in fig. 136 will be well known to most of our readers as the Veitchian Cup, a replica of those offered by Messrs. JAMES VEITCH & SONS at recent Temple Shows. At the International Exhibition it will be given to the best group of hardy plants exhibited by an amateur. The Sutton Cup, presented by Messrs. SUTTON & SONS, and illustrated in the last issue, is of silver-gilt, and measures 18 inches in height, and nearly 19½ inches in width, the diameter of the bowl being 10 inches. It weighs 140 ounces, and is finely embossed with groups and specimens of the principal kinds of vegetables. Racemes of Tomatos are represented on the handles, whilst the handle of the lid takes the form of a Globe Artichoke. All

FIG. 131.—ROYAL INTERNATIONAL HORTICULTURAL EXHIBITION.

(The "Standard" Exhibition Cup offered by the Directors of the Exhibition.)

the details are hammered out by hand. The piece of plate illustrated in fig. 135 is presented by Messrs. R. WALLACE & Co. for the best rock garden exhibited by an amateur in a space not exceeding 100 square feet. It represents Gentians growing on rocks amongst grass, and was manufactured from a design by Mr. GEORGE DILLISTONE, an employé of Messrs. WALLACE & Co.

———Mr. T. HUMPHREYS, hon. secretary for Warwickshire, informs us that the Warwickshire Cup, shown in fig. 109, is 21¼ inches high, and weighs 121 ounces.

IDEAL HOMES EXHIBITION.—The exhibition under this title, organised by the *Daily Mail* newspaper at Olympia, was opened on the 12th

FIG. 132.—ROYAL INTERNATIONAL HORTICULTURAL EXHIBITION.

(Cup presented by J. Gurney Fowler, Esq.)

inst., and will continue until the 30th. The show is the most successful of the series. To the garden lover the most important features of the exhibition are the scale model of the forthcoming Royal International Exhibition, and the mass of Tulips blooming in the Dutch section. In the International model all the chief items of interest are laid out for the inspection of the visitor. The huge six-spanned general tent which will cover 3½ acres gives an idea of the unparalleled accommodation this building will afford. The tents which are to be devoted to the exhibits from overseas are placed in the positions they will occupy. The avenues and specimen trees growing in the Chelsea Hospital grounds are proportionately depicted in their places, and in the open spaces models of the rockeries and hardy gardens are shown. The *Daily Mail* Gold Cup, to be awarded for the best new Rose, was shown on the model, and guarded by the Metropolitan Police. The blaze of colour in the Dutch grounds must be seen to be realised. Wooden bridges over placid canals show the way, passing cool-looking grass mounds with topiary, to the Tulip grounds. In all 50,000 bulbs have been planted, and such bedding varieties as the rich Couleur Cardinal, the large double yellow Couronne d'Or, the bright Rose Grisdelin and Murillo, with large widely-expanded pink and white flowers, will soon have passed their period of bloom. Mr. M. T. GULDEMOND has arranged to bring a large quantity of Darwin varieties from Lisse, Holland, to replace them. In other parts of the exhibition many merchants display their wares, which are of especial interest to gardeners. The Boundary Chemical Co. show various fertilisers, lawn sand, and their Sweet Pea trainer, with strong plants of the variety King Alfred already grown to the top of the 6 feet high stands. A continuous spray syringe, with short lengths of flexible hose attached, is a useful labour-saving article for applying insecticides, as well as for syringing with clear water. Lawn mowers, of many makers, and all kinds of garden tools are attractively displayed by Messrs. THOS. GUNN, whose wasp and fly gun attracted considerable attention. Close by many examples of garden seats, including the sociable quarter-circle pattern; Tuscan-ware vases, sundials and baths in lead or zinc for the birds are largely exhibited by the Pyghtle Works Co., who erected the long treillage pergola. Well-made garden seats are also displayed by Castle's Shipbreaking Co. Next to the International Model, Messrs. PULHAN & SON have arranged a large rockery with Pulhanite, from which a roaring waterfall tumbles into a pond. Many healthy-looking dwarf Japanese trees are shown by Messrs. LIBERTY & Co., of Regent Street. Neat and ingenious sun-blinds are fixed on a building by the Oriental Blind Co.; many of the patterns shown, which are made of painted and varnished laths of wood, are well adapted for use either inside or on the outsides of glasshouses. Although not strictly gardening, the exhibit from JOHN GROOM'S Cripplegate Flower Girls Mission has more than a passing interest. The artificial flowers shown, which are made by the afflicted members, are the most convincing we have seen. On a large stand the Canadian Commissioners have set out an enormous collection of fruits, which have been grown out-of-doors in that colony.

SOUTH AFRICAN FRUIT TRADE.—*The African World* gives some interesting facts and figures illustrating the great demand there exists in European markets for South African fruit. The first consignment of fruit from South Africa consisted of a few boxes of Pears which were landed in Southampton in 1886 by an enterprising grower; last year 201,871 boxes of fruit were landed. The first fruits to arrive each year are Apricots, followed closely by Peaches, Nectarines, Plums, Pears, Grapes, Melons, and Pines, and later by large quantities of Oranges and "Naartjes" (Mandarines), which arrive during the summer months. The Plums are chiefly of the Japanese varieties, and the South African Grapes are a

FIG. 133.—ROYAL INTERNATIONAL HORTICULTURAL EXHIBITION.

(Cup presented by Sir Jeremiah Colman, Bart.)

variety of Muscat known as "Hannepoots." For much of his success the South African fruit-grower has to thank the Cape Trades Commissioner in London, on whose recommendation the Jameson Government inaugurated a scheme to facilitate the export of fruit. The officials of the Agricultural Department are prepared to give

advice as to the best methods of packing, shipping, and marketing. The railway station masters supplied boxes, wood-wool, and paper at cost price. The farmer packs his fruit, sends it to the railway station, receives a receipt for his produce, and leaves the railway department and the Trades Commissioner in London to do the rest. *The African World* very properly insists on the necessity for grading the fruit, and for stating the quantity or weight on each package if the colony's fruit is to retain its present high position.

Retirement of Dr. Campbell. — Dr. Campbell, LL.D., has resigned his office as factor of the Seafield Estates, to which he was appointed in 1888. Dr. Campbell was a member of the committee of management of the Aberdeen University Agricultural Department when it was instituted about 20 years ago, and was appointed a Banffshire representative on the Aberdeen College of Agriculture when it was founded, being elected chairman last year. In 1903 the University of Aberdeen conferred the honorary degree of LL.D. on Dr. Campbell, and the following year he was presented with his portrait, painted by Sir Jas. Guthrie.

Missouri Botanical Garden.—The 22nd annual report of the Missouri Botanical Garden contains a series of contributions by the Director, Mr. W. Trelease, on the Agaves, and the second part of Cratægus in Missouri, by Prof. C. S. Sargent. As is usual with this publication the articles are profusely and admirably illustrated.

Publications Received.—***The Guild of the Garden Lovers,*** by Constance O'Brien. (London: George Routledge & Sons, Limited.) Price 3s. 6d. net.—***The Western New York Horticultural Society.*** Proceedings of the fifty-seventh annual meeting, held at Rochester on January 24, 25 and 26. Secretary, John Hall, 204, Granite Buildings, Rochester, N.Y.—***The Red Sunflower,*** by Professor T. D. A. Cockerell. Reprinted from *The Popular Science Monthly.*—***Oxford Gardens*** (based upon Daubeny's Popular Guide to the Physick Garden of Oxford), by R. T. Günther, M.A. (Oxford: Parker & Son.)—***Notes from the Royal Botanic Garden, Edinburgh.*** January, 1912. (Edinburgh: Oliver & Boyd.) Price 9d.—***Journal of the National Poultry Organization Society, Limited.*** April. (London: Simpkin, Marshall, Hamilton, Kent & Co., Limited.) Price 6d.—***Twenty-ninth Annual Report of the Metropolitan Public Gardens Association, for 1911.*** 83, Lancaster Gate, London, W. Price 6d.—***The Women's Agricultural and Horticultural International Union.*** Monthly leaflet. Secretary, Miss Ella Gill, 45, Queen Anne's Chambers, Westminster, London. Price 2d.—***The National Rose Society's Rose Annual for 1912.*** Secretary, Mr. Edward Mawley, Rosebank, Berkhamsted, Herts. Price 2s. 6d. post free.

Fig. 135.—Royal International Horticultural Exhibition.

(Piece of plate presented by Messrs. R. Wallace & Co.)

NOTES ON THE ECONOMIC FLORA OF GAZALAND.

One of the most interesting botanical contributions to the Linnean Society that has been made for some time past has recently been published in an unusually bulky number of the *Journal* of the Society under the title of "A Contribution to our Knowledge of the Flora of Gazaland." It is, in brief, a description of the plants collected in 1906 by Mr. C. F. M. Swynnerton, a Fellow of the Society, and presented by him to the British Museum, where the plants have been worked up and described by Dr. A. B. Rendle, F.R.S., Mr. E. G. Baker, Mr. Spencer Moore, and Mr. A. Gepp, who, in the introduction to the paper, acknowledge assistance in special subjects from members of the Kew staff and other botanists.

Considered only from a scientific point of view, the paper is a very valuable contribution to our knowledge of the flora of a continent that for some years past has attracted considerable attention politically, geographically, and economically, and will continue to do so as the resources of its several divisions become better known by a system of development. Towards this end, Mr. Swynnerton's notes, accompanying the collections, are a pattern and example for other travellers and explorers to follow. So interesting, indeed, are notes given on the uses, by the natives, of the plants described, that they ought to have a wider circulation than is possible if they are confined to the Linnean Society's *Journal*. By putting such facts as the presence of rubber in certain plants, of fibrous barks, or medicinal properties in others, or, again, of the existence of valuable timber trees, before a wider public may be the means of drawing attention to new sources of valuable commercial products.

With this object in view, and with the permission of the Council of the Linnean Society, together with that of the collector himself, I have made free extracts from the notes bearing on the economic uses the plants described, giving them in the same sequence of the Natural Orders as that adopted in the original paper, and interpolating here and there unpublished notes, for the loan of which I owe my thanks to Dr. Rendle.

It may be noted that besides the plants here

TREES AND SHRUBS.

FORSYTHIAS.

Of the three species of Forsythia mentioned in the *Kew Hand List of Trees and Shrubs,* by far the best for gardens is Forsythia suspensa, which, as a shrubby climber or rambler, is valuable for covering walls, pergolas or arbours. If pruned back hard after flowering, it may be grown in bush form, and in this way it is charming. The other species are Forsythia viridissima, which is shrub-like in habit and flowers later and less profusely than the preceding, and the comparatively new F. europæa, which, interesting as being a native of this continent, is far inferior to the other two.

A hybrid between F. suspensa and F. viridissima was raised many years ago by Herr Zabel, of Munden, Hanover, and given the name of F. intermedia. This in time justly became a favourite, and is now generally grown. Since then other forms of F. intermedia have been raised on the continent and distributed. The best of them, as far as my experience extends, is spectabilis, which is uncommonly free in flowering, while the blossoms are of a rich shade of yellow. It is scarcely as free in growth as F. intermedia itself. Though I obtained the variety spectabilis from the continent half-a-dozen years ago, it appears at present to be but little known in this country. Its merits, however, are so great, and it is so readily propagated, that it should ere long become generally distributed. Among other forms of F. intermedia are densiflora and vitellina, but in my opinion spectabilis is far the best. *W. T.*

Fig. 134.—Royal International Horticultural Exhibition.

(Cup presented by Lady Colman.)

Fig. 136.—Royal International Horticultural Exhibition.

(Cup presented by Messrs. James Veitch & Sons.)

enumerated for their economic uses, a large number of others are new to science, and one new genus, under the name of Swynnertonia, has been added to the Natural Order Asclepiadeæ.

The following extract gives the necessary information as to the region explored by Mr. Swynnerton :—"The collections which form the subject of this paper were made by Mr. Swynnerton chiefly in the high country which forms the boundary between Eastern Rhodesia and Portuguese territory . . . Mr. Swynnerton also collected in the lower-lying country within the Portuguese boundary, especially in the Madanda Forest and along the Buzi River, which enters the Indian Ocean opposite Beira. The tract that we commonly call Gazaland extends roughly from some distance to the south of Delagoa Bay to the Umvumvumva, Lusitu, and Buzi rivers, the sea bounding it on the east and the River Sabi on the west."

Monotes hypoleucus is a shrub or small tree. It furnishes a hard wood, which is much used for snuff-boxes. The roots on the eastern and western sides of the trees are taken up by the natives, and the bark is either boiled or infused in cold water, which is kept in motion by a forked stick revolved between the hands. Gruel, made of any kind of meal, is then cooked in the infusion, and eaten early before meals or late in the evening as a remedy for indigestion or diarrhœa. Sterculia Triphaca is a large tree, with smooth, richly-coloured, fibrous bark, which is collected from the twigs and used for matmaking and cordage. Grewia madandensis, a new species of a Tiliaceous genus, forms a small tree with a straight stem, with an enlargement at the base just below the ground. Cut off below this, it is much used for knob-kerries or clubs. The wood is extremely hard, and is a favourite for assegai shafts. Teclea Swynnertonii is a new Rutaceous species, and forms a large tree some 60 feet or 70 feet high. The fruit is an orange-coloured berry, with a netted seed, and sweet, strongly-flavoured pulp, ripening from September to October. It is much relished by the trumpeter hornbills, baboons, and Kaffirs. Ekebergia arborea, a Meliaceous tree of some 30 feet high, is described as having a very soft, white timber, with apparently no division between sap-wood and heart-wood. It is straight grained, and much used by the natives in the manufacture of pillows and bowls. An infusion of the roots is said to be drunk by them for pains in the chest. Trichilia chirindensis, belonging to the same order as the last, is a new species, and is one of the largest forest trees, growing to a height of 120 feet or more, with a diameter of trunk of 7 feet 6 inches, and a large spreading crown of dark, glossy leaves. The timber, reddish-brown in colour, is easily worked, and, on this account, is a favourite with the natives, who display some skill in carving it into spoons and other articles. Another timber tree belonging to the same Natural Order, and also a new species, is Lovoa Swynnertonii, known by the settlers as brown mahogany. It grows to a height of 160 feet, mostly with a straight trunk up to 90 feet before branching. The heart-wood is of a deep grey-brown colour, the timber handsome but frequently cross-grained and difficult to work. It has been used a great deal locally for outdoor work, being very durable and untouched by insects. Mr. Swynnerton says, so far as he knows "the tree grows only in Chirinda, where it prefers well-drained slopes to banks of streams." *J. R. Jackson, Claremont, Lympstone, Devon.*

(To be continued.)

FIG. 137.—SANGUINARIA CANADENSIS GROWING IN CAMBRIDGE BOTANIC GARDENS: FLOWERS WHITE.

SANGUINARIA CANADENSIS.

IN the beautiful Sanguinaria canadensis we have an early-flowering perennial, equally suitable for planting in the border or rockery. The plant is perfectly hardy, and at this early season of the year is distinguished by its pure white Anemone-like flowers.

The leaves, which are shorter than the flowers, resemble in outline those of Bocconia cordata. They enclose the flower-stem until it is 2 or 3 inches high, when the leaf expands and liberates it. The flowers have 8 to 12 petals, and are borne on stems 3 or 4 inches high.

The plant is commonly known as Blood Root or Red Puccoon, and belongs to the Natural Order Papaveraceæ. It has medicinal properties used for bronchitis, asthma, and croup. The roots contain a bright red or orange-coloured juice, hence the name Blood Root. The genus is monotypic, but Dillenius in *Hortus Ellhamensis* describes three varieties, and there is one named grandiflora, which is said to be finer than the ordinary form.

Sanguinaria canadensis thrives in a light, sandy loam or moist, peaty soil. The plant may be propagated by division and by seed. The accompanying illustration (see fig. 137) is from a photograph taken in the Botanic Garden, Cambridge, where the plant is growing on a small rockery in the bog garden. *R. Stewart Lynch.*

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

FLOWERS IN SOUTH-WESTERN SCOTLAND (see p. 227).—I think it is highly probable that the reason why the Snowdrop comes so much earlier with Sir Herbert Maxwell than it does with me is that the great majority of mine are exposed to the full blast of the south-east winds, from which, I should imagine, they are almost completely protected by their natural environment at Monreith. Galanthus Melvillei, to which Sir Herbert, in his interesting communication incidentally refers, came to my garden through the kindness of its raiser, Mr. D. Melville, from Dunrobin Castle, many years ago. For the first two or three seasons it was impressive in its dimensions, surpassing in size, and equalling in beauty, the finest forms of Galanthus Elwesii; but after developing into large clumps it gradually became smaller. Galanthus nivalis, so deservedly eulogised by Sir Herbert Maxwell, succeeds admirably here. At least three-fourths of my Snowdrops (planted by my predecessors) are double, and appear very late, by reason of the exposure to which I have referred. But such lovely flowers as the Crocus, Daffodil, Chionodoxa Luciliæ, C. L. gigantea, and Scilla sibirica, many of which have shelter, were considerably earlier than usual this year. As much may be asserted of the graceful Narcissus ornatus now adorning my lawn, especially in front of my study window, with hundreds of its charmingly-formed and richly-fragrant flowers. The blossoms of the Apple, of which the earliest is invariably the Irish Peach, have appeared at least a fortnight sooner than I ever remember having seen them before. Prunus Pissardii, notwithstanding occasional atmospheric adversity, is making a more strenuous attempt than in any former season to set its fruit (owing probably to a strong application of lime given to it in November last). There is at present a marvellous profusion of fruit blossom in the garden, caused primarily by the ripening of the flowering wood last year, especially on Denniston's Superb Gage, Early Rivers, Victoria and Czar Plums, and May Duke, Morello and Black Eagle Cherries, which, with the Damson and Myrobalan almost invariably bear abundantly here. The Almond is at present highly picturesque in aspect, with its wonderful luxuriance of pale-pink flowers. Anemone fulgens and the odorous A. apennina are already in exquisite bloom. *David R. Williamson, Kirkmaiden, Wigtonshire.*

POT STRAWBERRIES (see pp. 208, 227, 245).—When gardener at Hackwood Park, in 1869, I had a somewhat similar experience to Mr. West. The variety was Keen's Seedling, which was apt to throw blind plants even in the open garden. Our forcing stock was layered the year previous from fruitful plants, yet fully three-fourths of the stock never developed inflorescences and the remainder produced weak, short spikes. I remember discussing the matter on the spot with the late Mr. Wildsmith, then at Heckfield. The conclusion we came to was that, owing to the previous summer (1868) being very hot and dry, runners developed soon, and were potted in their fruiting pots early. With a view to obtaining strong plants, we gave them weak manure water in the autumn. This favoured too much vegetative growth, hence the plants were less productive. I can remember occasionally turning the plants out of their pots in the autumn to show neighbouring gardeners what grand balls of roots the plants possessed. After the failure we ceased to use Keen's Seedling for our main forcing variety, though runners from the same stock gave fruitful plants for that purpose in this country for some years afterwards. Your older readers will remember that the summer of 1868 was like that of 1911, a very hot, dry year, with an absence of night dews. *Yorkshire Gardener.*

———I was surprised to read Mr. C. H. Branson's note (see p. 245) attributing the failure of Royal Sovereign to the variety being worn

out. In justice to one of the best early Strawberries, I should like to state that my experience differs entirely from Mr. Branson's. I layered 1,200 plants of this variety during the third week of June, of which 500 were potted in 6-inch pots in the third week in July, the remainder being planted out in August. After potting, the plants were placed on an ash path in full sunshine, where they remained until the early part of November, when they were stored in cold frames and batches placed in heat as required for forcing. Each plant is carrying eight or nine good berries, and those planted out promise well. *Thos. Beeson, Headley Park Gardens, Epsom.*

———I have forced Strawberries in pots for many years, and have never had a failure with them. To be successful, the runners should never be obtained from "blind" plants, although these furnish the strongest layers. My practice has been to devote a bed specially for obtaining the runners, which are layered in small "60" pots, keeping them well supplied with water. As soon as the pots are well filled with roots, the runners may be severed from the parent plants. In the meantime, prepare a good heap of soil, obtained from an old pasture, and mix with it a little mortar rubble, say about one part in ten. Pot firmly, allowing sufficient room in the pot for watering. One crock at the bottom of the receptacle is sufficient for drainage purposes, placing a little rough soil over it to allow the water to pass away freely, sprinkling a little soot amongst the drainage to prevent worms from gaining an entrance. The best method of storing them during the winter is to place the pots on their sides in a layer of ashes, arranging successive layers in ashes until the heap is about 3 feet high. Stored in this manner, they will not occupy much space, whilst rains will not make the soil in a water-logged condition. *Thomas Godfrey, 25, Darley Road, Wandsworth Common, S.W.*

Birds and Fruit Buds.—In reply to Mr. Smith (see p. 265), I have been troubled in the same way with birds. and as he says the gun is the only remedy. Last year I removed some espalier Apple trees which were occupying valuable room. I planted them against a bare part of a north wall. They are now covered with blossom and promise to set a heavy crop of fruit. A simple but useful bird scare is to boil some Beetroot, pull the skins off and stick feathers around the roots; these scares make even the blackbird shiver. *W. A. M., Coolfin, Banagher, Ireland.*

Late Dessert Apples.—There are numerous varieties of late dessert Apples, but after Cox's Orange Pippin is finished at the end of February (this season it extended until the end of March), it is hard to tell which is the best-flavoured variety. I have always considered Adams's Pearmain to be well to the front, the fruits being at their best condition in March, and if my selection was restricted to three dessert Apples, I should choose James Grieve, Cox's Orange Pippin, and Adams's Pearmain. *J. G., Littlecote.* [Some excellent fruits of Adams's Pearmain and Newtown Pippin accompanied this note.—Eds.]

Border Phloxes (see p. 233).—The method of propagating the Phlox from cuttings and cultivating the plants with single stems has never caught on, probably because the decorative value of the plant, as compared with those with several stems, is not great. Some varieties may be increased by means of root cuttings, a method I have used to increase a new variety which was required in large numbers. It is also possible to increase them by means of eyes, by cutting the flowering stems into short lengths, and treating them in the same manner as other herbaceous plants that bear propagating in a like manner. But, for ordinary decorative purposes, division is the simplest method of propagation, and gives equally good results in a shorter time than any other method of increase. The modern Phlox is of less decorative value than those grown previous to the advent of Eclaireur, which, if I am not mistaken, was the forerunner of the sorts now common. Of still less value are the dwarf varieties, and if we would obtain a really valuable type, hybridists must go back and breed from the old paniculata, or, better still, p. alba. Mr. Forbes, of Hawick, informs me there is yet another variety of this Phlox, but, so far, I have not seen it, nor do I know where it is to be obtained. I grow a large number of the white form, and consider it to be one of the foremost decorative hardy plants. It is tall (a desirable quality in a Phlox), stately, free flowering, and, when well grown and properly arranged, always attracts attention. The name shows that the inflorescence is paniculate, and, in that respect, it is the superior of the squat-headed habit of the modern varieties. *R. P. Brotherston, Tyninghame Gardens.*

Abnormal Development of Cones on Young Larch.—Several notes on the effect of the dry summer of 1911 upon trees have appeared in the *Gardeners' Chronicle* during the past few weeks, but these have chiefly related to the fatal or injurious effect of the drought upon comparatively old trees in England, where the conditions as regards heat and deficiency in the rainfall were quite abnormal. In Ireland, drought, in the strict sense of the word, scarcely occurred at any time. At Avondale, Co. Wicklow, with an average rainfall of about 40 inches, the following were the records during the six months—May to October:—

	Rainfall.	Rainy days.
May	1.45 inches	... 7
June	2.13 ,,	... 12
July	2.84 ,,	... 12
August ...	2.56 ,,	... 14
September ...	3.13 ,,	... 13
October ...	5.67 ,,	... 19

With the exception of May, not one of the months I have mentioned showed a marked deficiency in either rainfall of rainy days, and the growth of trees in general was not affected to any appreciable extent, although a severe night frost on June 15 did great damage to tender species in frosty hollows. This spring, however, young Larch plantations, planted chiefly in the years 1905-8, are showing an extraordinary development of cones, and many trees, seen from a distance of 50 yards or so, present quite a crimson hue. But some trees again are practically free from cones, whilst those in plantations 20 years of age and upwards in the neighbourhood do not appear to be carrying a larger cone crop than is usual in a good seed year. The extent of this abnormal development of cones may be judged from the following examples, none of which exhibits a stunted or starved condition, as is usually the case when young trees produce a large quantity of fruit.

	Total height.	Length of leading shoot.	Number of Cones.
1.	4 feet 6 inches	... 7 inches	... 280
2.	5 ,, 6 ,,	... 8 ,,	... 268
3.	7 ,, 0 ,,	... 17 ,,	... 550
4.	7 ,, 6 ,,	... 15 ,,	... 902
5.	6 ,, 8 ,,	... 20 ,,	... 317
6.	6 ,, 9 ,,	... 22 ,,	... 253
7.	5 ,, 6 ,,	... 13 ,,	... 194

All the above, together with hundreds of other trees in a similar condition, are growing on deep, fairly fresh loam, overlying schist, the surface between the trees being more or less grass-covered. Probably the grass appropriated most of the moisture, and little or none reached the stratum in which the tree roots were growing. *A. C. Forbes.*

Daphne indica (see p. 245).—I was much interested in Mr. Fitzherbert's remarks on Daphne indica. I have not seen the plant growing in the open, but in a garden where I was employed some five years ago we had plants of D. indica and its variety rubra growing in narrow borders on both sides of a cool, narrow, span-roofed house, or corridor, where it was thickly trained to wires covering the sides up to the roof. We also had a large batch of plants in 5-inch and 6-inch pots. These grew and flowered well, but the planted-out specimens were remarkably free-flowering and free of growth. The fragrance of the flowers of both plants is very pleasing. All the plants were on their own roots, and had been grown from cuttings. If grown in a mixture of sand, peat and loam, watered carefully, afforded occasional weak applications of liquid cow-manure, sprayed lightly during their period of growth, and kept as cool as possible, shading them from bright sunshine, the plants will thrive and flower freely throughout the winter and spring. *H. Strudwick, Raynham Hall Gardens, Norfolk.*

Rogue Wallflowers.—It is customary to pull these up and throw them away; but the following will show that they have an unexpected value. The peculiarity of the flowers is well known, and described by the late Dr. M. T. Masters in his work on *Teratology*. He has figured it under the name of Cheiranthus Cheiri var. gynantherus (p. 306, fig. 163, 164). There is a calyx, but no, or very rudimentary, corolla, and the six stamens are represented by carpels, open or closed, but more or less coherent. Then there is a normal, central pistil as well. A rogue happened to appear in my garden in Leamington. I pollinated half of it with grains taken from a golden-yellow sort. The other half received the pollen from a crimson variety. All the pods set seed, but not in great abundance. Most came from the central pod, but a smaller quantity was formed by the staminate carpels. Mr. Wright kindly undertook to raise plants at the R.H.S. gardens at Wisley. Not a single rogue appeared, but, on the contrary, they were most floriferous, bearing extra fine flowers; some of them are 1½ inches across; the yellow ones being "pinked" on the margins. A few of the reds were striped with yellow. Mr. A. Sutton informs us that he finds this is the case after a cold north-east wind. Mr. Chittenden corroborated this observation. *George Henslow.*

Magnolia salicifolia (see p. 222).—I enclose a flower from a small plant of Magnolia salicifolia which is flowering here. The plant is only slightly sheltered, and is growing against the wall of the house. *Thos. L. Bailey, Mendell Gardens, Bromborough, Cheshire.*

Frost and the Fruit Crops.—It would be very interesting to learn from readers in different parts of the country the extreme of frost recorded by them in the week before last, and the result in damage to different kinds of fruit. On my own farm, near the south coast, and only about five miles from the sea as the crow flies, no more than 4° of frost were registered on the night of April 11, the coldest April night here. This was sufficient to destroy almost entirely the blossoms on a few trees of Coe's Golden Drop Plum in a low and sheltered corner of a field. Or possibly the freezing was more severe in that corner than on about the same level where the lower of two registering thermometers was placed. There was no certain injury to other Plums in the same field, even on an equally low level, though several varieties were in full blossom at the time. This field faces the south-east. In another field facing north-west, Victoria Plum blossom was thinned severely, not being protected by foliage, and Early Prolific blossom was cut in the lower part of the field, but not in the upper half. Monarch, Czar, and Pond's Seedling were not injured. Coe's Golden Drop and Greengage on a higher level, where the frost did not exceed 3°, were not injured; nor were Pears, Cherries or Gooseberries in the same home orchard, though a little damage was done to Red Currants. Black Currants were not harmed, except a few of the smallest blossom buds (none expanded at the time) in a low and sheltered corner of one field. Early Potatos, Peas, Lettuces, and other vegetables and flowers were uninjured. *William E. Bear, Hailsham.*

Obituary.

Mr. Jonathan Smith, market gardener, Sipson, Middlesex, died on the 20th inst. at his residence, Wall Garden Cottage, Sipson, in the 78th year of his age. Members of Mr. Smith's family have, for generations, been engaged in the farming and market gardening industry, and it is stated that deceased's father, who held a farm at Harmondsworth, was the first to send washed Turnips to Covent Garden Market.

SCHEDULE RECEIVED.

Dulwich Chrysanthemum Horticultural Society.—The seventh summer show of this society will be held on Thursday, July 18, at St. Barnabas Parish Hall, Dulwich Village. The Chrysanthemum show will be held on November 6 and 7, at the Baths, Goose Green. Two challenge shields are offered for competition—one in the professionals' and one in the amateurs' classes, and will be awarded to the competitors winning the greatest value in prizes in these sections at the summer and autumn shows combined.

PRIMULA WATTII.

PLANTS of this beautiful species of Primula have been raised in the Royal Botanic Garden, Edinburgh, from seed obtained by Mr. W. W. Smith, who collected the plant in July-August, 1910, in the limited area of its distribution in the Chola Range, Eastern Sikkim. It is there found on banks and ridges in profusion in a few places, but rare in other localities. The plant flowers in its native home from mid-July to the beginning of August. It grows in very wet conditions, with rain or heavy mist prevailing during every day of the flowering season. The seed was sent to Edinburgh from the Royal Botanic Garden, Calcutta, in 1911, and the plants at Edinburgh are probably the first to flower in Europe.

The foliage is of a translucent green softened by a covering of hairs. From the rosette rises a bronze-tinted scape ending in a cluster of drooping purple flowers surmounted by a bronze cap of unopened buds. The wide-mouthed, bell-shaped corollas have a broad eye of white meal, which is not visible unless the flower is seen from below.

The plant is a typical member of the Soldanelloid section of Primula which includes P. Reidii and P. uniflora; both these species are also in flower now at Edinburgh Botanic Gardens. The plant has been grown in a cold frame; coming from an altitude of 12-000-13.000 feet. The species may prove hardy, but the soft, hairy foliage suggests that, like P. Reidii, it may be too sensitive to the dampness of our winters during its resting period. This species was shown at a recent meeting of the R.H.S. by Messrs. R. Gill & Son, with the provisional name P. Gillii (see *Gardeners' Chronicle*, April 6, 1912, p. 227).

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

APRIL 16.—*Present:* Mr. E. A. Bowles, M.A., F.L.S. (in the Chair); Rev. Canon Fowler, Dr. A. B. Rendle, Professor G. Henslow, Messrs. A. Rolfe, W. E. Ledger, W. Hales, J. T. Bennett-Poë, A. W. Sutton, A. Worsley, J. Fraser, and J. F. Chittenden (hon. sec.).

Stachys palustris.—Mr. J. FRASER showed a specimen of the rhizome of this common British plant, and remarked on the similarity between it and the Chinese Stachys tuberifera, the rhizomes of which are edible.

Wallflowers (see also p. 285).—Professor G. HENSLOW showed a series of dark red and paler yellow Wallflowers which had been grown at Wisley from seed obtained by him in 1911 by crossing a virescent Wallflower with carpellary stamens with pollen from red and yellow plants respectively. No malformed flowers had appeared in this generation.

Tasmanian Orchids.—Mr. ODELL showed, on behalf of Mr. ANDREW KINGSMILL, an interesting series of coloured photographs of Tasmanian Orchids, representing the following terrestrial genera:—Pterostylis, Chiloglottis, Caladenia, Diuris, Calochilus, Dipodium, Glossodia and Diplarrhena.

Ranunculus Ficaria.—Mr. CHITTENDEN showed a semi-double form of Ranunculus Ficaria, having several series of strap-shaped petals green on the outside, as well as two or three whorls of stamens. It had appeared in the gardens at Wisley.

Carpentaria californica.—Mr. ODELL showed foliage of this plant spotted with numerous brown spots, owing to the attack of the fungus Cladosporium herbarum.

Lilium candidum diseased.—Mr. E. H. JENKINS sent leaves of Lilium candidum showing numerous æcidia of a Uromyces, which was referred to Mr. Chittenden for further examination.

Petrea volubilis (see fig. 139).—Rev. F. PAGE-ROBERTS sent a dried inflorescence of a climbing plant with blue flowers from Ceylon, which was recognised as the American Petrea volubilis, a plant which varies considerably in colour.

Bi-coloured Hyacinth.—Mr. W. B. GINGELL, of Dulwich Park, sent an inflorescence of a Hyacinth having one side red, the other blue, which was referred to Rev. Prof. Henslow for further examination.

Gooseberry, racemose form.—Mr. W. G. SMITH, of Dunstable, sent drawings illustrating flowers and fruit of a racemose form of Gooseberry, which had been referred to previously as a hybrid between the Gooseberry and the Black Currant on account of the thickly-produced clusters of very dark berries and their flavour, which was said to be intermediate between the Gooseberry and Black Currant. On careful examination of the flowers and fruit he had, however, been unable to find any trace of Black Currant. The plant appeared to be wholly Gooseberry with flowers and fruit borne in racemes of from two to five. He could detect no Black Currant flavour, although the taste was delicious and strong. No oil glands are present on any part of this new form, and the fruits are perfectly glabrous. The pollen is exactly that of the garden Gooseberry. It flowers three weeks in advance of the Black Currant. The merit of the plant lies in its great fruit-producing properties, as on a given length of branch it produces more fruit in weight than, probably,

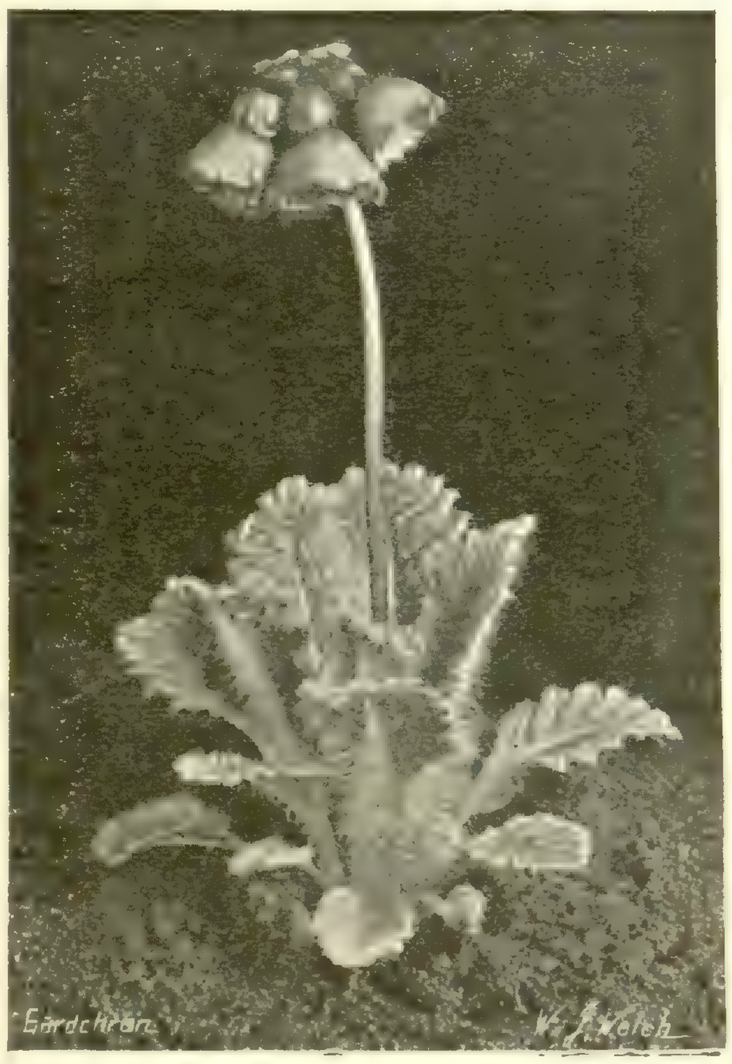


FIG. 138.—PRIMULA WATTII: FLOWERS WHITE.

(The plant is reproduced natural size.)

any other bush extant. The colour of the fruit when ripe is deep, almost black, maroon or dark mahogany, becoming black. The cuttings strike freely in any soil, many of last year's shoots being nearly a yard in length. Seeds planted by Mr. SMITH did not germinate. The plant originated as a seedling in a market-grower's garden in the South of England, where it was regarded as a variety more curious than useful.

HANTS. SPRING FLOWER SHOW.

APRIL 18.—The spring show of the above society, held on the above date, was excellent in every way, and at the same time extremely well attended by a large concourse of spectators. Although this year the season was much too advanced to suit Daffodils and other spring bulbs, the show was representative of Daffodil cultivation. Messrs. Barr's cup for 30 varieties was again won by J. CATOR, Esq., M.P., whose exhibit was well up to the standard of recent years. The varieties Van Waveren's Giant, King Alfred, and Mrs. J. Veitch were in great form; Alida and M. J. Berkeley, although old varieties, also looked well. A capital vase of Leedsii Duchess of Westminster was greatly liked, too, while the President's prize for the best vase in the show went to a vase of Red Beacon, shown also by this exhibitor. Mrs. SENIOR'S Tulips and Hyacinths were grand, indeed better plants would not be seen at any show, and her Lily of the Valley grown and shown in pots made one envy the success of her gardener, Mr. Davis.

Among trade exhibits Messrs. R. H. BATH, LTD., and CARTWRIGHT & GOODWIN had graceful stands; "Queen of Poets" being given an Award of Merit on the former's stand, whilst Messrs. CARTWRIGHT'S seedlings came in for much praise. That veteran nurseryman, Mr. G. W. MILLER, Wisbech, of "Red Victoria" fame, put up a lovely stand of Orchids, Odontoglossums, Oncidiums in variety, Cattleyas, Schröderæ, &c., in great form. A fine Cypripedium seedling of insigne type was given an Award of Merit, and was named after the president "Col. Duncombe."

ROYAL METEOROLOGICAL.

APRIL 17.—The monthly meeting of this society was held on this date at the Institution of Civil Engineers, Great George Street, Westminster, Dr. H. N. Dickson (president) in the chair.

The report on the phenological observations for 1911 was presented by Mr. J. E. Clark, B.A., and Mr. R. H. Hooker, M.A. The outstanding features of the weather during the year were the severe cold of early April; the summer of abnormal dryness, heat and sunshine; and the subsequent heavy rainfall. After referring to the flowering of plants, the appearance of insects and the song and migration of birds, the authors dealt with the yield of farm crops and showed that crops of Potatos and Wheat were above the average, but most of the other crops were below the average, especially Beans, roots, and hay. Throughout Great Britain harvest began generally a fortnight to three weeks earlier than usual, and the duration was very short, the result being that the termination of the harvest was fully a month earlier than the average.

ROYAL HORTICULTURAL SOCIETY OF IRELAND.

APRIL 17, 18.—The spring show of the Royal Horticultural Society of Ireland was held on these dates at Ball's Bridge. The entries were more numerous than on any previous occasion, and the exhibits staged by traders were exceptionally fine. Four challenge cups were offered, and there was keen competition.

The cup offered for nine pot Roses was won by Mr. H. S. GUINESS, Burton Hall; that offered for Alpines in flower by Mrs. GREET, Curragh Grange; the Tully Nurseries cup offered for a table of Alpine plants by Mrs. G. MITCHELL, Ardlui, Blackrock; and the cup presented by Lord Ardilaun for a collection of Narcissi in 50 varieties by Capt. R. G. O'CALLAGHAN.

Amongst the non-competitive exhibits, Messrs. BAKERS, Wolverhampton, exhibited a meritorious collection of hardy plants; Messrs. BROWETT showed a collection of flowering plants and Pansies (certificate and medal); and Sir GORE BOOTH, Lissadel, displayed a beautiful collection of Daffodils and hardy plants (Gold Medal).

HEREFORDSHIRE SPRING FLOWER.

APRIL 18.—The third exhibition of the Herefordshire Spring Flower Society was held in the Shire Hall, Hereford, on this date, the weather being beautifully fine.

Messrs. Barr & Sons' Cup, offered for 25 distinct varieties of Daffodils, was won by Miss PARR. In the open classes Mrs. DAVENPORT was awarded the 1st prize for a single bloom of a Magni-coronati variety, Mrs. W. H. Banks being placed 1st for a Medio and Parvi variety respectively. Mrs. H. J. BAILEY excelled in the class for a Polyanthus Narcissus, whilst Mrs. A. W. FOSTER won the challenge cup offered by Mrs. F. Mount for 12 varieties of Daffodils. The challenge cup offered by the Lord Lieutenant of Hereford for a collection of Daffodils grown in the county was won by Mr. W. H. BANKS, Kington. Mr. W. Henry Barneby's challenge cup, offered for a collection of hardy spring flowers, was won outright by Mr. W. H. BANKS, who also won Sir James Rankin's challenge cup offered for a collection of outdoor-flowering shrubs.

FIG. 139.—PETREA VOLUBILIS: FLOWERS PURPLE.

(See report of Scientific Committee of R.H.S.)

DEVON DAFFODIL AND SPRING FLOWER.

APRIL 18, 19.—The annual show of the above Society was held in the Guildhall, Plymouth, on these dates. Owing to the earliness of the season and the fact that most Daffodils were past their best condition, the show was much smaller than usual, but there were many exhibits of high quality, some of the Daffodils being very fine, while hardy, hard-wooded, flowering shrubs were remarkably good.

In the class for 24 varieties of Narcissi, the 1st prize was won by Miss IDA POPE with a good collection, including Sebastian, Estelle, Ruby Cup, Silene and Bernardino.

In the class for a group of Daffodil seedlings not yet in commerce, the 1st prize was won by Mr. T. BATSON, who also excelled in the classes for (a) nine trumpet Daffodils, having the varieties King Alfred, Cleopatra, Treasure Trove, Mme. de Graaff, (b) three Incomparabilis varieties with Gloria Mundi, Homespun, Princess Mary, (c) three Incomparabilis bicolor varieties with Chryseis, Will Scarlett and Consul, and (d) three Barrii varieties with Stonechat, Blood Orange and Glitter.

Miss POPE was placed 1st for (a) three Barrii bicolor varieties with Circlet, Firebrand, Cossack, (b) three Leedsii varieties with White Queen, White Lady, Elaine, and (c) a single bloom of an Incomparabilis variety with Victory.

For three blooms of a Poeticus variety the 1st prize was won by Hon. Mrs. COLBORNE with Cassandra, Comus, and Horace.

Mrs. SOLTAN-SYMONS showed the best single-bloom trumpet Daffodil with Mme de Graaff, the best single bloom of a Leedsii variety with White Lady, and the best Poeticus variety with Cassandra.

The finest single bloom of a Barrii variety was shown by Mr. H. G. HAWKER with Greeneye.

In the class for a collection of 12 varieties of hardy spring flowers, the 1st prize was awarded to Mr. H. W. GRIGG, who showed Trillium grandiflorum, Muscari Heavenly Blue, Fritillaria imperialis (red), F. imperialis (yellow), F. persica, F. Meleagris, Anemone Robinsoniana, Erythronium grandiflorum, Ranunculus asiaticus, Trillium erectum, Trollius citrinus, and Leucojum æstivum.

The 1st prize for three varieties of Carnations was won by Hon. Mrs. TREMAYNE with Enchantress, Carola, and Mrs. T. W. Lawson.

The best group of Rhododendrons was staged by Mr. J. C. WILLIAMS, whilst the Earl of MORLEY showed the finest truss of Rhododendron bloom. Camellias were also shown best by the Earl of MORLEY.

The 1st prize for 15 varieties of hard-wooded flowering shrubs was awarded to Mr. T. B. BOLITHO, who showed Grevillea sulphurea, G. ornithopoda, Clianthus puniceus, C. puniceus albus, Ribes aureum, Corokia Cotoneaster, Acacia diffusa, A. cultriformis, Cydonia Maulei, Correa bicolor, Jasminum primulinum, Pyrus Malus floribunda, Cytisus præcox, Prunus sinensis-alba flore pleno and Viburnum rugosum.

Mr. H. W. GRIGG excelled in the class for six varieties of hard-wooded flowering shrubs.

The best collection of nine varieties of hardy spring flowers was shown by Mrs. A. FROUDE with Primrose Pompadour, Iris Susiana, I. tingitana, Epimedium niveum, Tulipa Greigii, T. strangulata picta, Caltha platypetala, Anemone pulsatilla, and Fritillaria Meleagris.

NON-COMPETITIVE EXHIBITS.

Mr. W. A. WATTS showed, not for competition, good Daffodil seedlings in Red Beacon with white perianth and flat, orange-scarlet cup; Tinsel with white perianth and yellow eye, edged with orange; White Rose, white, double-flowered with a deep cup and verdant green, perianth white stained with green and green eye.

The DEVON ROSERY, Torquay, showed a fine collection of pot Roses in full bloom, also a charming selection of Tulips, Gladiolus tristis, and a splendid plant of Petrea volubilis in full bloom (see fig. 139), and a collection of 15 dishes of cooking and dessert Apples.

Messrs. ROBERT VEITCH & SON, Exeter, had a very interesting stand containing a good selection of rock plants, among which were Androsace Chumbyi, Daphne neapolitanum, Phlox stellaria, Silene saxatilis, Houstonia serpyllifolia, Stylophorum diphyllum and Androsace primuloides.

Messrs. BARR & SONS staged a fine collection of Daffodils, including Agnes Harvey, Cloth of Gold, Undine, Ibis, Buttercup, Sir Lancelot, Occident, and Steadfast.

Messrs. H. B. MAY & SONS, Upper Edmonton, staged a fine exhibit of Ferns and Clematis.

A First-class certificate was awarded to Mr. W. A. WATTS for Narcissus White Rose, and Awards of Merit to Mr. H. W. GRIGG for Viburnum Carlesii, and to Mr. CORY for Cineraria stellata.

NORTH OF SCOTLAND HORTICULTURAL AND ARBORICULTURAL.

THE resuscitation of this old north-eastern association, after a period of inactivity lasting for a quarter of a century, has proved an unqualified success. The session just closed, from November, 1911, to April, 1912, has been notable for the many able papers submitted, and the good attendances at the meetings. Dr. James W. H. Trail, professor of botany in the University of Aberdeen, not only opened the literary part of the session with an admirable paper, but has throughout the session placed the botany classroom of the University at the disposal of the association for all the meetings. The subjects dealt with during the session included: "How to Obtain Improved Races of Cultivated Plants" (Dr. Trail), "Vegetables and Fruits: Their Dietetic Value," "The Sweet Pea," "Meteorological Lessons," "The Carnation," "Garden Cities," "Cottage Gardening," and "Hardy Spring Flowers." Mr. John McKinnon, Haddo House Gardens (president), Mr. A. Robson, seedsman, Aberdeen (vice-president), Mr. William Reid, 8, Hadden Street, Aberdeen (secretary), and Mr. William Wyllie, 18, Market Street, Aberdeen (treasurer), have been most assiduous in their labours. At the closing meeting, Mr. Joseph Sangster, Lissadell Gardens, Sligo, Ireland, contributed a paper on "Hardy Spring Flowers," in the course of which he dealt with the climate of the north of Scotland, and its suitability for the cultivation of spring flowers.

On the motion of Mr. C. S. France, it was remitted to a committee to consider the question of a summer excursion or excursions to gardens in the vicinity of Aberdeen. Mr. France also moved that a committee be appointed to consider the advisability of promoting a show of spring flowers in the spring of 1913, and to report to the annual meeting of the association in September.

GARDENING APPOINTMENTS.

[*Correspondents are requested to write the names of persons and places as legibly as possible. No charge is made for these announcements, but if a small contribution is sent, to be placed in our collecting Box for the Gardeners' Orphan Fund, it will be thankfully received, and an acknowledgment made in these columns.*]

Mr. WILLIAM BARRETT as Gardener to J. D. CROSBIE, Esq., Ballyheigue Castle, Ballyheigue, Co. Kerry. (Thanks for 1s. received for R.G.O.F. box.—EDS.)

MR. GEO. MORTON COSH, for the past 3½ years Gardener for the Horticultural Department, Cornell University, Ithaca, New York; and late of the Royal Botanic Gardens, Edinburgh and Portmore, Peebles-shire, as Manager for the Brazos Floral and Nursery Company, Houston, Texas. (Thanks for 10s., which has been placed in the R.G.O.F. box.—EDS.)

Mr. H. J. SALLOWAY, for the past 4 years Foreman at Closes Hall Gardens, Gisburn, Yorkshire, and previously Foreman at Oulton Park, Cheshire, as Gardener to the COUNTESS OF CARDIGAN.

Mr. F. H. BENEY, for the past 21 years Gardener to the late Lady MARY CURRIE, Clewer Hill House, Windsor, as Gardener to Her Grace, the Dowager Duchess of SUTHERLAND, The Willows, near Windsor.

Mr. M. YOUNG, of the Royal Botanic Garden, Edinburgh, as Assistant in the Cotton Plantations at Chinde, East Africa. (Thanks for 1s. for the R.G.O.F. box—EDS.)

CATALOGUES RECEIVED.

JAMES STREDWICK & SON, Silverhill Park, St. Leonards-on Sea—New Dahlias and Chrysanthemums.

COLONIAL.

C. A. NOBELIUS, Gembrook Nurseries, Emerald, Victoria, Australia—Fruit, Deciduous and Ornamental Trees.

FOREIGN.

JAC. SMITS, Haarden, Holland (London agents, G. M. Yates, 84, Mincing Lane, London)—Nursery Stock (wholesale).

THE WEATHER.

THE FOLLOWING SUMMARY RECORD of the weather throughout the British Islands, for the week ending April 20, is furnished from the Meteorological Office:—

GENERAL OBSERVATIONS.

The *weather*.—Over the United Kingdom generally the conditions were dry and bright, but heavy falls of rain occurred in a few Irish localities on Saturday. A thunderstorm was experienced at Canterbury on the 18th.

The *temperature* was above the average, the excess amounting to less than 2° in England E., S.E., and S.W., but to 4° in Ireland N., and to about 5° in Scotland N. and E. The highest of the maxima were recorded on rather variable dates, as a rule towards the end of the week. The values ranged from 71° in the Midland Counties and 70° in England E. and N.E. to 63° in Ireland N., and to 62° in Scotland W. The lowest of the minima, which occurred on the 17th or 18th in most localities, ranged from 27° in England S.E. and S.W. to 36° in Ireland N. and to 41° in the English Channel. The lowest grass readings reported were 20° at Birmingham, 21° at Rauceby and Wisley, and 22° at Greenwich and Llangammarch Wells. The earth thermometer showed that in comparison with the average there was a slight excess of warmth, both at the depth of 1 foot and 4 feet.

The *rainfall*.—In nearly all parts of England and a large portion of Scotland there was no rain, but a considerable quantity was experienced in Ireland on Friday or Saturday. At Killarney as much as 1·3 inch fell on the 20th. At Canterbury a thunderstorm on the 18th yielded 0·4 inch of rain.

THE WEATHER IN WEST HERTS.

Week ending April 24.

A remarkably sunny week.—The days of the past week were all warm, and the last five of them exceptionally so for the time of year. On the warmest day the temperature in the thermometer screen rose to 71°, or 15° higher than the average maximum reading for the same period in April. In the last 26 years there have been only four other Aprils in which such a high temperature as this has been experienced. With two exceptions the nights were rather cold, and on the coldest night the exposed thermometer registered 9° of frost. The difference between the highest and lowest temperatures in the thermometer screen was unusually large—on five days exceeding 30°, and on one of those days amounting to 35°. The ground became steadily warmer during the week, and is now 4° warmer at 1 feet deep, and 6° warmer at 1 foot deep, than is seasonable. No rain at all has fallen for a fortnight, and less than a tenth of an inch since the month began. The percolation through both soil gauges has now ceased for over a fortnight. The sun shone on an average for 10¼ hours a day, or for more than twice the average duration for the third week in April. On one day the sun was shining brightly for 13 hours, making this, with two exceptions, the sunniest April day during the past 26 years. This was a calm week, in fact, on only the last day did the average rate of movement reach four miles an hour. The direction of the air currents has been very variable, but during the past four days has been almost exclusively from some easterly point of the compass. The mean amount of moisture in the air at 3 p.m. fell short of a seasonable quantity for that hour by as much as 21 per cent. On three days the difference between the readings of an ordinary thermometer and one with its bulb kept constantly moist amounted at 3 p.m. to respectively 16°, 17° and 15°. On each of those days the air was drier at that hour than in any April during the previous 26 years. A tree of Blenheim Pippin Apple growing in my garden came first into blossom on the 22nd inst., or 14 days earlier than its average date of first flowering in the previous 26 years, and with two exceptions earlier than in any of those years. *E. M., Berkhamsted, April 24, 1912.*

DEBATING SOCIETIES.

WATFORD HORTICULTURAL.—The April meeting of this society was held on the 12th inst., when Mr. Dancer read papers on "Kitchen Garden Notes"; and the "Hardening of Plants."

BATH GARDENERS'.—The monthly meeting of this association took place on April 22, Mr. T. Parrott presiding. Mr. Rich delivered a paper on "Hardy Flowers." At the conclusion of the lecture many questions were asked, and a good discussion followed.

READING GARDENERS'.—The final meeting of the present session took place on Monday, the 15th inst., when the president occupied the chair; there was a good attendance of members. Mr. T. J. Powell, of the Gardens, Park Place, Henley, gave a "Practical Demonstration in Artistic Floral Work." Mr. Powell gave examples of the different methods to be adopted in the display of cut flowers, first in a vase, afterwards in a bowl. Mr. Powell gave two examples of the way in which a dinner-table should be decorated. Members contributed flowers for the inmates of the Royal Berkshire Hospital and Reading Union. A collection taken on behalf of the funds of the hospital amounted to £2 10s

CROYDON & DISTRICT HORTICULTURAL.—At the meeting held on the 16th inst., the culture of Sweet Peas for exhibition was the subject of a paper read by Mr. Thomas Stevenson, Woburn Place Gardens, Addlestone. Mr. Stevenson advised the preparation of the soil in the winter months by trenching the ground three spits deep, and if rows are wanted the trench should be opened 5 feet to 6 feet in width. In cold soil the subsoil should be left at the bottom and have incorporated with it fresh cow manure and leaf soil. The surface should be allowed to remain in a rough state during the winter. A little bonemeal and superphosphate may be added with beneficial results to the plants. Mr. Stevenson said that autumn-sown seeds give the best results. He has found that autumn-raised plants are almost immune from disease, especially streak disease.

WARGRAVE AND DISTRICT GARDENERS'.—The last meeting of the session took place on Wednesday evening, April 17, and there was a good attendance of members. The subject for the evening was "Chrysanthemums," and Mr. C. Foster, of Parkwood Gardens, Henley-on-Thames, dealt with it in a very practical way. He referred to exhibition plants, bush plants and outdoor plants, giving directions for their successful culture.

MARKETS.

COVENT GARDEN, April 24.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—Eds.]

Cut Flowers, &c.: Average Wholesale Prices.

	s.d.	s.d.
Anemones St. Bridgid, per dozen bunches:		
— all colours ...	2 0	2 6
Arums (Richardias)	1 6	2 0
Camellias, per box of 18's and 24's	1 6	2 0
Carnations, p. doz. blooms, best American var.	1 6	1 9
— smaller, per doz. bunches	10 0	15 0
— Carola, crimson, extra large	2 6	3 0
— Malmaisons, p. doz. blooms ...	10 0	15 0
Eucharis, per doz.	2 0	2 6
Gardenias, per box of 15 and 18 blooms.... ...	1 6	3 0
Gladiolus Blushing Bride, per doz. bunches ...	9 0	10 0
— Peach Blossom	10 0	12 0
Gypsophila, p. dz. bunches:		
— white	3 0	4 0
— pink	3 0	4 0
Iris (Spanish), per doz. bunches:		
— white, mauve, yellow and blue	8 0	12 0
Lilac, per bunch white	2 6	3 0
— mauve	3 0	3 6
Lilium auratum, per bunch ...	4 0	5 0
— candidum, per doz., long ...	1 6	1 9
— — short ...	0 9	1 0
— longiflorum, per doz., long	2 0	2 6
— — short ...	1 6	2 0
— lancifolium alba, long ...	2 0	2 6
— — short ...	1 6	2 0
— speciosum rubrum, per doz., long	1 9	2 0
— — short ...	0 9	1 0
Lily of the Valley, p. dz. bunches:		
— extra special ...	15 0	18 0
— special... ...	10 0	12 0
— ordinary ...	8 0	—
Marguerite, per doz. bunches:		
— Yellow... ...	1 6	2 0
Myosotis (Forget-me-not), p. dz. bunches ...	3 0	4 0
Narcissus, per doz. bunches:		
— Grandee ...	2 0	2 6
— Poeticus ...	1 6	2 0
Orchids, Cattleya, per doz. ...	12 0	—
— Odontoglossum crispum ...	3 0	4 0
Pelargoniums, p. dz. bunches	4 0	5 0
— Double Scarlet	4 0	6 0
Roses, 12 blooms,		
— Bridesmaid,	1 0	1 6
— C. Mermet ...	1 0	1 6
— Frau Karl Druschki ...	1 6	2 6
— General Jacqueminot ...	1 0	1 3
— Liberty ...	2 0	4 0
— Madame A. Chateney ...	1 6	3 0
— Niphetos ...	1 0	1 6
— Richmond ...	1 0	2 6
— Sunrise ...	1 0	1 6
— President Carnot	1 6	2 6
— Lady Roberts	1 0	1 6
— Lady Hillingdon	1 0	1 6
— Franz Deegan	1 0	1 6
— Kaiserine ...	1 0	2 0
Spiræa (Astilbe) japonica, per. doz. bunches	4 0	5 0
Sweet Peas, pr. dz. bunches:		
— white	1 6	2 0
— coloured ...	4 0	6 0
Stephanotis (72 pips)	2 0	2 6
Tulips, per bunch:		
— white	6 0	8 0
— Darwin, all shades, per bunch	0 9	1 0
Violets, p. dz. bchs.	1 3	2 0
— Princess of Wales, per doz. bunches ...	3 0	4 0
— Parma	2 0	2 6
Wallflowers, per dozen bunches	1 6	2 0

Cut Foliage, &c.: Average Wholesale Prices.

	s.d.	s.d.
Adiantum Fern (Maidenhair), best, dz. bnchs.	6 0	7 0
Agrostis (Fairy Grass), per dz. bunches ...	2 0	4 0
Asparagus plumosus, long trails, pr. ½ doz.	1 6	2 0
— medium, doz. bunches ...	12 0	18 0
— Sprengeri ...	10 0	12 0
Carnation foliage, doz. bunches...	4 0	—
Croton foliage, various, per dozen bunches ...	12 0	15 0
Cycas leaves, artificial, per doz.	3 0	12 0
Eulalia japonica, per bunch ...	1 0	1 6
Moss, per gross ...	6 0	—
Myrtle, dz. bchs. (English), small-leaved...	6 0	—
— French ...	1 0	—
Smilax, per bunch of 6 trails ...	1 6	—

Plants in Pots, &c.: Average Wholesale Prices.

	s.d.	s.d.
Acacia lineata, 48's, per dozen ...	18 0	21 0
Aralia Sieboldii, p. dozen	6 0	7 0
Araucaria excelsa, per dozen ...	18 0	21 0
Asparagus plumosus nanus, p.dz.	10 0	12 0
— Sprengeri ...	8 0	9 0
Aspidistra, p. dz., green	21 0	30 0
— variegated ...	30 0	60 0
Azaleas, per doz.	36 0	42 0
Boronia megastigma, 48's, p. dz.	21 0	24 0
Cinerarias, pr. dz.	8 0	9 0
Cocos Weddeliana, per dozen:		
— 60's	6 0	12 0
— larger, each ...	2 6	10 6
Croton, per dozen	18 0	30 0
Cyperus alternifolius, per doz.	5 0	6 0
— laxus, per doz.	4 0	5 0
Dracæna, green, per dozen ...	10 0	12 0
Ericas, per dozen:		
— Willmorei, 48's	15 0	18 0
— persoluta ...	27 0	30 0
Ferns, in thumbs, per 100... ...	8 0	12 0
Ferns, in small and large 60's ...	12 0	20 0
— in 48's, doz. ...	6 0	—
— choicer, sorts per doz. ...	8 0	12 0
— in 32's, per dozen	10 0	18 0
Ficus elastica, per dozen	9 0	12 0
Genistas, 48's, per doz.	10 0	12 0
Geonoma gracilis, 60's, per dozen	6 0	8 0
— larger, each ...	2 6	7 6
Hydrangeas, white, 48's, per dozen	18 0	21 0
Kentia Belmoreana, per dozen	5 0	42 0
— Fosteriana, 60's, per dozen	4 0	6 0
— larger, per doz.	18 0	60 0
Latania borbonica, per dozen ...	12 0	30 0
Lilium longiflorum, per dozen	20 0	24 0
— lancifolium rubrum in pots, per dozen ...	15 0	18 0
— lancifolium alba	15 0	18 0

Plants in Pots, &c.: Average Wholesale Prices *(Contd.)*.

	s.d.	s.d.
Marguerites, white, per dozen ...	8 0	10 0
Mignonette, 48's, per dozen ...	6 0	8 0
Pandanus Veitchii, per dozen ...	36 0	48 0
Phœnix rupicola, each	2 6	21 0
Spiræa japonica, per dozen pots	10 0	12 0
— Pink	10 0	12 0

Fruit: Average Wholesale Prices.

	s.d.	s.d.
Apples, Nova Scotian, per barrel	17 0	22 0
— Californian Newtowns, pr. case	4 0	7 0
— (Canadian), per barrel	20 0	—
— Oregon (Hood River), per case	16 0	18 6
— American, per barrel	20 0	32 0
— Australian per case	7 0	12 0
Bananas, bunch:		
— Doubles ...	10 0	12 0
— No. 1	8 0	10 0
— Extra	10 0	12 0
— Giant	14 0	18 0
— Loose, per dozen	0 6	1 0
— Red coloured...	5 6	6 6
— Jamaica Giants, per ton ...	£10	£12
— Jamaica Ordinary, per box (9 doz.) ...	4 0	5 0
Cranberries, per case (30 qts.)...	10 0	11 0
— Cape Cod, per case (30 quarts)	9 6	—
Dates (Tunis) doz. boxes	4 6	5 6
Figs, Guernsey, pr. doz.	6 0	24 0
Grape Fruit, case: — 96's ... ... — 80's ... ... — 64's ... ... — 54's	14 0	20 0
Grapes, Australian, per case ...	10 0	20 0
— English (new) per lb.... ...	4 0	5 0
— Muscats ...	15 0	20 0
— Almeria, per barrel	11 6	15 6
Per dozen lbs.	4 0	6 0
— (Cape) per case	3 0	10 0
— ,, White...	2 6	10 0
— ,, Red ...	3 0	6 0
Lemons:		
— (Naples), case	26 0	30 0
— Messina, p. case	7 6	17 0
Limes, per case ...	4 0	—
Mangoes, per doz.	6 0	10 0
Melons (Cape) ...	0 10	1 6
— (English) ...	3 0	5 0
Nuts, Almonds, per bag	52 6	—
Spanish, p sack	40 0	42 0
— Barcelona, bag	35 6	36 6
Nuts, Chestnuts, per bag ...	3 6	19 0
— Cocoanuts, 100	18 0	23 0
— English Cobs per lb.... ...	0 3	—
— Walnuts (Naples) kiln dried, cwt. cases	54 0	—
Oranges, Jamaica per case ...	9 0	10 0
— Californian ...	15 0	16 0
— Denia, case ...	16 0	34 0
— Valencia ...	10 0	12 0
— Jaffa, per case	9 6	—
— Blood, per case	8 0	9 0
— Mandarins, per box ...	0 6	3 6
— Bitter, per ½ chest	16 0	18 6
— Seville Sour ½ chest ...	15 0	18 0
Peaches (Belgian), per dozen ...	24 0	48 0
— English, dozen	36 0	48 0
Pears (Californian), p. bdle, 3 boxes per case:	12 0	15 0
— Glou Morceau	5 0	6 0
— (Australian) ...	4 0	6 6
— Winter Nelis	3 6	4 6
— (American) per barrel, 180 lbs.	25 0	26 0
— cases	7 0	—
— (Cape)	3 6	4 6
Pineapples, St. Michael ...	3 0	4 6
Pines (Cape), each	0 6	0 9
Strawberries, p. lb.:		
— A quality ...	2 0	4 0
— B quality ...	1 0	1 6

Vegetables: Average Wholesale Prices.

	s.d.	s.d.
Artichokes (Globe), per dozen ...	2 0	2 6
Asparagus —		
— Toulouse ...	1 3	1 6
— Montauban ...	2 3	2 6
— Dijon	1 0	—
— Lauris ...	1 6	2 6
— (English) bndl.		
— Cambridge ...	0 7	1 6
— Worcester ...	1 3	2 6
Beans, Guernsey Dwarf, per lb.	0 8	1 0
— French, per packet, lb. ...	0 8	—
Beetroot, p. bshl.:		
— Long	2 6	3 0
Broccoli, sprouting, per bag ...	6 0	—
Celeriac, per doz.	2 6	3 0
Cabbages (French) per dozen ...	1 6	2 6
— Cornish, p. dz.	2 6	3 0
— Evesham, pots	5 0	5 6
Cauliflowers, per dozen	3 0	4 0
— (Cornish), per crate	12 0	15 0
Celery, doz. bndls.	10 0	14 0
— (washed), per dozen bundles	12 0	—
Carrots (English), pr. doz. bun....	4 0	—
— per cwt. ...	7 0	—
— (washed) p. bag	8 0	10 0
Chicory, per lb. ...	0 4	—
Cucumbers, p. doz.	2 0	2 6
Endive, per dozen	2 0	—
Greens (Spring), p. bag	6 0	7 0
Herbs (sweet), pkts., p. gross	7 0	—
Horseradish, 12 bundles ...	10 0	14 0
Leeks, per doz. ...	2 6	3 0
Lettuce (French), per doz. ...	1 3	1 6
Mint, per dozen bunches ...	2 0	3 0
Mushrooms, cultivated, p. lb. ...	0 8	0 10
Mustard and Cress, per dozen punnets ...	1 0	—
Marrows, each ...	4 0	12 0
Onions, (Spanish), per case ...	10 0	11 0
— Egyptian ...	6 0	7 0
Parsley, ½ sieve ...	1 6	2 6
— per doz. bun.	3 0	4 0
Parsnips, per bag	7 0	—
Peas (French) per pad	5 0	6 0
— (Guernsey), lb.	0 6	1 0
Radishes (English), per dozen ...	0 9	1 0
— (French) p. dz.	0 9	1 0
— (Jersey) long...	0 4	0 6
Rhubarb, forced, per 12 bundles	0 6	0 7
— Outdoor, p. dz	2 0	2 3
Spinach, pr. bshl.	3 6	4 0
Seakale, p. punnet	0 10	1 0
— ½ bushel ...	1 6	2 0
Tomatos (Canary Islands), per bundle... ...	12 0	16 0
— Guernsey, lb.	1 0	—
— English, lb. ...	1 0	—
Turnips (English), per dz. bunches	4 0	5 0
Watercress, p. dz. bunches ...	0 4	0 6

Remarks.—There is a good supply of Grapes for this early period of the year, of the variety Black Hamburgh, from English and Channel Islands growers. The fruits are meeting with a brisk demand. It is anticipated that Muscat varieties will be obtainable next week. Green Figs and Melons are arriving in good condition and in larger quantities. Morning-gathered hothouse Strawberries are now a full supply; the condition and colour are excellent, but there is not a brisk demand up to the present time. Heavy supplies of Asparagus are received daily from Toulouse, Lauris, Montauban and other Continental districts. Asparagus in large quantities is also arriving from Evesham and Cambridge daily, and the plentiful supply is expected to continue during the present fine weather. Consignments of Cape fruits are to hand this week per s.s. "Balmoral Castle," totalling about 10,000 cases, the bulk consisting of Grapes. Arrivals of Bananas, Potatos and Tomatos from the Canary Islands per s.s. "Alnwick Castle" and "Star of Scotland" amounted to 12,000 packages. Produce from the Channel Islands is fairly plentiful. A consignment of Tasmanian and Western Australian Apples and Pears—the latter including the following varieties, Beurré Clairgeau, Beurré Bosc, Beurré Capiaumont, Beurré Diel and Marie Louise—has arrived per s.s. "Palermo," the estimated number of boxes being 55,000. English and Channel Islands Tomatos are available in larger quantities. Teneriffe Tomatos are plentiful, but there is a considerable falling off in their demand. A few English-grown Peaches have been received, the fruits realising from 36s. to 48s. per dozen. There is a remarkable shortage in all kinds of vegetables and prices are high all round.—*E. H. R., Covent Garden, April 24, 1912.*

Potatos.

	per cwt. s.d.	s.d.		per cwt. s.d.	s.d.
Kents—			**Lincolns—**		
Queen's ...	4 0	4 6	Maincrops ...	4 0	4 6
Up-to-Date ...	4 0	4 6	Blacklands ...	3 0	3 3
Lincolns—			**Bedfords—**		
Up-to-Date ...	3 9	4 6	Up-to-Date ...	3 9	4 0
British Queen ...	3 9	4 3	**Dunbars—**		
King Edward ...	4 0	4 6	Up-to-Date ...	4 9	5 3
Northern Star ...	2 9	3 6	Maincrop ...	5 3	5 6
Evergoods ...	3 0	3 9			

New Potatos.

Teneriffe ... ... 12 0 14 6 | Algerian — ... 13 0 14 0

Remarks.—Trade this week is not quite so good, and it is doubtful if the present prices will be maintained. Stocks in London are still very large. *Edward J. Newborn, Covent Garden and St. Pancras, April 25, 1912.*

Answers to Correspondents

Collecting and Preserving Insects: *A. P.* The collector of insects should endeavour, besides obtaining specimens, to gain an insight into their habits and modes of life. This requires patient and careful observation, but by reason of it he acquires a detailed knowledge of the surrounding fauna. The apparatus necessary for making a collection varies to a certain extent according to the group of insects selected, but for the beginner, perhaps, all that is required would be boxes, net, killing bottle, lens, and knife. The most useful boxes for this purpose are those of stiff cardboard with glass bottoms, although a few ordinary pill boxes are always useful. The net should be of the folding type, the frame either of wire or cane and the bag preferably of Brussels netting. For general work the cyanide bottle is best for killing purposes, but must be kept dry inside; blotting paper soaked in benzine or chloroform and placed at the bottom of a wide-mouthed bottle also gives good results, as long as the specimens are not allowed to come into contact with the fluid. The insects should be transferred to a collecting box as soon as possible after death. For preserving the specimens the collector will require a pair of curved forceps, needles mounted in handles for setting, cardboard discs, one or two sheets of cork, pins, store boxes, setting boards, glass tubes and some alcohol or formalin. The most useful entomological pins perhaps are Nos. 5, 9, 11, 15 and 20, of Messrs. D. F. Tayler and Co.'s manufacture. Hymenoptera (ants, bees, wasps, &c.), Lepidoptera (butterflies and moths), Hemiptera (bugs, &c.), Neuroptera (dragon flies, caddis flies, &c.), and the larger Diptera (flies) are pinned through the centre of the thorax; Coleoptera (beetles) always through the right wing case. If necessary the insect is then placed on a setting board and the wings arranged in the required position by means of setting needles and braces, the latter either of thin cardboard or paper. After a few days the specimen will be ready for transference to the store box or cabinet. Small insects are frequently very troublesome to mount and are usually preserved on discs or strips of polyporus, the latter then being pinned with a No. 11 pin. Small beetles are usually attached to the card by means of gum; flies and others to discs or polyporus by pins. A small pin (No. 9 or 20) is first passed through the disc and then through the thorax of the insect from below—the specimen may be placed on its back on a piece of cork for this purpose; the mount is then pinned the opposite way. Relaxing may be performed by placing the insects in a box containing damp sand to which a drop or two of carbolic acid has been added for some hours until the various parts are flexible. Great care should be given to labelling; each specimen should bear a label of

thick paper or card containing particulars of the food plant or host, locality, date, and collector's name. Insects should be stored in air-tight corked boxes or cabinets in which has been placed naphthalene, camphor, or a few drops of medical creosote; the latter is especially of value in counteracting the attacks of mould. The larvæ of all insects are best preserved in glass tubes containing alcohol or formalin, 50 per cent. to 60 per cent. alcohol or 3 per cent. formalin being the requisite strength. These, again, should be labelled, the notes either being written in ordinary ink and fixed to the outside of the tube, or Indian ink or soft pencil, and placed inside. *The Insect Hunter's Companion*, by Dr. Knaggs, is a useful compendium for this work, and a catalogue of entomological requisites may be obtained from Messrs. Watkins and Doncaster, 36, Strand, London.

CHRYSANTHEMUMS DISEASED: *S. G. R.* and *B. S.* The leaves are attacked by the Chrysanthemum leaf-miner (see fig. 140). Spray the plants with quassia extract or other distasteful liquid, in order to prevent the female insects from depositing their eggs in the leaves. Remove all badly-affected leaves and burn them.

CORRECTION.—In our notice of the exhibits before the Fruit and Vegetable Committee of the R.H.S. in the last issue, the name of Mrs. Bischoffsheim's gardener should have read Mr. J. W. Funge.

CRICKETS IN CUCUMBER HOUSE: *Anxious.* Crickets may be trapped in jars or bottles partly filled with beer, or some sweet syrup. Basins may also be used, placing a few sticks around the edges so that the pests may reach the fluid. A quicker method of killing them is by poison, such as phosphor paste, borax powder, or arsenic mixed with some food such as Potato. Steiners' Vermin Paste is also a satisfactory remedy. This should be placed about the house just before nightfall on pieces of paper, and removed again each morning.

FIG TREE: *F. H. B.* Send a portion of the decayed branch for examination.

HORTICULTURAL INSTRUCTOR: *Constant Reader.* Experience in Kew Gardens in not an essential qualification for a horticultural instructor, but experience gained there would be useful. A thorough knowledge of practical gardening and the theory underlying the same with ability to teach are the chief requirements.

MELON PLANT UNHEALTHY: *A. B.* The trouble is not due to disease, but is caused through an excess of atmospheric moisture. Ventilate the house more freely.

MOSS ON LAWNS: *Holly Wood.* First rake as much of the moss from the lawn as possible, and then apply, to a depth of a quarter to a half-inch, slaked lime or wood ashes mixed with three parts of fresh loam free from weed seeds. April and October are the best times for making the application; but any time when the weather is showery during the growing season will do.

NAMES OF PLANTS: *H. C.* 1, Dendrobium fimbriatum oculatum; 2 and 3, D. nobile; 4, Oncidium ampliatum.—*G. I. C.* Cerinthe aspera.—*F. W.* 1, Amelanchier canadensis; 2, Neviusia alabamensis.—*S. A. P.* Photinia serrulata.—*A. S.* Kerria japonica.—*M. C.* Leucoium æstivum.—*C. Longford.* Tulip Safrano.—*V. T.* 1, Trichopilia laxa; 2, Oncidium incurvum; 3, O. altissimum; 4, Cœlogyne ochracea; 5, Epidendrum virens; 6, Oncidium pulchellum.—*R. H.* 1, Adiantum hispidulum; 2, A. formosum; 3, Pteris aquilina; 4, P. cretica.—*J. B.* 1, Adiantum gracillimum; 2, Polystichum angulare; 3, Adiantum cuneatum elegans; 4, A. Pacotii; 5, A. cuneatum; 6, Asplenium Nidus (Bird-nest Fern); 7, Adiantum cuneatum grandiceps; 8, Blechnum corcovadense; 9, Pteris longifolia; 10, Adiantum O'Brienianum; 11, A. formosum; 12, Nephrolepsis todæoides.—*W. B., Boarshead.* A variety of Bignonia capreolata.—*T. J.* Prunus Padus (Bird Cherry).—*Foreman.* A form of Cypripedium Calypso, of no special value.—*R. G.* 1, Fernettya mucronata; 2, Juniperus recurva; 3, Cedrus Deodara; 5, Arenaria balearica; 11, Abies nobilis; 12, probably Hakea saligna. Why not number the specimens consecutively?—*C. J.* Dombeya Buettneri.

NETTLES IN GRASS LAND: *Co. Longford.* The best way to eradicate Nettles in grass is to keep them mown short with a scythe, then apply nitrogenous manures which will cause the grass to grow so freely as to crowd out the weed.

PARTI-COLOURED TULIP: *E. T.* It is not unusual for Tulips, in common with other flowers, to exhibit two distinct colours in well-defined zones. At the last meeting of the R.H.S. a spike of Hyacinth was shown, in which the bells on one side were blue and on the other red, the stem showing the same differences in colour. Next year the spike may be normal.

PEACH SHOOTS DISEASED: *H. F.* The tree is attacked with Peach-leaf curl (Exoascus deformans). Any diseased or fallen leaves should be removed and burnt as soon as detected, and branches bearing diseased leaves should be pruned back beyond the point of infection. Spray the plants with a dilute ammoniacal solution of copper carbonate when the leaf-buds are beginning to expand, and

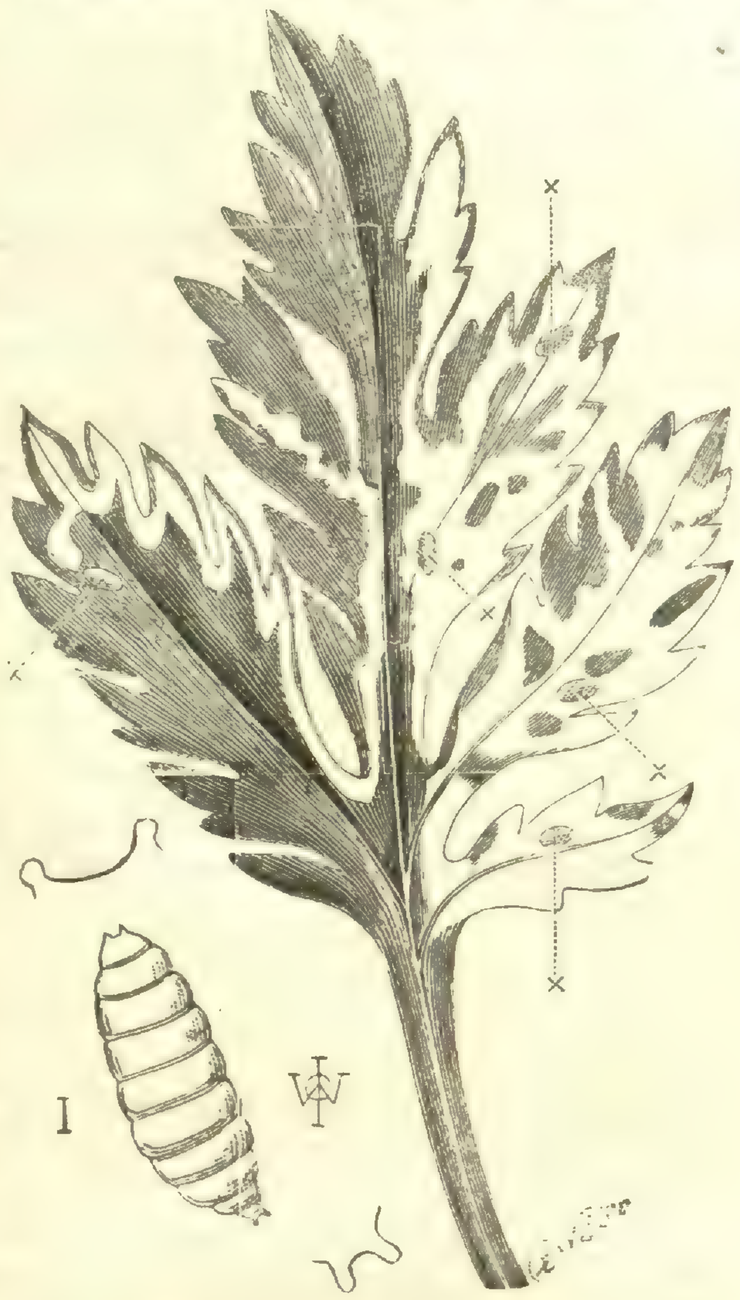


FIG. 140.—CHRYSANTHEMUM LEAF-MINER.

again after an interval of three weeks. This will be a safeguard against inoculation from wind-borne spores.

PLANTING POTATOS: *T. H.* If you plant tubers of an average weight of 3 ounces each, you would require the quantity given. But you may employ from 20 to 24 bushels only if you select smaller tubers or cut larger ones into two or more portions, leaving only two eyes to sprout. As regards the distance between the rows and tubers, the point must be determined by circumstances. If the soil is somewhat poor and shallow, 15 to 18 inches between the rows will be ample space for early varieties, allowing from 24 to 30 inches for main-crop and stronger-growing varieties and from 9 to 12 inches between the sets. But in deep, well-conditioned soils, from 6 to 12 inches more space should be allowed between the drills and 3 inches more between the sets. At 24 bushels to the acre, the seven-eighths of an acre (140 rods), 21½ bushel sets would be necessary, and at 20 bushels to the acre, 17½ bushels would be required to plant the same area (140 rods).

POLYANTHUS LEAVES: *H. F.* No disease is present in the plants; the damage has been caused by insects.

PRIMULA: *R. A.* The most recent monograph of the genus Primula is by Pax and Knuth, in Engler's *Planzenreich*, published by W. Engelmann, Leipzig. A conference on the genus Primulaceæ was held by the Royal Horticultural Society in 1886, when papers were read by Mr. Baker and Mr. Dewar. A report appears in the R.H.S. *Journal*, vol. vii., No. 2, of that year. Since then many articles on the genus have appeared in the gardening Press at various times.

R.H.S. EXAMINATIONS: *Constant Reader.* The regulations concerning the R.H.S. examination state that the examination will be held simultaneously in as many different places in Great Britain and Ireland, and abroad, as circumstances may demand, even if only one candidate is sitting at any particular place. The time allowed for the examination is 3½ hours, the hours fixed being generally from 6 to 9.30 p.m. Gardeners and students wishing to sit for the examination, who have not attended any particular series of lectures, must send in their names and addresses, and the name and address of some responsible person willing to conduct the examination, to the Secretary, R.H.S., Vincent Square, Westminster, at least three weeks before the date of examination. The society is willing to hold the general examination and school teachers' examination wherever a magistrate, clergyman, schoolmaster, or other responsible person accustomed to examinations will consent to supervise one on the Society's behalf, and in accordance with the rules laid down for its conduct.

SPRAYING FRUIT TREES IN SUMMER: *E. C.* The present time is just too late for the first spraying (unless you have still some Apple trees not in bloom), which should be performed before the blossoms have expanded. The purposes of that spraying are to kill the Apple sucker and aphides, if any, by a contact wash, also to poison the food of leaf and blossom-eating caterpillars, kill aphis and caterpillars on Plums, &c. One of the best specifics for these purposes consists of 4 lbs. soft soap dissolved in boiling water, 1¼ pint of strong Quassia extract, or 4 lbs. of Quassia chips boiled for an hour, and 2 lbs. 10 ounces of arsenate of lead paste dissolved in hot water, to 40 gallons of water. The same wash may be used after the blossom has fallen if any aphides or Apple suckers can be found by examination with a lens, as almost certainly there will be if spraying was not done well before the blossoms opened. Caterpillars there will be without doubt. For varieties of Apples or Pears liable to attacks of scab, 3 lbs. of Woburn Bordeaux paste should be added when spraying after the fall of the blossom. The wash should never be used when there is any open blossom on the trees, as it might poison bees and other fertilising insects. Lime-sulphur is now coming into common use as a fungicide in place of Bordeaux mixture; but it should not be mixed with a soft-soap wash, as it coagulates the soap. It may be used separately for varieties liable to scab. 1 gallon of factory-made solution to 40 gallons of water. It may be used again three weeks after the first application, as a further precaution against scab, and if any caterpillars are present, the arsenate of lead in the proportion named above should be added. The washes may be applied by one of the numerous spraying machines on the market. Unless the orchard extends to scores of acres, a knapsack machine will do. A Bamboo lance, 7 feet long, will allow of spraying to a height of 12 feet or more. We cannot pronounce an opinion on the merits of the several proprietary washes.

VINE LEAVES: *Anxious.* The trouble is not due to either fungous or insect pests. The damaged appearance of the foliage strongly suggests scorching.

WEED KILLERS: *E. C.* There are many weed destroyers advertised, and any one of them will probably be found effective. A liberal sprinkling of agricultural salt kills grass and weeds on garden paths, and may be purchased at a trifling cost.

Communications Received.—G. H.—J. L. W.—H. H.—Darnhall—H. B.—E. and Co.—Constant Reader—T. S.—H. W. W.—W.—H. H.—E. H. W.—W. G. K.—J. V. S.—H. J. C.—W. G. K.—E. M.—H. M. T.—W. A. C.—J. O'B.—R. P. B.—H. J. E.—F. W. C.—F. K.—P. L. G.—J. H.—H. C. L.—A. W. A.—W. W.—H. and D.—B. C.—S. A. P.—C. J.—Wessex—R. G.—Amateur—C. H., Heredon—Constant Reader: Contributors are required to supply their names and addresses, not necessarily for publication, but as a guarantee of good faith

By Special Appointment To His Majesty the King.

LAWN MOWERS. GREEN'S AND ROLLERS.

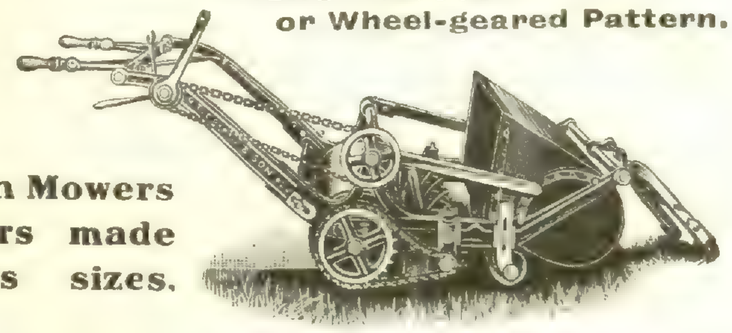
STAND PRE-EMINENT.

Hundreds of Thousands in use.

Highest Awards, Royal Botanic Society, Royal Horticultural Society, and numerous others.

GREEN'S "SILENS MESSOR" LAWN MOWERS

PONY AND HORSE MOWER. "Silens Messor" or Wheel-geared Pattern.

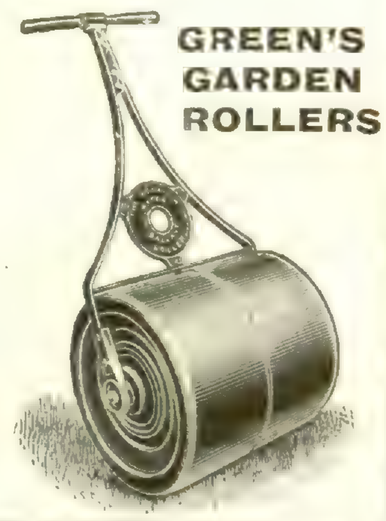


Motor Lawn Mowers and Rollers made in various sizes.

May be had from any Ironmonger or Seedsman in the United Kingdom.

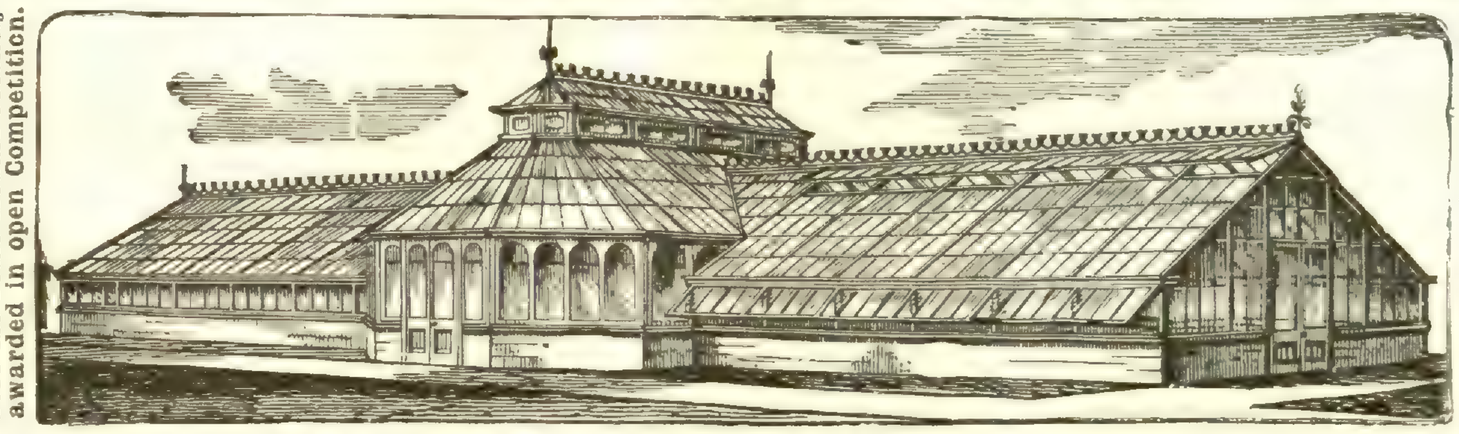
PLEASE WRITE FOR ILLUSTRATED PRICE LIST No. 4 FREE.

GREEN'S GARDEN ROLLERS



THOMAS GREEN & SON, Ltd., Smithfield Ironworks, Leeds, and New Surrey Works, Southwark St., London, S.E.

Five 1st Prize Medals recently awarded in open Competition.



Five 1st Prize Medals recently awarded in open Competition.

R. HALLIDAY & CO.,

Hot-House Builders and Hot-Water Engineers,

ROYAL HORTICULTURAL WORKS, MIDDLETON, MANCHESTER.

Vineries, Stoves, Greenhouses, Peach Houses. Forcing Houses, &c., constructed on our improved plan, are the perfection of growing houses, and for practical utility, economy and durability cannot be equalled. We only do one class of work, and that THE VERY BEST.

Conservatories, and Winter Gardens designed architecturally correct without the assistance of anyone out of our firm, from the smallest to the largest. **Hot-water Heating Apparatus,** with really reliable Boilers, erected, and success guaranteed in all cases. **Melon Frames, Sashes, Hot-bed Boxes, &c.,** always in stock.

Plans, Estimates, and Catalogues Free. Customers waited on in any part of the Kingdom.

Our Maxim is and always has been—

MODERATE CHARGES. FIRST-CLASS WORK. THE BEST MATERIALS.

MALDEN'S PATENT INFUSER

Simplest, quickest and best method of obtaining

LIQUID MANURE

PRICE 11/6

See Testimonials. Order now from Ironmongers Horticultural Sundriesmen or the Patentee:—

A. H. MALDEN POOLE, DORSET.

WEEDS

One application of **HARRISON'S Reliable WEED KILLER** will keep your Garden Paths, Carriage Drives, etc., free from weeds for at least 12 months. The best Killer for Daisy, Plantain and Dandelion in lawns. Brightens the Gravel. Immense Saving in Labour.

1 Gallon ..	2/8,	drum ..	9d.,	carriage ..	9d.
2 ,,	5/4	,,	1/3	,,	1/-
5 ,,	12/-	,,	3/-	,,	paid.
10 ,,	21/6	,,	5/-	,,	,,
40 ,,	75/-	,,	5/-	,,	,,

Irish orders are not subject to these carriage terms, but are paid to any English port. Full price allowed for all drums and casks if returned in good condition carriage paid, within 2 months.

N.B.—In the prices of the above, please note that this Weed Killer mixes 1 to 50 of water, being *double* the ordinary strength. One gallon mixed with 50 gallons of water will cover an area of from 150 to 200 sq. yds. *effectively. There is no smell to this Weed Killer.*

Geo. W. HARRISON, Horticultural Chemist, READING.

RECENT HAILSTORMS

4th March, 1912. Hailstorm in Kent.

64 Houses damaged at Crockenhill (Mr. John Wood). 93 houses (out of 100) damaged at Swanley (Mr. Ladds). 35 Houses damaged at Swanley (Messrs. Cannell & Son).

Mr. PHILIP LADDS wrote, 8th March, 1912—

Dear Sir—"In consideration of the generous and prompt manner in which you settled with me, "following on my claim on your Company for glass broken by the severe storm on March "4th, I wish to convey my best thanks to you personally for the courtesy and fairness "shown me when here on the following day, and to the Company for their unquestion-"ably fair method of business. I do not desire a repetition of the storm, but in these "untoward occurrences it is very gratifying to know that 'The Hailstorm Insurance Co.' "are always ready to extend every advantage of their Company to the Glasshouse owner."

Yours faithfully, FRANK W. LADDS (Manager).

ARE YOU INSURED? If not, apply to—

The NURSERYMEN'S HAILSTORM INSURANCE Co., 41 & 42, King Street, Covent Garden, W.C.

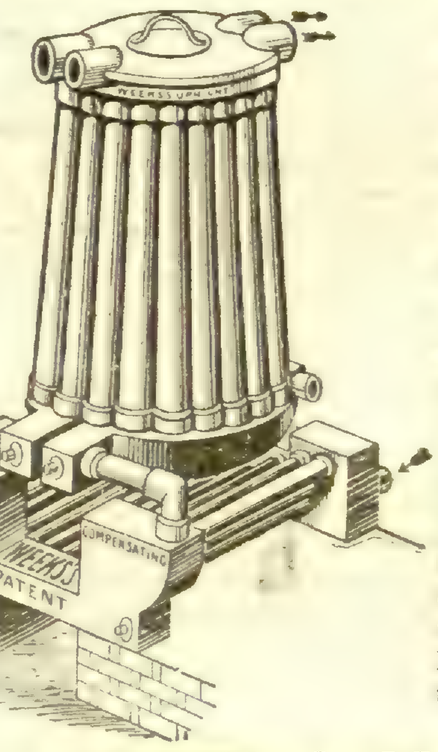
HARRY J. VEITCH, Chairman. ALEX. JAMES MONRO, Manager.

SAVE HALF THE COST. **GARSIDE'S** BEDFORDSHIRE **SILVER SAND** (COARSE OR FINE)

Is admitted by the leading Nurserymen to be **the Best Quality** obtainable in the Trade.
Consumers should **Buy Direct** from the Owner of these Celebrated and Extensive Pits, which contain a practically inexhaustible supply of Splendid Sand, and thus *save half the ordinary cost.*
Apply Direct to the Proprietor for Samples and Prices free on Rail or Canal. *All orders executed with the utmost promptness and under personal supervision.* Special Railway Rates in force to all parts. All kinds of **PEAT** supplied at lowest possible prices. Sample Bag sent on application to—

GEORGE GARSIDE, F.R.H.S., Leighton Buzzard, Beds.

WEEKS'S BOILERS



We are just now replacing two of our Upright Tubular Boilers supplied 51 years ago to The Marquess of Ailesbury, Savernake Forest, which have been in constant use for this length of time.

J. WEEKS & CO.,

72, Victoria Street, Westminster, S.W.

SELECT LIST
OF
Books on Gardening.

PRICES QUOTED ARE, IN ALL CASES, POST FREE TO ANY PART OF THE UNITED KINGDOM.

Alpine Flora: for Tourists and Amateur Botanists. By Dr. Julius Hoffmann. Translated by E. S. Barton (Mrs. A. Gepp). With 40 Plates, containing 250 Coloured Figures, from Water-Colour Sketches by Hermann Friese. 7s. 10d.

Alpine Flowers for Gardens. By W. Robinson. Revised Edition. With Illustrations. 10s. 11d.

Alpine Plants. A Practical Method for Growing the rarer and more difficult Alpine Flowers. By W. A. Clark. With Illustrations. 3s. 9d.

Alpines and Bog Plants. By Reginald Farrer. An excellent book for enthusiasts. Numerous Illustrations. 7s. 10d.

Apple, The Book of the. By H. H. Thomas. Illustrated. 2s. 9d.

Asparagus, The Book of. With sections on Celery, Salsify, Scorzonera, and Seakale. Illustrated. 2s. 9d.

Australia, The Principles of Gardening for. By C. Bogue-Luffmann, Principal of the School of Horticulture, Melbourne. 2s. 9d.

Bacteriology, Agricultural. By J. Percival, M.A. 7s. 11d.

Bee, The Book of the Honey. By Charles Harrison. Illustrated. Of interest to experienced bee-keepers as well as to the novice. 2s. 9d.

Bee-Keeping, Book of. A very Practical and complete Manual on the Proper Management of Bees, especially written for Beginners. By W. B. Webster. Illustrated. 1s. 3d.

Bees, for Pleasure and Profit. By G. Gordon Samson. With new chapter on "Beekeeping in Hot Climates." Illustrated. 1s. 2d.

Begonia Culture for Amateurs and Professionals. By B. C. Ravenscroft. New Edition, revised and enlarged. Illustrated. 1s. 2d.

Botanic Terms, Glossary of. By B. D. Jackson. 7s. 10d.

Botanist, The Young. By W. Percival Weston and C. S. Cooper. Excellent for young people commencing to botanise. 3s. 10d.

Botany, Agricultural. By J. Percival, M.A. 7s. 11d.

Botany, A Manual of Agricultural. By John W. Paterson. From the German of Dr. A. B. Frank, Professor in the Royal Agricultural College, Berlin. With over 100 Illustrations. 3s. 9d.

Botany, A Practical Introduction to the Study of (Flowering Plants). By J. Bretland Farmer, F.R.S., M.A., Professor of Botany in the Royal College of Science, London. 121 Illustrations. 2s. 9d.

Botany, A Primer of. By Sir J. D. Hooker, F.R.S. 1s. 1½d.

Botany, A Text-book of. By Dr. E. Strasburger. Translated by H. C. Porter, Ph.D. Revised. Fifth Edition. 779 Illustrations. 18s. 5d.

Botany, A Year's. Adapted to Home and School Use. By Frances A. Kitchener. With 195 Illustrations. 5s. 3d.

Botany, Elementary. By Percy Groom, M.A. 3s. 10d.

Botany, Elementary. By Dr. E. Drabble. One of the newest and best manuals. 2s. 9d.

Botany, First Course of Practical. By G. F. Scott Elliott. Illustrated. 3s. 10d.

Complete New Catalogue (Eighth Edition) sent post free on application to

THE PUBLISHER,
41, Wellington Street, Covent Garden, W.C.

The Gardeners' Chronicle

SCALE OF CHARGES FOR ADVERTISEMENTS.

Advertisements intended for insertion in the next issue MUST reach THE PUBLISHER not later than

WEDNESDAY, 5 p.m.

	£	s.	d.
Ordinary Positions ... ... per page	10	10	0
Facing matter and Back page ... ,, ,,	12	12	0

Half and quarter pages, column and half column spaces, pro rata.

	£	s.	d.
4 line space, about 20 words, single column ...		3	0
Per inch, single column		7	0
Per inch, across 2 columns		14	0
Per inch, across 3 columns	1	1	0

SERIES DISCOUNTS.

For three insertions, 5%; thirteen, 10%; twenty-six, 15%; fifty-two, 20%.

Front page (no display allowed) 1/- per line space.

SITUATIONS WANTED.

26 words, **1s. 6d.**, and **6d.** for every additional 8 words or fewer.

These Advertisements must be prepaid, **AND APPLY ONLY TO GARDENERS, &c., OUT OF EMPLOYMENT.**

Advertisers may have replies to their advertisements addressed to the "GARDENERS' CHRONICLE" Office. A Box Office fee of 6d. is charged for each advertisement, and replies are forwarded post free at the end of each day.

The boxes for answers to advertisements are provided for the use of advertisers only, and no matter will be forwarded which is not, in the opinion of the Publisher, a bona-fide or specific answer to an advertisement. The boxes are not to be used for the distribution of printed or written announcements, or for the benefit of competing businesses. All advertisements and replies are accepted subject to the above conditions.

SUBSCRIPTIONS:—

THE UNITED KINGDOM ... ... **15/-** per annum.
ABROAD ... ... **17/6** ,,

Cheques and P.O.'s to be made payable to "GARDENERS' CHRONICLE, LTD."

41, WELLINGTON STREET,
COVENT GARDEN, LONDON, W.C.

Telegrams "GARDCHRON, LONDON."
Telephone: GERRARD 1543.

SITUATIONS VACANT.

Four Lines 3s. (Head-line counted as Two), 6d. for each succeeding line.

PRIVATE.

HOOK begs to Thank Applicants for Situation, which is now Filled.

J. EVANS, Burlingham Hall, Norwich, begs to Thank all Applicants for Second Gardeners' Place, which is Now Filled.

A. J. HAWKES begs to Thank all Applicants for Foreman's Place, and to say it is Now Filled.

MR. PETTY, Arlington Manor Gardens, wishes to Thank numerous Applicants for Journeyman's Situation, which is Now Filled.

WANTED, GARDENER (HEAD); willing and capable; Inside and Out; no family; state experience and wages.—Apply, LA PLATA, Brentwood, Essex.

WANTED, reliable, experienced GARDENER (Head of two with help); Wife experienced Laundress; to live in lodge.—Write full particulars to E. MAGOR, Lamellen, St. Tudy, Cornwall.

WANTED, May 19th, GARDENER (HEAD WORKING of three); six acres garden, four small glass-houses; must have good knowledge of Electric Light plant, also possibly Poultry and Bees; personal reference essential.—Mr. PEARS, Sevenhampton Manor, Andoversford, Glos.

GROUNDSMAN.—Wanted, at once, a thoroughly experienced Man to take entire charge of Tennis and Croquet Lawns; applicants must be capable of levelling and relaying as well as maintaining the Lawns in a first-class condition, and none but those who are at present engaged in similar work need apply.—Applications, stating age, experience, and wages required, together with copies of recent testimonials, must be addressed to GROUNDSMAN, Box 3, 41, Wellington Street, Covent Garden, W.C.

WANTED, a good GREEN KEEPER and GROUNDSMAN; must have had experience on inland sandy links, and preferably in laying out and construction of same; wages £1 per week; send references.—Apply, L. W., 3, Chester Gate, Regent's Park, London, N.W.

WANTED, a MARRIED COUPLE, without children, the husband to take charge of a small garden and to help in house occasionally when needed, the wife to be housekeeper and to perform head housemaid's duties; both to live in the house; good wages.—Apply, E. W., Sharp's Library, 4, Berkeley Square, W.

WANTED, MARRIED COUPLE to live in; experienced Gardener, Pig, Poultry; Wife Cook-General; abstainers; good personal character required; small family; comfortable home; boy kept.—Write fully, ages, wages, capabilities, &c., PHILLIPS, The Gables, Southwick, Sussex.

WANTED.—Could any Head Gardener recommend SINGLE MAN for Pleasure Grounds, well up in Herbaceous and Rock Plants? Must be quick and active; duty alternate weeks; wages 18s., no Bothy.—Apply, stating age and experience, to C. HOWES, 39, Court Street, Faversham, Kent.

WANTED.—Can any Gardener recommend reliable, energetic MAN to take charge of Fruit and Plant Houses, Decorating, &c.; wages to commence £1, Bothy, &c.—Apply, GARDENER, Cound Hall, Shrewsbury.

WANTED, a strong, active MAN for Inside, not under 24; good Decorator; 18s. to start with, Bothy and vegetables.—C. FIGG, Doveridge Gardens, Derby.

WANTED, a strong, active MAN for general Outside work; not under 21; duty every third week; wages 17s. and Bothy.—C. HOWE, Douglas House Gardens, Petersham, Richmond, Surrey.

WANTED, good GARDENER (SINGLE-HANDED); experienced Inside and Out; also to assist in house.—Apply, A. J. ALLERTON, 12, Mitcham Road, East Ham.

WANTED, GARDENER (SECOND, INSIDE); must thoroughly understand all Fruit, Carnations, Orchids; cottage provided if married.—Address, stating full particulars and wages required, Mr. POOLEY, Buckhurst Gardens, Ascot.

WANTED, GARDENER (SECOND) married; must be good Lawnsman and have some experience of Inside work; good cottage and garden provided.—Apply, stating full particulars, to T. ASHBEE, The Gardens, Yarnton Manor, Oxford.

WANTED, GARDENER (SECOND of three); six acres garden, four small glass-houses; must be experienced Inside and Out; personal reference essential.—Mr. PEARS, Sevenhampton Manor, Andoversford, Glos.

WANTED, energetic and reliable MAN as SECOND (Inside and Out); willing and good worker.—GARDENER, Pinewoods, Oxshott, Surrey.

WANTED, FOREMAN (INSIDE); willing to take a fair share of the work with two others; must be good at Carnations; 18s., Bothy and vegetables.—Particulars and copies of testimonials to HEAD GARDENER, Colston Bassett, Bingham, Notts.

WANTED, competent FOREMAN (INSIDE); write stating age and experience and enclose copies only of testimonials; wages commencing at 20s., with Bothy, &c.—F. G. GERRISH, Pendley, Tring.

WANTED, immediately, FOREMAN (INSIDE); experienced Fruit, Plants and Decorating; hard working and energetic; take turn duty; wages £1 per week; Bothy, vegetables, &c.—HARRIS, Serlby Gardens, Bawtry.

WANTED, FOREMAN in Pleasure Grounds; must be a strong, active Man; well up in Roses, Bedding, and Borders; £1 per week, Bothy, &c.—Full particulars to H. CHANDLER, Coombe Abbey Gardens, Coventry.

WANTED, smart Man with good experience, as ORCHID JOURNEYMAN; must have held similar post; £1 per week, Bothy, &c.—Full particulars to H. CHANDLER, Coombe Abbey Gardens, Coventry.

WANTED, JOURNEYMAN (FIRST); must be successful Plant Grower; send fullest particulars and wages required.—W. EARP, Bayham Abbey Gardens, Lamberhurst, Kent.

WANTED, YOUNG MAN, about 24, to take Lead on Pleasure Grounds; good experience in Hardy Plants, &c.; preference given to Cricketer (Bowler); 18s. and Bothy.—Apply, with reference, to F. SPENCER, Tockenham Manor Gardens, Swindon, Wilts.

WANTED, strong YOUNG MAN for Kitchen Garden and Pleasure Grounds; age 25.—GARDENER, Fernwood, Albert Road, Wimbledon Park.

WANTED, strong YOUNG MAN for Kitchen Garden and Pleasure Grounds; must be quick and neat at his work; wages 17s. week.—HEAD GARDENER, Mill House, Bourne End, Bucks.

WANTED, YOUNG MAN for Kitchen Garden and Pleasure Grounds; duty every third week; Bothy.—State wages and references to JONES, Pusey Gardens, Faringdon, Berks.

WANTED, YOUNG MAN, about 24, to take charge of extensive Rock Garden; must be well up in Rock and Alpine Plants; wages 20s. and Bothy.—Apply, HERD BROS., Penrith.

WANTED, YOUNG MAN for Kitchen Garden and Lawns; look after pony and take Mowing Machine; duty every third week; 15s., Bothy, &c.—W. PROWTING, Priory Gardens, Reigate.

WANTED, strong, active YOUNG MAN for Fruit and Plant Houses, under Foreman; must be quick and intelligent, and have had some experience; six kept; wages 16s. per week.—L. LAWRENCE, Shoreham Cottage Gardens, Shoreham, near Sevenoaks.

WANTED at once, strong, active YOUNG MAN for general Garden work, Inside and Out; age 17-19.—Apply HEAD GARDENER, Penrice Castle, near Swansea.

WANTED, experienced, unmarried Young Man for Inside; Flower Borders, Vines, &c.; good Seed raiser and grower on and Scythe Hand; duty every third week; no Bothy.—State age, experience, wages required, to G. L. EASTES, Greenford Place, Harrow.

WANTED, active Young Men as IMPROVERS; no premium; under glass; Peaches, Melons, Strawberries, Tomatos, Cucumbers, and Pot Orchard Trees of all sorts; outside, Apples, Pears, Plums, all small fruits, with 300 feet of wall fruit.—Apply, MANAGER, Rudgwick Fruit Farm, Rudgwick, Sussex.

WANTED, IMPROVER, 19 years of age for Inside under Foreman; strong and active; wages 14s. per week and good Bothy.—Apply, E. CARR, The Gardens, Elveden, Suffolk, via Thetford.

WANTED, GARDENER-GROOM (Single); state experience and wages required.—H. S. DEAN, Rycroft, South Darenth.

WANTED.—Can any Gentleman recommend a MAN to take charge of Electric Plant, Tangye Oil Engine, House, Garden and Estate work under Head Gardener? Good rough Carpenter.—Apply, giving full particulars, wages required, to LADY M. H., Kneesworth Hall, Royston, Herts.

WANTED, HANDY MAN; experienced in Painting, Glazing, &c.; chiefly for Garden Department; single.—State full particulars and wages required, A. DUMBLETON, The Gardens, Chipstead Place, near Sevenoaks.

TRADE.

WANTED, FOREMAN to take charge of a very small Nursery under proprietor; must understand Outside Stuff; state wages, copies of testimonials.—WM. SANFORD, St. Agnes' Nursery, King's Heath, Birmingham.

WANTED, at once, a reliable MAN, either single or married, for small Nursery, as GROWER of Bedding Plants and Cut Flowers; also must be capable and quick at Making up Wreaths, &c.; permanent position for a suitable man.—State age, wages required, reference, to W. CROWDER & SONS, Horncastle.

WANTED, ROSE GROWER for under Glass.—Apply, stating wages required and particulars to GEORGE PRINCE, Longworth, Berks.

WANTED, Herbaceous and Alpine PROPAGATOR; an experienced, steady man.—Write, stating age, experience, wages required, and copies of references, BARR & SONS, The Nurseries, Taplow.

WANTED, GARDENER (Working); handy; good all round; understands growing Cut Flowers for Market; country house near Plymouth; cottage provided; state wages, capabilities, if married.—L., care of Smerdon, Old Town Street, Plymouth.

WANTED, GARDENER; well up in Outside work; preference given to one who would put in a little money, with view to partnership.—OSBORN, Nurseryman, Parkstone, Dorset.

WANTED, capable GARDENERS for temporary employment—JOHN RUSSELL, Devonshire Nurseries, Haverstock Hill, N.W.

WANTED, experienced YOUNG MAN; a Grower of Chrysanthemums, Bedding Plants, Bulbs, &c.; small range of glass; Sunday duty alternate weeks; 21s. per week; must have a first-class character.—T. CROSS, Nurseryman, Bury St. Edmunds.

WANTED, YOUNG MAN, single; used to growing Tomatos, Cucumbers and Flowers for Market, also Grafting Roses.—Apply, stating wages required, experience, testimonials, &c., to BIRD & VALLANCE, Nurserymen, Downham, Norfolk.

WANTED at once, YOUNG MAN; well up in Tomatos, Cucumbers, and Bedding Stuff; also to help Outside in Market Nursery; permanent to suitable man (live in).—Apply, NICHOLSON, Sands Nursery, Durham.

WANTED, smart YOUNG MAN; well up in Rose Budding, Shrubs, Herbaceous Plants; good Salesman; none but good men need apply; £1 week.—AIRETON, Nurseries, Poole, Dorset.

WANTED, two or three YOUNG MEN for a Market Nursery.—State age and wages required to A., Box 22, 41, Wellington Street, Covent Garden, W.C.

WANTED, YOUNG MAN, about 18 to 25, to work in Market Garden, near London; good wages to suitable man.—Apply, giving particulars of previous employment and wages required, POLLARD'S Nurseries, Cheshunt, Herts.

WANTED, two YOUNG MEN at once; one for Ferns, &c., one for Carnations and Roses, Inside; permanent place.—THOS. FEWSTER, Ragworth Nurseries, Norton-on-Tees.

WANTED, a YOUNG MAN; well up in growing Ferns, Watering, &c.—Apply, stating wages required and references to E. CURRY, The Nurseries, Whitehall Lane, Chingford.

WANTED, YOUNG MAN (Inside and Out); Tomatos, Chrysanthemums, &c.; state age, wages, experience.—PRICE & FYFE, Grove Park Nursery, Lee, S.E.

WANTED, strong YOUNG MAN for Rough Outside Nursery work.—Character and lowest wages to F. M. BRADLEY, Nurseryman, Peterborough.

WANTED, HANDY MAN for Painting, Glazing, Repairs, and Help Inside.—Full particulars, references, and wages required to I. C., Box 24, 41, Wellington Street, Covent Garden, W.C.

WANTED, as CLERK, trustworthy and thoroughly reliable MAN, with knowledge of Nursery Bookkeeping.—Apply by letter, stating age, references, and wages required.—D. S. THOMSON & SONS, The Nurseries, Wimbledon, Surrey.

WANTED, ORDER CLERK.—Write, stating age, wages required, experience, with copies of references, BARR & SONS, The Nurseries, Taplow.

FLORIST.—Wanted, YOUNG MAN; knowledge of Seeds and Fruit preferred.—Write, H., Box 1, 41, Wellington Street, Covent Garden, W.C.

WANTED, FLORIST ASSISTANT (Second) for season in small, high-class business West End; Making Up, Serving, some Marketing.—FLORIST, Box 2, 41, Wellington Street, Covent Garden, W.C.

WANTED, LADY FLORIST; comfortable Situation for the right person; wages £1.—U. A., Box 16, 41, Wellington Street, Covent Garden, W.C.

SITUATIONS WANTED.

Twenty-six words for 1/6, & 6d. for each succeeding Eight words or less.

Gardeners desiring their Advertisements repeated *must give full particulars, otherwise no notice will be taken of their communications. Name and address alone are insufficient.*

Gardeners writing to Advertisers of Vacant Situations are recommended to send them **copies** *of testimonials only, retaining the originals. On no account should they enter into communication with unknown correspondents who require a fee beforehand.*

PRIVATE.

Gardeners, Farm Bailiffs, Foresters, &c.

DICKSONS, Royal Nurseries, Chester, are always in a position to RECOMMEND MEN of the highest respectability and thoroughly practical at their business. All particulars on application.

CLIBRANS, Nurserymen to H.M. the King, Altrincham, can recommend thoroughly practical, well experienced Men, of high character, as GARDENERS (Head or Under), FORESTERS, &c. Correspondence invited.

GARDENER (Head, where two are kept); thorough good all-round practical experience, both Inside and Out, also with Herbaceous Plants; excellent character.—H. GARDINER, 124, Hampstead Road, London, N.W. (No circulars).

MR. JOHNSTON recommends W. Bourton as GARDENER (Head, where three or four are kept); 6½ years here as Foreman; 16 years' good experience; married when suited.—The Gardens, Knightshayes Court, Tiverton, Devon.

GARDENER (Head); life experience in good establishments; seven years as Head; excellent references from previous employers; age 32; married.—TILLY, Shottenden, Chilham, Canterbury. (No circulars.)

GARDENER (Head); life experience; can be well recommended; age 32; married, no family; Southern counties preferred.—P. P., Box 27, 41, Wellington Street, Covent Garden, W.C.

GARDENER (Head); life experience; age 36; excellent references as to capability from present and previous establishments.—H. R., Box 6, 41, Wellington Street, Covent Garden, W.C.

THE LADY WANTAGE, Lockinge Park, Wantage, and Mr. FYFE, Head Gardener, very highly recommends H. Turner as HEAD; five years General Foreman at Lockinge; previously at Royal Gardens, Windsor, four years; also at Penrhyn Castle and Elvaston Castle; excellent references; abstainer; age 30.

GARDENER (Head); life experience in all branches; good references from previous employers; age 30; married, no family.—MOSS, Westlington, Dinton, Aylesbury.

AMOS PERRY, Hardy Plant Farm, Enfield, highly recommends GARDENER (Head); 25 years' practical experience in every branch of Gardening in first-class establishments.

GARDENER (Head of three or more); thoroughly experienced in all branches; age 29; excellent references from previous employers; well recommended by late employer; willing to pay own expenses.—F. CRONK, Little Canon, Wateringbury, near Maidstone.

GARDENER (Head or good Single-handed with help); experienced Inside and Out; good references; age 46; single.—G. BURGESS, 17, Eversleigh Road, Lavender Hill, London, S.W.

GARDENER (Head or good Single-handed); life experience Inside and Out; 8½ years last place; highest references; age 39; married; abstainer.—DEVENISH, 29, Holmwood Road, Seven Kings.

GARDENER (Head or good Single-handed); life experience Inside and Out; steady, trustworthy; good references; age 38; married.—ANDREWS, 38, Southwood Lane, Highgate, London.

GARDENER (Head or good Single-handed); 12 years' good experience all branches; age 28; abstainer; 2½ years present place as Head.—PENN, 15, Albion Row, Cambridge.

GARDENER (Head of two or good Single-handed); 19 years' excellent reference; age 38; married, one child.—W. ELLIS, Westwood Cottage, Dale Park Road, Upper Norwood.

GARDENER (Head or Single-handed); life experience Inside and Out; good references; five years previous as Head; age 37; married, one child.—W. L., Elm Grange Lodge, Church End, Finchley.

GARDENER (Head or good Single-handed) or FOREMAN (Pleasure Ground); life experience in all branches, Inside and Out; age 39; married, no family; life abstainer.—A. BELL, 80, Pitshanger Lane, Ealing, W.

GARDENER (Head) or FOREMAN; age 29; married; life experience in first-class gardens; 2½ years present; thoroughly recommended.—Apply, B., care of W. Young, The Nursery, Sunningdale, Berks.

GARDENER (Head Working); life experience in all branches Inside and Out; can manage Electric Installation; age 34; married, no family; abstainer.—BERRETT, 128, High Street, Aylesbury, Bucks.

GARDENER (Head Working, where four or more are kept); life experience in all branches Inside and Out; 15 years as Head; age 43; married; abstainer; excellent references; disengaged.—BISHOP, 99, High Street, Egham, Surrey.

GARDENER (Head Working); life experience in all branches Inside and Out gained in good gardens; two years Foreman (Inside) present situation; previously Foreman; good references; age 29; married.—A. BONNER, Addington Park Gardens, Croydon.

GARDENER (Head Working, where others are kept); life experience; age 31; married, two children; can be highly recommended.—F. POULTNEY, Clent, near Stourbridge.

GARDENER (Head Working); life experience Inside and Out; 11 years Head; excellent references; left through death; married, no family.—ELLERY, Lyndhurst, Belmont Road, Westgate-on-Sea.

GARDENER (Head Working, where more are kept); thorough practical first-class man; experienced in all branches; excellent testimonials.—G. BARTLE, 45, Newton Street, Newark-on-Trent.

GARDENER (Head Working); life experience in good establishments; excellent references; take charge of electric light if required; age 36; married, no family; abstainer.—F. BUSH, Steellands, Ticehurst, Sussex.

J. W. C. FRERES, Esq., wishes to recommend J. Downham as GARDENER (Head Working, where three or four are kept); life experience Inside and Out; leaving through place being let; age 40; married, no family.—Southfield Cottage, Greensmere Road, Wimbledon Park.

GARDENER (Head Working, where two or more are kept); life experience Inside and Out; Flowers, Fruit, Vegetables, Vines, &c.; married, no family.—BLAYBURN, Sherwood Farm, Mitcham.

GARDENER (Head Working) seeks Re-engagement; life experience; highly recommended; age 30; married, one child.—S. ATKINS, care of Mrs. B. Porter, Alexandra Road, King's Langley, Herts.

GARDENER (Head Working, where three or four are kept); thoroughly experienced in all branches; good references; married, no family.—T. ELLIS, Tinnivelli, Caterham Valley, Surrey.

GARDENER (Head Working, where three or more are kept); 15 years' experience in all branches; age 31; highly recommended.—H. CRAKER, 1, Hawthorne Road, Bickley, Kent.

J. GARDNER, Batsford Park Gardens, Moreton-in-Marsh, highly recommends H. Crisp, age 30, as GARDENER (Head Working, where several are kept); has been Foreman here two years, and had long experience in good gardens; a first-class man in all branches and an expert Decorator; married when suited.

GARDENER (Head Working); 15 years' experience Inside and Out; age 30; married, two children; abstainer; good references.—P. BRAMBLEY, Venters, Rusper, Sussex.

GARDENER (Head Working).—H. C. PORTER, Esq., confidently recommends his Gardener (for six years) as a thorough capable and efficient Gardener; experienced in all branches, Inside and Out; disengaged when suited; age 35; abstainer.—L. A. PIKE, The Gardens, Woodbridge House, Guildford.

LADY highly recommends her late GARDENER (Head Working, where three or more are kept); Scotch; life experience Inside and Out, including Orchids; 20 years as Head in good establishments; three years here; married, no family; leaving through estate being sold.—R. BEGG, Redenham Park, Andover, Hants.

GARDENER (Head Working, where help is given); life experience Inside and Out; excellent references; age 35; married, no family; disengaged.—C. KENSEY, 41, Port Vale, Hertford.

GARDENER (Head Working, with one or more under); life experience in all branches; excellent reference; age 29.—H. BOULT, Elm Cottages, Holyport, Maidenhead.

GARDENER (Head Working or good Single-handed).—A. J. DAVIS, Esq., thoroughly recommends his Gardener as above; highly efficient in all Gardening and an excellent worker and character; present place four years; age 29; married, no family; disengaged May 4th.—A. ONSLOW, Pagham, near Bognor, Sussex.

SITUATION required as LEAD on Pleasure Grounds and Kitchen Garden; 12 years' experience; age 26; single; abstainer.—W. GROVE, Swinley Park, Ascot.

GARDENER, age 30; well up in Kitchen Garden and Pleasure Ground; eight years' character; married when suited; disengaged.—R. ELEY, East Sutton, Maidstone, Kent.

GARDENER; thoroughly practical all branches; life experience; disengaged when suited; good reference; well recommended as good all-round man; single.—E. BROWN, Station Cottage, Partridge Green.

GARDENER in Herbaceous, Wall, Rose or Alpine Gardens; best recommendations; age 21; total abstainer.—Apply, WILLIS W. KING, Hill Cottage, Nomansland, Lyndhurst, Hants.

GARDENER seeks Re-engagement; charge of well-kept Vegetable, Fruit and Flower Gardens; some Glass; gentleman will recommend; four years' character; abstainer.—J., 18, South Street, Leighton Buzzard.

GARDENER, age 29, seeks Situation Outside; good references.—C. F., Box 25, 41, Wellington Street, Covent Garden, W.C.

MR. MITCHELL, New Croft, Hillingdon, wishes to personally recommend his GARDENER, H. Wheeler, to any Lady or Gentleman requiring a competent man; age 32; married.

MR. HUTT highly recommends Harold Parker as an exceptionally good Man; tall and strong; age 21; Outside or Inside and Outside; Kent preferred.—Lullingstone Castle, Eynsford.

MR. DAVIDSON, Polesden Lacy, Dorking, recommends GARDENER (Kitchen or Single-handed); 10 years' experience; age 28; married when suited.—G. TURNER, Orchard Cottages, Lent Rise, Burnham, Bucks.

GARDENER (Single-handed); age 38 years; married; speciality Flower Garden, Roses, Herbaceous Borders, Alpines, Landscape and all Outdoor work; two years at Kew Gardens.—Address, care of Clarke, 21, Rosaville Road, Fulham.

MRS. OPPENHEIMER will be pleased to recommend H. Tagg as GARDENER (Single-handed or with help); experienced Inside and Out; age 27; married when suited.—16, Shottesbrook, near Maidenhead, Berks.

GARDENER; experienced (Single-handed or otherwise); six years in present Situation; good characters; can be well recommended; age 26 years.—MARSHALL, 8, Hellards Road, Stevenage, Herts.

GARDENER (Single-handed or with assistance). Mr. F. W. HUXLEY, Limpsfield Grange, Limpsfield, Surrey, will be pleased to recommend J. Sears, who has been with him nearly three years; age 28; married when suited.

GARDENER (Single-handed); good practical experience; Kitchen and Fruit Garden and Pleasure Grounds or with little Glass; strong and active; age 26.—W. BROOKS, Gardener to Lady Philipson Stow, Blackdown House, Haslemere, Surrey, will be pleased to recommend a Young Man as above.

GARDENER (Single-handed or help); thoroughly experienced; good reference; near London; age 35; married, no family.—C. H., 43, Church Lane, Teddington.

GARDENER (Single-handed or with help); 12 years' experience gained in good establishments; two years present place; excellent references; age 26.—J. CALDER, 10, St. James's Terrace, Muswell Hill, N.

GARDENER (Single-handed or with assistance); life experience Inside and Out; personal reference to present employer, who is removing to London.—S. HUMPHRIS, Turton Road, Wembley, Middlesex.

GARDENER (Single-handed or Second of four); age 26; single; eight years' good experience Inside and Out; use Scythe; two years present place; good references.—Apply, A. C., care of Mr. Finch, Grange Farm Cottages, Crawley Down, Sussex.

GARDENER; 11 years' experience Inside and Out; as Second or otherwise; age 25; where cottage is provided.—W. FIVEASH, 2, Summer Cottages, Rusthall, Tunbridge Wells.

GARDENER (Second, Inside or Inside and Out); good all-round experience; well recommended; age 29; abstainer.—R. W., 24, Queensberry Mews East, S. Kensington.

GARDENER (Second, well experienced Inside and Out, or Single-handed); age 25; married; can be well recommended.—L. HUBBARD, Coombe Lodge Gardens, Coombe Road, Croydon.

GARDENER (Second, Inside or Inside and Out); nine years good general experience; age 23; good references.—E. PAYNE, Boxhill Road, Headley, near Epsom.

GARDENER (Second); life experience; excellent references; age 28.—A. BURT, Edge Hill, Banbury.

GARDENER (Second, Inside or Inside and Out); age 27; excellent references; 13 years' good general experience; married when suited; abstainer.—F. STEVENS, Ratton Gardens, near Eastbourne.

GARDENER (Second of four or five) seeks Situation; age 25; good experience Inside and Out; good references; Second of five present place.—J. BRISTOW, Lainston Gardens, near Winchester, Hants.

GARDENER (Second); 12 years' good experience Inside and Out and Decorating; age 25; disengaged; can be highly recommended.—V. GRIMES, Fern Cottage, Worstead, Norfolk.

GARDENER, as SECOND, where four or five are kept, Inside and Out; age 26; good references.—A. STILWELL, The Gardens, Holly Spring, Bracknell, Berks.

GARDENER (Under or small Single-handed); life experience; age 28; married, no children; near London preferred.—C. P., 2, Sylvan Terrace, Woodman Road, Warley, Essex.

GARDENER (Under) seeks Situation where three or four are kept; can take Duty; willing to learn.—J. ELLIS, care of Mrs. Cosens, Hookwood, Horley, Surrey. (No circulars.)

GARDENER (Under); Young Man seeks Situation as above; chiefly Kitchen Garden; age 21; height 5 ft. 11 in.; good experience; excellent references.—H. COLLYER, Welton, Daventry, Northants.

GARDENER (Under) seeks Situation; Pleasure Grounds; used to Horse Mower; tall and strong; 4½ years' experience; well recommended; Bothy preferred.—W. CAMP, Aspenden, Buntingford, Herts.

GARDENER (Under).—F. LING, Gardener, Gorelands, Chalfont St. Giles, Bucks., wishes to recommend A. George; six years' experience; five years here; age 19; strong and willing.

FOREMAN or SECOND (Inside).—Mr. JENNINGS, Knowsley Gardens, Prescot, highly recommends F. Pay; 2½ years with him at Harewood House; well up in Fruit, Plants, &c.; age 27.—F. PAY, Harewood Gardens, Leeds, Yorks.

FOREMAN or good SECOND.—Mr. NUTTING, Childwickbury Gardens, St. Albans, Herts., wishes to recommend A. Burton as above; 11 years' good general experience; excellent references; age 25.—A. BURTON, Church House, Dilwyn, R.S.O., Herefordshire.

FOREMAN (Inside) or good SECOND; 11 years' good experience, three Foreman; all Fruit, Plant and Carnation Houses, Begonias, Chrysanthemums and Decorating; well recommended, age 25; married when suited.—MARSH, Penzance Lodge, Arthur's Hill, Shanklin.

FOREMAN (General) or good SECOND; 14 years' experience in Fruit and Plant Houses, Decorating, Hardy Fruit, &c.; excellent references; can be well recommended; over two years as Foreman in last place; age 28; married, one child.—W. GRIFFIN, Rownhams, Southampton.

FOREMAN (General) or good SECOND; 14 years' thorough experience in Fruit and Plant Culture; highly recommended; age 28; married.—W. ELKINS, 2, Eastworth Road, Chertsey.

FOREMAN or GARDENER (Second, Inside or Inside and Out); highly recommended; age 29; 14 years' general experience both Inside and Out.—J. HINTON, Cuddesdon, Wheatley, Oxford.

MR. STEPHENSON, Sutton Hall Gardens, near Chesterfield, strongly recommends G. Cooper, age 27, as FOREMAN (Inside) in a first-class establishment; previously Worth Park, Paddockhurst, and Lockinge; 15 years' experience.

FOREMAN (Inside); age 29; 15 years' good experience in Fruit, Plants; three years here as Foreman; good references.—A. MARLOW, Streatham Grove Gardens, Norwood, S.E.

FOREMAN (Inside).—Mr. W. BRUCKSHAW highly recommends G. Sears as above; age 28; 14 years' experience, gained in good establishments, including Osberton, Shipley, and Norbury Hall; last two years as Foreman; excellent references.—SEARS, Roston Inn, Ashbourne, Derby.

FOREMAN (Inside); good experience in Fruit and Plants; House and Table Decorations; age 28.—BELL, care of Mr. F. Owen, 56, North Road, Highgate, N.

FOREMAN (Inside); age 24.—S. WALKER, of Bartley Lodge Gardens, seeks Situation as above; three years at present place; 10 years' experience.—Apply, S. WALKER, Bartley Lodge Gardens, Cadnam, Southampton.

FOREMAN (Inside).—Mr. H. BERRY, Wilton Park Gardens, Beaconsfield, Bucks., can with confidence recommend W. Cox to any Gardener requiring a thorough practical and trustworthy man as above; three years here.

FOREMAN (Inside); age 28; 13 years' experience; four years as Foreman; good experience in Fruit, Plants, Decorating, &c.; good references, and can be thoroughly recommended; disengaged.—S. SAUNDERS, care of Mrs. Pond, Fern Cottages, Pinkneys Green, near Maidenhead, Berks.

FOREMAN (Inside or General life experience in first-class establishments; excellent references; age 28.—T. JONES, The Gardens, Holmewood Park, Tunbridge Wells, Kent.

FOREMAN (Inside or General); 15 years' experience in all branches, including Carnations, Chrysanthemums, House and Table Decoration; two years last as Foreman, where eight are kept.—J. MILTON, 4, Regent Terrace, Hanson Lane, Halifax.

FOREMAN (Inside or General).—Mr. E. GOLDING, Tyringham Gardens, Newport Pagnell, Bucks., highly recommends C. Cage as above; age 27; life experience in all branches; three years here, two as Foreman; excellent references.

FOREMAN (Inside or General); age 27; married; 13 years' experience in all branches; excellent references from good establishments.—BROOKER, Church Hill, Winchmore Hill, N.

FOREMAN (General); thorough practical experience, gained in leading Gardens; Fruit, Flowers, House and Table Decorations; first-class references; age 26; single.—HEAD GARDENER, Woolhampton Park, Berks.

FOREMAN (General); thorough practical all-round Man; first-class references; highly recommended; age 26.—F. FULLER, Courtlands, Goring-by-Sea, Sussex.

FOREMAN; age 27; 11 years' experience in all branches in good establishments; excellent references; South preferred; disengaged.—H. WALKER, 49, North Road, Highgate, London.

MR. W. CURRELL, The Gardens, East Cliff Lodge, Ramsgate, wishes to recommend J. Caswell as FOREMAN; good Plantsman; 12½ years' experience; age 26.

FOREMAN (Working); life experience Tomatos, Peaches, Roses, Cucumbers, Grapes, Carnations, Chrysanthemums, Bulbs, &c.; could take charge; good references; age 39.—KETTELL, 1, Hollybush Lane, Hampton, Middlesex.

THE GARDENERS' CHRONICLE

ESTABLISHED 1841 — No. 3723

No. 1,323.—Vol. LI. {THIRD SERIES.} SATURDAY, MAY 4, 1912. {Registered as a Newspaper. WITH SUPPLEMENT.} {PRICE 3d. Post-free, 3½d.

SUBSCRIPTION—Inland, 15/-; Foreign, 17/6 [22fr. 10c.] [$4 26c.] per annum. Entered at the New York Post Office as second-class matter.

Postal Address—41, Wellington Street, Covent Garden, W.C. Telegraphic Address—"Gardchron, London." Telephone—Gerrard, 1543.

☞ **For CONTENTS see page 291.**

WEBBS' WALLFLOWERS.
The finest strains in existence.
WEBBS' Canary Bird (golden-yellow).
WEBBS' Ruby Gem (ruby-violet).
WEBBS' Vulcan (deep velvety crimson).
WEBBS' Eastern Queen (salmon shaded).
WEBBS' Universal (single mixed).
WEBBS' Double (mixed; very fine).
Each, 1s. per packet, post free.
WEBBS' Kinver Favourite (blood-red).
WEBBS' Primrose Dame (primrose).
WEBBS' Belvoir Castle (yellow).
Each, 6d. per packet, post free.

WEBB & SONS, The King's Seedsmen, WORDSLEY, STOURBRIDGE.

AUTO SHREDS FUMIGANT kills Leaf-mining maggot, insects in greenhouses, frames. For 1,000 cubic feet, 6d.; 10,000, 3s. 6d. No apparatus. WM. DARLINGTON & SONS, Patentees, Hackney, N.E.

New Phloxes.
GUNN & SONS were Awarded a Silver Cup at the Great Show at Olympia. New Lists now ready. Address: Olton, Warwickshire.

SELECT YOUR ALPINES IN FLOWER.—A large collection, in pots, also Aquatics for present planting. Visitors cordially welcomed.—THE GUILDFORD HARDY PLANT NURSERY, Guildford.

DOUGLAS'S CARNATIONS & PINKS, border and perpetual, are noted all over the world. 5 Gold Medals, R.H.S., 450 Medals and Cups. Newest and best varieties at most reasonable prices, all ready for planting or potting on. Finest hand fertilized seed only sold. Carnation and Picotee seed, all types, 1s. 6d. to 2s. 6d. packet. Auricula, Pink, Polyanthus, finest strain in existence, all 1911 fine crop, now ready for sowing. Send for catalogue, Edenside, Gt. Bookham.

Roses and Herbaceous Plants.
GUNN & SONS were awarded the 25 Guinea Challenge Cup in each collection at the Leamington Show. Up-to-date List for each now ready. Address: Olton, Warwickshire.

LANDSCAPE GARDENING.—W. INNES STUCKEY, Landscape Gardener, Piccadilly Mansions, Piccadilly Circus, W. (With the late Mr. H. E. Milner).

GARDEN PESTS.—Cross's "Clubicide" is the Gardeners' Insurance against damage by Eelworm, Wireworm, Slugs, Maggot, and all Disease Germs and Insect Pests. Kills all harmful Bacteria, reinvigorates the soil, stimulates plant life. In 1s. flasks and ½-gall. and 1 gall. drums. From all Seedsmen. Sole Manufrs.: A. CROSS & SONS, Ltd., Glasgow.

WM. DUNCAN TUCKER & SONS, Ltd., 27, Cannon Street, London, E.C.; Works, Tottenham. Conservatories, Winter Gardens, Vineries, Peach-houses, Portable Buildings, etc. Catalogue gratis.

BUNYARD'S CATALOGUES, free on application.
BORDER CARNATIONS, 50 varieties.
ROSES AND OTHER CLIMBERS, in Pots.
HERBACEOUS AND AQUATIC PLANTS for present planting.

GEORGE BUNYARD & CO., LTD., Royal Nurseries, Maidstone. Established 1796.

HARRISON'S "RELIABLE" WEED KILLER.—Best and cheapest. See p. v. this issue.

SUTTON'S GIANT DOUBLE DAISY.
Enormous flowers, might well be taken for Asters.
GIANT WHITE, per packet, 1s. 6d.
GIANT PINK, " " 1s. 6d.
GIANT MIXED, " " 1s. 6d.

SUTTON'S MYOSOTIS,
SUTTON'S PERFECTION, Blue, Rose, White and Pale Blue, each per packet, 1s.
SUTTON'S ROYAL BLUE, per packet, 1s. 6d.

SUTTON & SONS, The King's Seedsmen, READING.

BARR'S SEEDS FOR MAY AND JUNE SOWING.—Finest strains of Antirrhinums, Aquilegias, Campanulas, Canterbury Bells, Calceolarias, Cinerarias, Delphiniums, Hollyhocks, Lupins, Pansies, Primulas, Stocks, Wallflowers, etc. Special list on application.
BARR & SONS, 11, 12 & 13, King St., Covent Garden, London.

DICKSONS Horticultural Manure & other high-class Fertilizers; also Dicksons Improved Mushroom Spawn. Priced Circulars free on application to DICKSONS, Royal Seed Warehouses & Nurseries, Chester

HUTS FOR THE GARDEN.—Fruit Rooms, Potting Sheds, Workshops, Cycle Houses, Boot Rooms, Servants' Mess Rooms, Children's Playrooms, &c. Send for Illustrated Catalogue, free. BOULTON & PAUL, Ltd., Norwich.

GISHURST COMPOUND is harmless in use; its soluble Sulphur, &c., has for 40 years cured Blights and Fungus on Plants, and is good for washing unhealthy dogs. Gishurstine keeps boots dry in all weathers; they will polish. Good for Harness.
Wholesale from—
PRICE'S PATENT CANDLE CO. LTD., London.

WALTERS & CO., Morland Rd., Croydon, Makers of Lath Roller Greenhouse Blinds; also Pinoleum, Scrims and Tiffany Blinds. Prices and samples free. Established 20 years.

GREENHOUSE PAINTING & GLAZING "Vitrolite" superior to White Lead Paint, 9/- per gall. "Plastine" supersedes Putty, 16/- per cwt. Full particulars from W. CARSON & SONS, Grove Works, Battersea. Agents throughout the country.

THE Popularity of "XL ALL" Specialities increases every year. All gardeners proclaim that nothing equals these celebrated preparations. "XL ALL" NICOTINE VAPORISING COMPOUND, the gardeners' favourite Fumigant, both Liquid and Cake. "XL ALL" NICOTINE INSECTICIDE WASH for Syringing, Dipping and Dressing Fruit Trees and Plants; Mealy Bug, Scale, etc., cannot exist where this is used. "XL ALL" INSECTICIDE WASH B (*sine* Nicotine), best non-poisonous Wash on the Market. No licence required to sell this. Other preparations of great renown are:—"XL ALL" WEED KILLER, "XL ALL" FERTILISER, "XL ALL" ROSE MANURE. Richards' GREEN SUNSHADE, finest powder shading on the market, 1s. packet, does 100 feet of glass. Don't forget to ask your Nurseryman or Seedsman for my small pink list.—G. H. RICHARDS, Manufacturer, 234, Borough High Street, London, S.E.

OSMUNDA for Orchids.—Consignments arrive fortnightly. 2s. 6d. per bushel; per bag, 8s. 6d. SANDER & SONS, St. Albans.

LISSADELL ALPINE & HERBACEOUS PLANTS.—Write for our new illustrated and enlarged List, containing many beautiful novelties at moderate prices. Also List of Seeds collected from above in 1911.
J. A. COOPER, Lissadell (No. 2), Sligo, Ireland.

For Advertisement Charges see page iv.

KELWAY'S "Manual of Horticulture" is the best of all Garden Books, 2s., post free. From ——, Esq., Northwood, Middlesex, September 28th, 1911: "I find that I have never forwarded 2s. for your lovely Catalogue you sent me some weeks since. It would be cheap at five times the price, and I sincerely regret the oversight."—KELWAY & SON, Langport, Somerset.

THE MODERN HERBACEOUS BORDER.—Full particulars and prices of Kelway Borders packed, arranged forplanting, to flower in tasteful schemes of colour, from—KELWAY & SON, The Royal Horticulturists, Langport, Somerset. From ——, Esq., The Orchard, Harrow. "Everything seems to me most excellent, and your care in packing and sending is remarkable. I beg you to accept my best thanks for all the trouble you have taken . . . . . Once more my best thanks."

Now is the time to plant.
KELWAY GAILLARDIAS are among the most brilliant, the hardiest, and the most easily-grown herbaceous perennials; they give abundant bloom in the same year that they are planted, and blossom profusely from June to November. Choice named collections, 12s. and 18s. a dozen. From pots. Carriage and packing free for remittance with order.—KELWAY & SON, The Royal Horticulturists, Langport, Somerset.

Now is the time to plant.
KELWAY'S NEWEST GLADIOLI. These new Gladioli are a revelation. They should be planted by all who want glowing effect of colour in their beds and borders, and flowers for the house in July, August and September. We recommend trial of a selection of our "Cream of the World" collection of named varieties, flowering bulbs, for instance, one dozen for 9s.; per 100, £3 10s. Other choice collections, 30s. and 45s. per 100. Full descriptive list on application. Postage free for remittance with order.—KELWAY & SON, The Royal Horticulturists, Langport, Somerset.

ORDER TRELLIS-WORK NOW.—Get our book on Trellis-work, showing Screens, Wall Panels, Window Surrounds, Arches, Arbours, &c., post free. BOULTON & PAUL, Ltd., Norwich.

FRUITING VINES IN POTS.—Muscat of Alexandria, and leading Market varieties. We make Vines a speciality.
G. COLEMAN, The Vineries, Burgess Hill, Sussex.

ALPINES & HERBACEOUS PLANTS, —Himalayan and other rare Rhododendrons, rare Shrubs, Construction of Rockeries. Catalogues ready. G. REUTHE, Keston, Kent.

MACKENZIE AND MONCUR, Limited, Hothouse Builders and Heating Engineers, London, Edinburgh, and Glasgow. By Special Appointment to H.M. The King.
London Office: 8, CAMDEN ROAD, N.W.

CUTHBERT'S SPECIALITE MUSHROOM SPAWN.—NEW SPAWN NOW READY. We continue to receive the most gratifying testimonials as to the productiveness and good quality of our Spawn. Per bushel, 5s.—R. AND G. CUTHBERT, Seed and Bulb Merchants, Southgate, Middlesex.

VERBENAS.—The best sorts are Miss Willmott (pink), Princess of Wales (deep blue), Queen of Whites, King of Scarlets, and Lovely Blue (light blue); clean, healthy, strong young plants; carriage paid; 10s. per 100, cash.—H. DUDDERIDGE, The Dorset Nurseries, Blandford.

ASPARAGUS.—Now is the time to make an Asparagus bed; strong two year roots, 5s. per 100, packed and carriage paid.—BIRD & VALLANCE, Nurserymen, Downham, Norfolk.

SALES BY AUCTION.

Wednesday next, May 8th, at 12 o'Clock.

Choice Herbaceous and Border Plants, new and rare Perennials, Japanese Liliums, Gladiolus, Begonias, Gloxinias, Lily of Valley, Iris, Carnations, Pinks, &c., Liliums Nepalense and Sulphureum.

At 3.30 o'Clock.—Japanese Liliums in cases as received, viz., Auratum platyphyllum, speciosum, rubrum, L. longiflorum, giganteum, &c., 10,000 Gladiolus, various hybrids of Childsii, Gandavensis, Meadowvale, Graff's, and "America," 1,500 Watsonia Ardernei (Cape grown), 2,000 Anemones various, 500 American Pearl Tuberoses, 6,000 double French Ranunculus, white, 5,000 Hyacinthus candicans, 2,000 Tropæolum tuberosum, 250 bedding Begonia Worthiana, 150 Davallia bullata, various designs, &c.

At 5 o'Clock.—100 lots of Ornamental and Decorative Palms and Plants, Rhododendrons, Dracænas, Standard Bays, &c.; from Belgium, Stove and Greenhouse Plants.

MESSRS. PROTHEROE & MORRIS will SELL the above by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, E.C. On view morning of Sale and Catalogues had.

Friday next, May 10th, at 12.45 o'Clock.

A collection of choice DENDROBIUMS, the property of a gentleman who is relinquishing the cultivation of this species, including some of the finest varieties, many being specimen plants; all in the finest condition.

By order of Messrs. Sander & Sons, St. Albans, an importation of CATTLEYA AUREA DOWIANA; splendid plants of this magnificent Orchid, in grand order. From various sources: Imported Orchids, viz., 400 Oncidium varicosum, Lælia flava and Stanhopea eburnea, also a quantity of imported Lycaste Skinneri, Odontoglossum grande, and Oncidiums, new Habenaria Roebelinii, together with choice established Orchids in variety; Orchids in flower and bud.

MESSRS. PROTHEROE & MORRIS will SELL the above by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, E.C. On view morning of Sale and Catalogues had.

Royal International Horticultural Exhibition, May, 1912.

Messrs. PROTHEROE & MORRIS beg to announce that they have arranged to hold a series of important Auction Sales of

RARE ORCHIDS

from many of the best known and finest collections in Great Britain and on the Continent, as well as from noted growers, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., during the period covered by the show as follows:—

Tuesday,	May 21st	Tuesday,	May 28th
Thursday,	,, 23rd	Wednesday,	,, 29th
Friday,	,, 24th	Thursday,	,, 30th

Friday, May 31st.

MESSRS. PROTHEROE & MORRIS will be pleased to forward Catalogues of these Sales as soon as published to any applicants. Central Sale Rooms, 67 and 68, Cheapside, E.C.

PROPERTY FOR SALE.

FOR SALE, FREEHOLD; over two acres; stone built, tiled bungalow; five rooms; three greenhouses; sheds, pigsties, poultry houses, wired runs, 90 poultry; nice garden, crops; fruit trees; £450.—PENTLAND, Carterton, Clanfield, Oxon.

BUSINESSES FOR SALE, &c.

Over 100 Nurseries, Market Gardens, Florist & Seed BUSINESSES to be DISPOSED OF.

MESSRS. PROTHEROE and MORRIS' HORTICULTURAL REGISTER contains full particulars of the above, and can be obtained gratis at—67 and 68, Cheapside, London, E.C.

COMPACT NURSERY in good district for Sale as going concern; nine greenhouses and useful buildings; capital opportunity for all-round man to do sound local business; price for everything £350.—Full particulars of Messrs. PROTHEROE & MORRIS, 67, Cheapside, E.C.

FOR SALE, a well-equipped NURSERY and FLORIST BUSINESS, situated in a busy neighbourhood, within easy reach of the London markets; good local trade; established 30 years; dwelling house on the nursery; price, including valuable lease, growing crops, outbuildings, 10 glasshouses, frames, lights, &c., and goodwill, £1,500; exceptional opportunity for a person wishing to secure a pleasant ready-money business.—For particulars, write to ESSEX, Box 22, 41, Wellington Street, Covent Garden, W.C.

COMPACT LEASEHOLD NURSERY, freehold house adjoining; established 23 years by present owner who is retiring; 350 feet run glass; shop; jobbing and retail trade.—SHEAHAN, Hartfield Road Nursery, Wimbledon.

FOR SALE or to be LET, on lease, FRUITERER'S and FLORIST'S; commanding shop and premises; situated main road, Hampton Court; low ground rent; owner leaving neighbourhood. —Apply, BAILEY, Bridge Road, E. Molesey.

EXCEPTIONAL opportunity to acquire FREEHOLD NURSERY with cottages; going concern; 17 miles from town; excellently situated; price £1,500 and stock at valuation; bargain. —Apply, F. B. WRIGHTSON, Solicitor, 5, Guildhall Chambers, London, E.C.

BUSINESSES WANTED.

WANTED, TO RENT, an acre or two of Land with cottage, two or three greenhouses, near a town.—H., Box 3, 41, Wellington Street, Covent Garden, W.C.

BUSINESSES TO LET.

NURSERY TO LET; splendid position; five minutes from rail and trams; 350 ft. Glass; 1¼ acres Fruit; good house; rent £40.—Further particulars from MILES, Royal Hotel, Sheerness-on-Sea.

PARTNERSHIPS.

INTENSIVE GARDENING.—Owner of Freehold House and Land in Sussex would like to meet Partner who would give personal labour and share in capital for starting French Gardening, Poultry Culture, &c., for market purposes.—J. P., "Brookside," Ifield, Crawley.

NOTICES.

THE RHODODENDRONS planted in Rotten Row, Hyde Park, are supplied by ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey. Kindly note Christian name and address.

PUBLISHERS' NOTICES.

3rd Edition. Now Ready.

"Ferns & Fern Culture"

By J. BIRKENHEAD.

Revised by F. Parsons. 1/3, post free, of

THE PUBLISHER,

H. B. MAY & SONS, Upper Edmonton, N.

Present-Day Gardening.

Edited by R. Hooper Pearson, Managing Editor of the Gardeners' Chronicle. Now Ready. Post free, **1/9** each.

Numerous Beautifully Coloured Plates are contained in Each Volume.

1.—**SWEET PEAS.** By Horace J. Wright, late Secretary and Chairman of the National Sweet Pea Society. With Chapter on "Sweet Peas for Exhibition," by Thos. Stevenson.

2.—**PANSIES, VIOLAS, AND VIOLETS.** By William Cuthbertson, J.P., and R. Hooper Pearson.

3.—**DAFFODILS.** By the Rev. J. Jacob.

4.—**ORCHIDS.** By James O'Brien, V.M.H., Secretary of the Orchid Committee of the Royal Horticultural Society.

5.—**ROOT & STEM VEGETABLES.** By Alexander Dean, V.M.H., Chairman of the National Vegetable Society.

6.—**CARNATIONS & PINKS.** By T. H. Cook, Head Gardener at Sandringham; James Douglas, V.M.H., and J. F. McLeod, Head Gardener to Mr. Pierpont Morgan. Contains 8 full-page coloured plates.

7.—**RHODODENDRONS & AZALEAS.** By W. Watson, with preface by Sir F. W. Moore, M.A. (the first popular volume published on this subject). Contains 8 full-page coloured plates.

8.—**LILIES.** By A. Grove, F.L.S., with preface by H. J. Elwes, F.R.S. Contains 8 coloured plates.

9.—**APPLES & PEARS.** By George Bunyard, V.M.H. Contains 8 coloured plates.

10.—**ROSES.** By H. R. Darlington, with 8 full-page coloured plates. A double volume, price **2/10**, post free. Special presentation edition, with beautiful cover design, in cloth gilt, gilt top, price **3/10**, post free.

11.—**IRISES.** By W. R. Dykes, M.A., with preface by Prof. Bayley Balfour. 8 full-page coloured plates.

12.—**ANNUALS, HARDY AND HALF-HARDY.** By C. H. Curtis, with 8 coloured plates. **1/9.**

THE PUBLISHER,

"Gardeners' Chronicle" Offices, 41, Wellington St., Covent Garden, London, W.C.

EXHIBITIONS.

ROYAL SHOW

DONCASTER,

July 2nd to 6th, 1912.

73rd ANNUAL EXHIBITION of Horses, Cattle, Sheep, Pigs, Poultry and Farm Produce; Jumping, Sheep Dog Trials, Horse-Shoeing and Butter-Making Competitions, Agricultural Education, Forestry and Horticulture.

HORTICULTURE,

ENTRIES CLOSE ... ... MAY 31st.

LIVE STOCK entries close May 20th.

Prize-sheets and Entry Forms will be forwarded on application to

THOMAS McROW, Secretary,

Royal Agricultural Society of England, 16, Bedford Square, London, W.C.

Royal Botanical & Horticultural Society of Manchester & the Northern Counties.

Founded 1829.

Grand Rose Show and Summer Show

on July 19th and 20th, at the White City and Royal Botanical Gardens, MANCHESTER.

Schedules and all particulars from—

Mr. P. WEATHERS, Secretary,

Royal Botanical Gardens, Old Trafford.

PLANTS, &c., WANTED.

WANTED, large KENTIA PALMS, from 5 feet to 25 feet in height; large, well-coloured Dracænas and Crotons, also Aspidistras; for cash or exchange.—ROBERT GREEN (1911), LTD., 28, Crawford Street, London, W.

COMMON THYME.—Wanted to purchase; state quantity and price.—BUTLER, McCULLOCH & CO., LTD., Covent Garden Market.

PLANTS, &c., FOR SALE.

TINY SEEDLINGS, for immediate pricking; Storrie's invincible strains as under.

CYCLAMEN, for winter and spring blooming; strong from boxes, 100 10s.; from 2-inch pots, 3s. doz.

AURICULA (Border), to bloom next spring; choice mixed, 3s. 6d.; super extra mixed, 5s. 6d. per 100.

POLYANTHUS, to bloom next spring; choice mixed, 4s. 6d.; super extra mixed, 5s. 6d. per 100.

EXCELSIOR ICELAND POPPIES, in superb art shades; bloom this summer; tiny seedlings, 3s.; advanced plants, 12s. 6d. per 100.

HOLLYHOCKS, Carnations, Pentstemons, Pansies, &c., Primula obconica, Gloxinia, &c. Write for catalogue.—STORRIE & STORRIE, Glencarse, Perthshire.

LAWN GRASS SEED.—Morle's celebrated special mixture for all classes of Lawns, Greens, &c., free from Clover, 1s. per lb. (1s. 3d. post free); 17s. per bushel of 21 lbs.; Special, for shady places, 1s. 6d. per lb.; special prices for large quantities; write for our general Bulb and Plant Catalogue.—MORLE & CO., LTD., 156, Finchley Road, Hendon, N.W.

THE
Gardeners' Chronicle

No. 1,323.—SATURDAY, May 4, 1912.

CONTENTS.

Alcohol, the production of, from plants	300	Narcissus Mrs. E. H. Krelage and Œnone	294
Books, notices of—Roses	292	Obituary—Beaton, John	310
Publications received	303	Davidson, A.	310
Bread fruit and the mutiny of the "Bounty"	302	Easter, John	310
		Innes, Robert	310
Bruges, International Exhibition at	301	Jones, T.	310
Burchellia capensis	292	Ogg, Peter	310
Clianthus puniceus magnificus	294	Ryan, Martin E.	310
Corn crops, the	303	Orchid conference	300
Dahlias, collarette	296	Orchids, Malayan and Papuan	301
"Farrer" cup for rock plants	304	Peach trees, bud-dropping in	292
Flax fibre	303	Pears, an archway of	301
Forestry information for landowners	303	Primula Juliæ	293
Fruit crops and frost	304	Rhododendrons in China	291
Gazaland, the economic flora of	296	Rosary, the	293
Geffrye's garden,	302	Singleton, Mr. Robert	301
Hippeastrum, a fine white	292	Societies—Midland Daffodil	307
Horses poisoned by Equisetum arvense	301	National Auricula and Primula	307
Imperial College of Science and Technology	301	Nursery and Seed Trade	309
International Horticultural Exhibition, the	302, 303	Royal Horticultural	305
		Royal Meteorological	301
Kew Guild dinner	301	Shropshire Hort.	309
Market fruit garden	294	Strawberries, pot	304
		Sweet Peas, early	304
		Vines, red spider on	304
		Week's work, the	298, 299
		Zoological Gardens	302

ILLUSTRATIONS.

Cups offered at the International Horticultural Exhibition ... 303
Dahlias, collarette, two choice varieties of ... 296, 297
"Farrer" cup for rock plants ... 304
International Horticultural Exhibition, constructing the big tent for the ... 302
Narcissus Mrs. E. H. Krelage ... 294
Narcissus Œnone ... 295
Odontoglossum Uro-Skinneri Burford variety ... 307
Pears, an archway of ... 301
Primula Juliæ ... 293
Rhododendron chartophyllum ... 291
Rhododendron forests in China (Supplementary Illustration)

RHODODENDRONS IN CHINA.

(See Supplementary Illustration.)

THOUGH Rhododendrons are indigenous to most parts of China, the real home of the genus is, unquestionably, those high Alpine regions on the Chino-Tibetan frontier, which form the basins and watersheds of the Salwin, Mekong, and Yangtze. It is no longer in the Himalayas and their tributary ranges which compass India on the north that we must look for the majority of the representatives of the genus, but on their extensions which run east and south-east of Bhotan into China. There, somewhere about 98°-101° E. long. and 25°-31° N. lat., the genus reaches its optimum.

Of some 350 known species fully 140 are indigenous to China; new species are continually being discovered, and, as exploration becomes more general and less difficult, many more will certainly be added to the list.

Though the range of altitude is practically from sea-level to the limit of vegetation, yet except for a few low-level types, such as Rhododendron spinuliferum, R. Mariesii, R. indicum, R. oxyphyllum, and R. sinense, all species are to be found above 5,000 feet. From that altitude upwards they occur as isolated specimens or small groups growing in thickets and forests of mixed dicotyledonous shrubs and trees, gradually increasing in numbers up to 10,000-14,000 feet, at which point they form the dominant feature in the vegetation either as undergrowth in the forests of Conifers, or by themselves as dense thickets and forests. The lesser species take the place of our Heath or Calluna, carpeting miles of the Alpine pasture, both above and below those forests.

In stature they vary from the tiniest Alpine of 6 inches or less, such as R. campylogynum to trees of 30-45 feet in height, as R. lacteum and calophytum. In colour of flower they range from the darkest purples, through all shades of crimsons, scarlets, and pinks, to pure white, and some are also of the clearest and brightest yellows.

With the exception of a few species, such as R. racemosum, lepidotum, and decorum, all are peculiarly local in their distribution, in latitudinal, longitudinal, and altitudinal range. Only a few of the species found in the Yangtze basin are common in the areas drained by the Mekong or Salwin, and vice versâ. Many of the lateral spurs of the huge ranges separating those basins bear species indigenous to themselves alone.

The flowering period for most species is April to June, and, at that season, the forests with their wealth of bloom form a scene of indescribable beauty, and paint the flanks of the mountains with bands of the richest colours.

Naturally some ranges bear a greater number and variety of species than others. The Sung-kwei-Langkong range, where the photographs were taken which are reproduced in fig. 141 and the Supplementary Illustration, is particularly rich in species. It is part of the Mekong system, and, crossing it by the Sung-kwei Pass, I was most fortunate in striking it when the plants were at their very finest.

[*Photograph by George Forrest.*

FIG. 141.—RHODODENDRON CHARTOPHYLLUM IN ITS CHINESE HABITAT: FLOWERS WHITE TO ROSE-LAVENDER.

Though I had crossed it several times previously, it had not been just at that season, and, even with my knowledge of the many species to be found there, I was not prepared for the gorgeous sight which met the view as we broke clear of the dense forest which clothes the western flank of the range. No matter how skilful the writer, words fail to describe such a scene.

The pass is a comparatively shallow depression, a broad cleft running almost

east and west on the summit of the range, about two miles in extent by half a mile in breadth. The centre is occupied by a small lake, with open pasture on both sides for some distance up the slopes, and from the margins of this pasture to the tops of the low hills, about 1,000 feet higher, which enclose the pass on the southern flank, is Rhododendron forest.

The foreground is occupied by large matted masses of a dwarf species, possibly R. fastigiatum, of 1-2 feet in height, bearing small, deep purplish-blue flowers. Behind are groups and masses of R. chartophyllum (see fig. 141), which were simply showers of bloom, forming a belt of colouring from the palest rose-lavender to almost white. Next a taller species, bearing huge and well-formed umbels of deep rose-magenta flowers, possibly allied to R. argyrophyllum, and, behind all, to the verge of the Alpine pasture on the summit of the hills, an almost impenetrable forest of tree Rhododendrons, 20-40 feet in height, composed of such species as R. lacteum, lacteum var. macrophyllum, Bureavii, irroratum and others, all in the very perfection of bloom, with a dense undergrowth of dwarf Bamboos.

Viewed from the pass the surface of this forest appeared almost level; it was an ideal day, and the effect of the brilliant sunshine on the dark glistening sea of foliage, interspersed with masses of colouring, ranging from the almost pure white of R. lacteum and R. Bureavii and the creamy-yellow of R. irroratum, through nearly every conceivable shade of rose-lavender and magenta to the deepest crimson, was a sight far beyond my powers of description. With the greatest reluctance I proceeded on my journey; I could have wished to remain for days to enjoy the beauty of the scene. Truly nature is the great gardener, and man only mocks himself in his feeble attempts to imitate her!

The north flank of the pass, that having the southern exposure, was clothed with an evergreen Oak of 50-100 feet, with dark green spinous foliage, possibly Quercus ilex, interspersed with Rhododendrons of the largest types, R. lacteum, R. macrophyllum and others; some I measured were nearly 50 feet in height.

The lower slopes of both sides of the range, half-way towards the base, were occupied by dense masses of a dwarf form, 5-8 feet in height, of R. Delavayi, with particularly bright, light cherry-red flowers. *G. Forrest, Rangoon, Burma.*

COLONIAL NOTE.

A FINE WHITE HIPPEASTRUM.

I am sending you a photograph of Hippeastrum (Amaryllis) "Hathor," a chance seedling albino variety. Amaryllis seed very freely here, so much as to become a nuisance if self-sown seeds are allowed to grow in the garden; to prevent this I make a practice of collecting the seed about twice a week and throwing it about a piece of waste land. The seedlings grow in the grass, and it was amongst these seedlings that I found the variety Hathor.

The individual flowers are 4½ inches across the perianth, and one truss that I have out now has 17 pure white flowers, save for a little dull yellow in the bottom of the tube. *H. H. B. Bradley, Sydney, Australia.*

BUD-DROPPING IN PEACH TREE.

The cause of the dropping of buds from Peach trees in spring has perplexed gardeners for as long a time as I can remember, and the mystery is still unsolved. The serious losses sustained by growers through this trouble calls for a thorough investigation into its origin. The complaint is to be met with wherever the Peach is cultivated under glass, and it is strange that no one has been able to discover the cause. If bud-dropping were only met with in isolated cases, for instance in small gardens under the charge of amateurs, or of men of limited experience, the complaint might be attributed to cultural defects. But, unfortunately, the trouble occurs in gardens where the highest and best form of culture is practised under the direction of well-trained gardeners, and often for year after year.

It is asserted that the defect is constitutional in certain varieties and practically incurable. This contention has a certain weight of evidence in its favour, for it is well known that many early varieties, and specially those of American origin, such as Alexander and Waterloo, are more prone to bud-dropping than English-raised varieties, although these are by no means immune from the malady. Others believe that the trouble arises from dryness at the roots at some period during autumn, winter, or spring after the buds have matured. This much may be said for this contention that no fruit tree suffers injury from neglect in watering sooner than the Peach, and drought may sometimes be the cause.

An insufficient number or an enfeebled condition of the roots is often given as the cause, and especially deficiency of young, active, fibrous, surface roots. These reasons may well have something to do with the trouble, as they undoubtedly have with other aspects of failure in the culture of the Peach. Some contend that bud-dropping is in consequence of unripened shoots. If this were true one would expect to find all trees exposed to the same conditions of growth affected in the same way, but this is not so; moreover, it is seldom that trees properly cultivated under glass fail to ripen the wood properly. How many of us who have grown Peaches extensively on walls out-of-doors for many years can call to mind any serious cases of bud-dropping in such trees? I venture to say very few. I cannot remember having suffered serious losses at any time from trees grown in this way. Peach trees out-of-doors are subjected to a moist atmosphere and low temperatures, especially at night, throughout the winter and spring, and even until the fruits are well set. The soil about the roots of the trees is always moist and often very wet, but it does not remain very long at any time in this condition, as all Peach tree borders, whether inside or out, are thoroughly well drained. Moreover, the soil during these seasons is frost-bound, and these conditions ensure a complete rest for the trees. It is also well to remember the conditions under which out-of-door trees start into growth in the spring. Invariably the development of leaf and fruit buds occur concurrently with the root growth, but top and bottom growth is very slow at the start.

Peach trees grown under glass are subjected to entirely different conditions, for the supply of moisture at the roots and in the atmosphere is regulated by the cultivator. The question arises do the trees receive a sufficient supply of water at the roots during the resting season? Also, is the atmosphere of the house during this time kept as cool as it should be? The value of a low temperature whilst the trees are at rest is, I am afraid, not generally appreciated, and the key to the solution of the question may be found in this fact. It is a common practice to bring into Peach houses in winter Chrysanthemums and other plants, and the conditions are largely regulated to suit the intruders without much consideration to the requirements of the Peach trees. How often it happens that the sun bursts into brilliancy when the houses are insufficiently ventilated causing the temperature to rise many degrees in the course of a few minutes? Again, in cold, frosty weather when the operators are at work pruning, training, and tying the trees or washing down the house the hot-water system is turned on, causing immediately a higher temperature. Is it unreasonable to draw the inference that the subjecting of the trees to these fluctuating changes of extreme heat and cold during their resting period whilst the roots are inactive, stimulating growth and movement in the buds when there is no corresponding or sympathetic root action to support them, is a sufficient check to cause bud-dropping? *Owen Thomas.*

PLANT NOTE.

BURCHELLIA CAPENSIS.

Amongst the plants just now flowering in warm greenhouses is Burchellia capensis, a native of South Africa. It is a freely-branched, hard-wooded shrub, and the sturdy shoots are clothed with ovate, oppositely-arranged leaves, about 4 inches long, and of a rich green tint. The flowers are borne in compact, rounded clusters on the points of shoots of the preceding year; they are of a somewhat inflated tubular shape, a little over 1 inch long, and of a deep orange-scarlet colour. Nestling, as they do among the rich green leaves, these brightly-tinted flowers are remarkably effective. Not only do the individual blossoms remain fresh and bright for a considerable time, but a healthy specimen will maintain a succession of them for a lengthened period. This Burchellia is not a difficult subject to propagate, as cuttings of the half-ripened shoots root readily in a close propagating case with a gentle bottom heat, and the plants grow freely in a mixture of loam, peat and sand. Its popular name is the Buffalo-horn, from the hardness of the wood and, owing to this character, it is sometimes known as Burchellia bubalina. *W. T.*

NOTICES OF BOOKS.

Roses.*

Mr. Wright presents his readers with abundance of details, but as in these days one takes quinine in its coating of sugar, so his cultural precepts are sweetened with literary, artistic, not to mention moral and sentimental allusions. Therefore, apart from its value as a treatise on Roses, it is a book that one can take up to while away a spare half-hour. Though the exhibitor is not left out in the cold, it is unmistakably the amateur exhibitor who is kept in mind, as in almost every page of the book the amateur and his concerns are uppermost. He is advised to buy his Cabbages and Turnips and fill his garden with Roses. He is led through all the intricacies of budding, planting and pruning, is warned to beware of the insidious approaches of greenfly and other enemies; is told how to destroy them; the appearance of mildew and other parasitic fungi is described, and means for their eradication prescribed. There are many lists of Roses arranged for every conceivable garden and domestic purpose; long-stemmed Roses for tall vases and short-stalked ones for bowls; monsters, if such a name dare be bestowed upon a Rose, for single glasses, and small buds for button-holes. Several pages are devoted to colour arrangements, and a lengthy though not a complete list tails off the volume.

The amateur cannot but believe that trenching is a source of happiness second only to hoeing among the Rose bushes, that budding is a joy, and the squeezing of caterpillars between the finger and thumb an occupation of irresistible fascination. Mr. Wright entertains no sentimental feeling about cutting Roses. Rather he urges his

* *Roses and Rose Gardens*, by Walter P. Wright. (London: Headley Bros.) Price 12s. 6d. net.

readers to cut, the reward being, besides the pleasure of the flowers, a greater number of flowers in succession. The remarks on planting Roses in small hedge-enclosed spaces are splendid. The Rose must have fresh breezes to maintain it in health and vigour, and no surer way to induce mildew exists than to confine it.

Mr. Wright approves of chains for stretching between the poles in Rose gardens, but ropes are surely much to be preferred for the sake of the plants. The history of the Rose stretches back to the Iliad, and Mr. Wright gives us many references of a historical kind not only in the chapter devoted to its history but in other pages as well. Some, however, are unsatisfactory, and it would almost appear as if the work of the printer had not been closely inspected, two mistakes in two lines from Spenser being one instance of such lapses. Roses must have been early cultivated in immense quantities for purposes ecclesiastical and medicinal, and for cookery. They were had in bloom 10 months of the year, and undeveloped buds were preserved for Christmas festivities in all but the full bloom beauty of summer. Yet Mr. Wright assumes they were excessively rare. The Moss Rose, again, cannot date its existence in gardens from 1596. Miller first saw it in Holland in 1727, though it is named in Furber's catalogue appended to *The Gardener's Dictionary* of 1724, and this is the earliest notice of it. Then we find Maiden's Blush in Abercrombie's lists several years previous to 1797, the date given by Mr. Wright, and Miller names it earlier still. Is it correct to say that the York and Lancaster Rose has been superseded by Rosa Mundi? Here we have it as depicted in Miller's *Figures of Plants*, which shows a different disposition of colours than in *Les Roses* of Redouté. But the variety is known to be sportive. Moreover, Rosa Mundi is more full of petals. The white Rose of York is naturally also alluded to, its identity always being a source of interest. Not improbably it was the same as the white Rose of the Stuarts, a reference to which appeared in Mrs. Stewart Smith's *Grange of St. Giles* (1898) by the name of Prince Charlie's Rose, and the bush on which the Roses grew was then still existing in The Grange Gardens, Edinburgh. The Grange is a delightful old house, and there quite close to it I was shown the Rose, which proved to be Rosa alba. It has also been referred to the White Provence and to Arvensi, and is interesting as being the theme of more than one "ballad."

The volume is illustrated with colour pictures by Beatrice Parsons, coloured portraits of various Roses and half-tone reproductions.

PRIMULA JULIÆ.

PRIMULA JULIÆ (see fig. 142) is a native of the trans-Caucasian region, whence it was introduced to cultivation by Jurjew (Dorpat) Botanic Garden, and described as a new species in 1901. Pax, in his monograph of the genus, places the species in the section "Vernales," which also includes our common Primrose. Last year Mr. Baker, of Oxford Botanic Garden, received plants of P. Juliæ from Jurjew, and it has proved quite hardy, growing freely in suitable situations. On April 2 last the plant illustrated in fig. 142 was exhibited at the meeting of the Royal Horticultural Society, and was given an Award of Merit. Like the common Primrose, it is of tufted habit, with reniform-obicular leaves on slightly winged petioles about 3 inches long. When fully developed they are from 1¼ inch to 2 inches in width and the same in length, the base being cordate. The rosy-purple flowers are about the size of those of an ordinary Primrose, and are produced freely on stalks about 3 inches long. After flowering, short runner-like shoots are produced from the main axis of the plant, and these root freely at the nodes. P. Juliæ may be freely increased by means of these runners, and it should soon be plentiful in gardens. *W. I.*

THE ROSARY.

CULTURAL NOTES FOR MAY.

THOSE who adopted my advice and delayed the pruning of their plants for a short time, notwithstanding the forwardness of the season, have seen the advantage now, as their plants have but little fresh growth exposed to the April frosts. I could point to numerous instances where shoots of over 1 foot in length are badly injured by wind and frost, but the later pruned plants are almost untouched. The maggot must be kept under by hand picking, and in warm situations the syringe should be used freely as soon as aphides are discovered. There is much work to be done now amongst standards, more especially those budded last summer. Large quantities of suckers usually develop from the stems of those planted recently, and these should be cut out cleanly before they grow more than 2 inches in length. Their removal is carried out more easily and more effectively if done when they are quite young. Older standards will also need examining for suckers, but in their case these unprofitable shoots will be much fewer. In the case of shoulders that were budded, it is well to leave an end sucker until the Rosebud is active. Its presence will have a great influence in drawing the sap towards the Rosebud, and the growth may be cut away later on. Maiden dwarfs must, of course, be cleared of suckers at once. The more forward of these may have the extreme point of the young growth pinched out by the end of the month if bushy plants are wanted. Where extra early and good flowers are required do not head these yet, but wait until the flower is secured.

Some of the more precocious flowering varieties will need the side buds removed as soon as possible, thus throwing more strength into the centre or most promising bud. This is called "disbudding." But there is another phase of culture going by the same name. That is the reduction of the number of young breaks, more especially any growths having a tendency to grow towards the centre and so be likely to crowd the plant. A much better shaped and more useful plant may be obtained by a little attention to this detail, and the sooner the shoots are selected the better. When placing sticks to maiden dwarfs, give due consideration to the average height each variety is likely to attain. Dwarf habited Roses, such as Mildred Grant, Baroness Rothschild, and Etienne Levet need no sticks in their maiden stage. In the case of standard stocks that were not strong enough to bud last summer, it is an admirable plan to leave a length of 12 to 18 inches of the shoulder. This will very soon be in a suitable condition for budding, owing to the rapid flow of sap caused by young growths. But any breaks coming direct from the stem now would not be firm enough in the bark to take a bud before July at the earliest. Suitable buds may be procured under glass, and sometimes from early plants growing on warm walls or fences. Now that pruning is finished time is available for mulching, but see that the ground is well stirred and free from weeds before the manure is applied. The roots will be in a condition to absorb food that may be washed down to them, and apart from enriching naturally poor ground I much prefer to apply mulches at a time when the roots can assimilate food before it percolates too deeply to be of material benefit.

Photograph by W. Irving.

FIG. 142.—PRIMULA JULIÆ: FLOWERS ROSY-PURPLE.

MAGGOTS AND CATERPILLARS.

One cannot be too keen in killing maggots and caterpillars found on young growths. A little observation will soon enable the cultivator to decide whether a leaf is curled up by the maggot or is still in a stage of healthy growth. I know of no better plan than careful hand-pinching of these leaves. It must be done quietly, or the grub will take alarm and drop to the ground quickly, supported by a fine silk-like thread, by which it will regain its original position as soon as the disturbance has ceased. A second plan is to slightly tap the stems, and at the same time watch for and capture the enemy as it falls.

The hoe should be used freely among all Roses where the soil is not mulched; even then it does good to slightly stir the manure. Artificial manures will be useful, and doubly so if they are applied just previous to or during a shower. Roses on walls and arches that are carrying a large number of growths will be benefited by copious waterings with liquid manure obtained from the stock yard or cow stall. Do not pour the liquid close to or against the base of the plant. Any mulchings that may be objectionable may be covered with a light dressing of fresh soil.

Roses Under Glass.

Plants growing in borders will need root waterings with diluted liquid manures. Pot plants need constant feeding at this stage. A slight sprinkling of a good fertiliser will do good if applied at the rate of a tablespoonful to each 8-inch pot. Afford water, and then dust the surface of the pot with fresh soil to prevent any smell arising or unsightly appearance. Liquid manure from animals is not always desirable in the conservatory, but it is the best stimulant for Roses. Afford a little denser shade by the end of the month, and promote more moisture in the atmosphere. *Practice.*

CLIANTHUS PUNICEUS MAGNIFICUS.

Clianthus Dampieri, the Australian Glory Pea, for long enjoyed an unenviable notoriety, because very few cultivators flowered the plant successfully. The majority gave up its culture in despair, and to the memory of its intractability we may perhaps attribute the lack of interest shown to the merits of Clianthus puniceus, a species infinitely more amenable to ordinary cultural methods.

Clianthus puniceus magnificus may be flowered either in a large pot or planted out; the latter method giving the best results, the soil of a border having more uniform conditions as regards moisture and temperature. Cuttings root readily in a brisk heat, and specimens intended for planting out may be grown to a good size in 6-inch pots. A suitable compost for this plant is two-thirds light fibrous loam and one-third leaf-mould.

Clianthus puniceus is well suited for furnishing a pillar, rafter, or wall in the conservatory, where it will grow up to 12 feet high. Established specimens flower profusely each season; the drooping clusters of large, scarlet flowers being very effective.

I recently noticed a healthy well-flowered specimen in a cool show house in the Springburn Park, Glasgow. The species has been grown and flowered out-of-doors in the sheltered gardens of the Scottish Western littoral. *Fred. W. Jeffery, Woodend Gardens, Renfrewshire.*

NARCISSUS MRS. ERNEST H. KRELAGE AND N. ŒNONE.

The beautiful trumpet Narcissus, illustrated in fig. 143, was shown by Messrs. E. H. Krelage at the meeting of the Royal Horticultural Society on April 16, when the Narcissus Committee granted it an Award of Merit. The creamy-white flowers are remarkably fine, and the trumpet is very imposing, both in size and substance. The flower-stalk is long and stout, so that the blooms appear well above the foliage. Œnone (see fig. 144) is a fine, silvery-white Incomparabilis variety, the tone being uniform throughout the flower. The base of the cup is of a peculiar shade of green, which intensifies the silvery whiteness in the flower. The segments possess great substance, and the cut bloom lasts a long time. The form is distinct and very beautiful. Œnone is not new, but blooms have been shown very finely this season.

THE MARKET FRUIT GARDEN.

April has been a month of trial to all fruit growers, and of disaster to not a few. Drought, frost, and north-east wind have been set off against a wonderful amount of sunshine. Only 1-20th of an inch of rain has fallen at my station up to the morning of the 29th, and in eight days at the end of March only 0.02 inch fell. Such a drought for over five weeks after five months of flood was bad for everything that grows, and in the latter part of the time the land had set nearly as hard as cement. In the early part of the month the horse cultivator was got through the spares between rows of fruit trees and bushes; but even then the numerous roadways along which manure had been carted were unworkable. As for hand-hoeing in the rows of trees and bushes, by the time that the first summer spraying was finished the work was found almost impracticable, as the men could only scrape the weeds, and required double the usual time to do a given amount of work. Consequently the attempt was relinquished, in order to wait for rain to soften the soil. Where artificial manure was applied early in April, it lay undisturbed on the surface of the land at the end of the month, and will hardly be of much benefit this season, at any rate to bush fruit.

To what extent the fruit crops were damaged by the frosts of the nights of April 10 and 11 is not yet fully known, and probably never will be with any approach to accuracy. Where it reached 10° to 13°, as it did in parts of Kent and Worcestershire, and even 15° in extreme cases, the destruction among Plums, Pears, Cherries, Gooseberries, and Currants was lamentably extensive. In my extreme southern district the frost was comparatively slight, and the damage partial and small. It is probable that the Apple

[Photograph by G. W. Leak.

Fig. 143.—Narcissus Mrs. E. H. Krelage: a creamy-white trumpet variety.

crop has not been seriously reduced by the frosts. Whether the setting of the blossoms of Plums and Apples has been interfered with by the north-east wind which prevailed during two out of the last three weeks of the month remains to be seen. Injury done by this wind, which almost invariably prevails when Apples are in blossom is commonly attributed to frost.

Remarkable Immunity from Aphis Attack.

Up to the end of April I had not seen a single aphis on a Plum tree, and only a few could be found on Apples. In every preceding year since my Plums were planted they have been badly infested, and last season they were smothered with the insects. They may be forthcoming later in the season; but if they do not prove troublesome, it would be very interesting to learn to what cause we owe a very welcome immunity. Is it possible that the mother-queens had hatched out prematurely during the mild weather which preceded the severe frosts of the end of January and the beginning of February, to meet their death during that period?

The First Summer Spraying.

All my Apple trees, young and old, were sprayed for Apple suckers and caterpillars in the latter part of April, however slightly they were infested. Where this operation is carried out annually, growers of fruit are much less troubled with these pests than where spraying is neglected or done irregularly. A great deal of dodging about among the several varieties is necessary in this spraying; for, on the one hand, it is of comparatively little use so far as the sucker is concerned, or the aphis where it was present, to spray before the clutches of blossom-buds are divided; on the other hand it is highly objectionable to use the poison necessary to kill caterpillars where any blossom has expanded, because of the risk of killing bees and other pollinating insects. Short-stalked varieties of Apples are very troublesome in this connection, as their clutches of blossom-buds remain in a compact form until two or three days before they begin to expand their flowers. Moreover, the efficiency of the operation is impaired in all varieties by the irregularity in which blossom develops on each of them. Soft soap, quassia extract, and arsenate of lead were used by me, at the rate of 10 lbs. of soft soap, 3 pints of strong quassia extract, and 4 lbs. of arsenate of lead to 100 gallons.

Examining Results.

A careful and prolonged examination of Apple trees a few days after the spraying showed that some suckers were still alive. These were found almost exclusively in the backward clutches of blossom, which had been in a compact form at the time of spraying. Some dead suckers were found, but in many cases where the globules of mucus secreted by the insects were to be seen, no suckers could be found, dead or alive. Whether they drop to the ground after being wetted with the spray stuff, or are blown off when dead and shrivelled, is uncertain. At any rate, a large proportion had disappeared. This was the case also with caterpillars and thrips, though many of the former were found dead and a few of the latter. The thrips appeared to disregard soft soap and quassia where arsenate of lead was omitted in spraying some trees over Gooseberries, in which case it would have been dangerous to consumers of the berries to have used it; but where the poison was used not a single live thrip was found a few days after the spraying, and hardly any dead ones. This disappearance is one of the mysteries which research is needed to solve, as it can hardly be supposed that the natural career of the thrips on Apple trees had ended before the blossom had fallen. Nearly all the aphides found were dead.

The Next Spraying.

The tribulation of spraying will have to be encountered again as soon as the petals of the Apple blossom have fallen, in order to poison the food of the codlin moth caterpillars and any leaf-eaters not killed by the first operation. Whether or not it will be necessary to add to the arsenate of lead any soft soap and quassia will depend upon the extent to which there proves to be any remaining infestation of Apple suckers or a fresh one of aphides. At present most varieties are hardly infested sufficiently to render this addition necessary. It is to be hoped that it will not be required, as it is desired to use lime-sulphur with the arsenate of lead for all varieties of Apples subject to scab, and this cannot be mixed with soft soap without coagulating the latter. Consequently, if the soft soap has to be included, a separate spraying with lime-sulphur for scab will be necessary.

Fig. 144.—Narcissus œnone: a white incomparabilis variety.

The Splendour of Fruit Blossom.

Never before has there been a more beautiful display of Pear and Cherry blossom than there was in the third week of April. Both kinds of trees were densely covered with the largest of blossoms, all varieties of each being almost equal in display. The Apple blossom a week later was also magnificent, though less dense, except in a few varieties. Plums with me had not been more striking than usual, excepting Victoria, which was a mass of whiteness.

On and Off Years for Apples.

Although, taking it as a whole, the show for Apples is a very good one, it is with me strikingly partial. In the United States it is commonly recognised that there is alternately an on and off season for this fruit. Here there is no such regular sequence; but many varieties of trees, after they have become mature, crop well only every other season. Some which have cropped regularly while young get into the habit of taking a comparative or absolute rest in alternate years. Allington Pippin, which has a tendency to premature fruiting, is one variety which, with me, has got into this habit. Last season I labelled some trees in the eleventh year from the planting, showing which had been bare of fruit, which bore a moderate or rather small crop, and which fruited heavily. This year the first was densely covered with blossom, the second moderately, and the third not at all. Similarly, Bramley's Seedling trees of the same age bore heavily last season, but will be nearly devoid of fruit this year, though young trees of the same variety make a good show. Most of the mature Lord Grosvenor took a rest in 1911, but have a tremendous promise now, while the converse was and is the case with much younger trees. Again, Lane's Prince Albert, one of the most constant fruiters, is promising only the poorest crop which it has ever borne for me. Queen and Wellington are other varieties for which this is an off season, while Lord Derby, after a rest in 1911, now gives splendid promise. As for Golden Spire, with me it has always been an inveterate alternate-year fruiter. Possibly, if we thinned great crops severely, this alternation of abundance and scarcity would not occur. *A Southern Grower.*

FLORISTS' FLOWERS.

COLLARETTE DAHLIAS.

In view of the development of this class of Dahlia, the note on the subject by the late Mr. W. E. Gumbleton in the *Gardeners' Chronicle*, May 6, 1911, p. 283, may be recalled. Mr. Gumbleton drew attention to the beauty and utility of these flowers. The Collarette Dahlias seem to have had their origin on the Continent, and many of the best of the sorts now in commerce have been raised and distributed by French and German growers. British specialists in the cultivation of the Dahlia have, however, taken up their culture, and one firm is introducing this season no fewer than six varieties, all of which have been raised in its nurseries. The Royal Horticultural, National Dahlia, Royal Caledonian Horticultural, and North of England Horticultural Societies, together with the Scottish Horticultural Association, all granted awards during last autumn to some of the varieties of this type. The great feature of the Collarette Dahlia is its value for decoration, either in the garden or cut for the decoration of the house. The Collarette flowers are borne on stout, stiff, erect stems, standing well in a cut state in water, while their pleasing combinations of colours are much appreciated for this work, and the blossoms remain fresh for ten days in vases. One of the most beautiful varieties I noticed last autumn was Diadem, a rose-coloured, star-shaped flower with a pure white collar, altogether a most effective and charming Dahlia, and one that yields its flowers in great profusion. It well deserves the First-class Certificates it has received from the National Dahlia Society and the Scottish Horticultural Association, and, in addition, the First-class Diploma of the North of England Horticultural Society. It is a robust grower, the plants attaining a height of 4½ feet. Leitstern is another attractive, star-shaped flower, the deep velvety-maroon background making a strong contrast with the pure white collar. It is a favourite for cutting, and a vase of its flowers has a very pleasing effect. Like Diadem, it is a strong-growing and free-flowering variety, the plants being about 3½ feet high. It has received a First-class Certificate from the National Dahlia Society. Countess Dougon is a white-ground flower splashed with rosy-purple, the collar being white. It is a little dwarfer in growth than the two varieties already mentioned, the plants growing about 3 feet high. Prince de Venosa has crimson flowers shading to magenta, with a pure-white collar. It grows about 4 feet high. This variety has received Awards of Merit from the Royal Horticultural Society and the Scottish Horticultural Association. Maurice Rivoire, one of the sorts mentioned by Mr. Gumbleton, has received awards from the Royal Horticultural and National Dahlia societies, and from the Scottish Horticultural Association. It is a very showy variety with flowers of a crimson ground, the darker shades of which are well set off by the pure white collar. The plant has a good habit and is very showy, and attains a height of 4 feet. Mme. Gygax has pretty yellow flowers marked with red, with a collar of a soft primrose shade, the plants growing 3½ feet high. These varieties are amongst the best of the Continental introductions known to me, but the following sorts did well last season and were much appreciated:—

Fig. 145.—Collarette Dahlia Diadem: a rose-coloured variety with a white "collar."

Souvenir de R. Bernardeau.—White ground mottled with crimson, cream-coloured collar. Height 3 feet.

Antverpia.—A crimson-scarlet flower with yellow disc and yellow collar. Very showy and beautiful when cut. Height 3½ feet.

Le Congo Belge.—A variety much in the way of Leitstern, but distinct. The flowers are of a fine maroon colour with a white collar. Very pretty in a vase. Height 3 feet.

Henri Farman.—Bright vermilion, edged with primrose, and having a straw-coloured collar. A conspicuous and effective flower. Height 3½ feet.

Comtesse Icy Hardegg.—Purple-maroon shading to rose, with white tips to the petals. Collar white. Height 3½ feet.

Mme. E. Wauters.—Flowers deep red, with straw-coloured collar. Height 3 feet.

The above-mentioned varieties are all free-flowering, the habit of the plant in every case being good. They are distinct and effective and give a splendid display in the garden from the middle of August until the plants are cut down by frost.

A variety named Holyrood, to be distributed this season, has flowers of a rich ruby colour, the tips of the petals being golden yellow. The flower has a yellow disc and a clear yellow collar, the latter being unusually well developed. I was specially taken with the exquisite vases of flowers of this flower submitted by the raisers in the autumn to the Floral Committees of the Royal Caledonian Horticultural Society and the Scottish Horticultural Association, both of which societies honoured it with a First-class Certificate. *George M. Taylor, Midlothian.*

NOTES ON THE ECONOMIC FLORA OF GAZALAND.

(Continued from p. 284.)

Khaya nyasica is another lofty and closely-allied tree, the wood of which is of a red colour, handsomely grained, hard but fairly easy to work. The seeds are gathered, crushed and boiled by the natives for the purpose of obtaining the oil, which is said to have a bitter taste and is rubbed by them into their hair to kill vermin. Catha edulis, a tree belonging to the Celastrineæ, well known as furnishing the leaves of the "Khat" or Arabian Tea, is here described as one of the largest forest trees yielding Chirinda Redwood. In the order Rhamnaceæ, the only plant referred to as of any economic use is Zizyphus mucronata, the roots of which, together with those of Securidaca longipedunculata, are considered by the native doctors as the two best remedies for pleurisy and pains in the chest; the leaves are also used for similar purposes, being first chewed to promote the flow of saliva, which is then rubbed with the hand into tattoo cuts in the side and stomach. Rhoicissus cuneifolia, a shrub with trailing twigs, belonging to the Ampelideæ, bears small edible fruits. The roots take the form of long, hard tubers, which are a great obstacle to the plough, and greatly increase the cost of cultivation. They are pounded by the natives and mixed with meal to form a thin porridge for pains in the chest.

In the large Natural Order Leguminosæ, as might be expected, a goodly number of species are recorded, with various uses as follow:—The wood of Erythrina Humeana, a thorny tree 80 feet high, is much used for fences on account of the ease with which posts made from it strike root in the ground. A similar use is

made of the wood of E. tomentosa, a tree of smaller growth. The large, tuberous roots of Dolichos brachypus are pounded and thrown into ponds to kill fish. Pterocarpus angolensis, a small to medium-sized tree, is known to the settlers as bloodwood, in consequence of the deep, reddish-brown colour of its heart wood, which Mr. Swynnerton describes as "the wood *par excellence* for hoe handles and stamping sticks for maize." So hard is it that it spoils the edge of the axe in working it. Yet, like the soft, spongy woods of the Erythrinas, he tells us that "it makes a good 'live' pole, posts of any size growing readily on being placed in the ground." As is the case with its West Coast ally, Pterocarpus erinaceus, and the East Indian species, P. marsupium, and P. santalinus, a blood-like resinous sap exudes

FIG. 146.—COLLARETTE DAHLIA HOLYROOD: RUBY COLOUR TIPPED WITH GOLD, "COLLAR" CLEAR YELLOW.

from the trunk, which the natives use for rubbing on the skin, where it is allowed to remain for two or three days, at the end of which time it is removed, and is said to have cured any skin eruption. The black-heart wood of Dalbergia melanoxylon, which is described as a large shrub, is much used for snuff boxes. The roots of Peltophorum africanum, also a large shrub, are boiled by the natives, and the fluid drunk for the cure of colic. That the leaves of Cassia Petersiana are much used as a medicine by the natives is noteworthy in view of the fact that C. acutifolia and C. angustifolia furnish the senna of commerce. It is curious also to read how the coarse fibre of Bauhinia reticulata is obtained, and the uses to which it is put. Mr. Swynnerton says:—"One usually finds traces of filled-in excavations round the roots of these trees, where the natives have been digging for the bark of the young roots, which is much used for binding the heads of arrows to the shafts, and is a favourite material solely because of the red colour it assumes on drying, for it is not unusually strong." An infusion or decoction of the bark is also used in colic. Brachystegia Bragaei is described as a small to medium-sized tree, but sometimes attaining a considerable height. The bark is largely used as a substitute for rope, and, when beaten soft, for bags. Formerly, it was employed for the manufacture of clothing and blankets. Describing the large thorns on the branches of Acacia Caffra, he says these huge, boss-like knobs with a sharp point in the centre, that had fallen from the branches, were very troublesome to his barefooted carriers. The bark of Albizzia versicolor, a large, straight-growing and attractive tree, is used as a substitute for soap for washing clothes, for which purpose the outer bark is removed and the inner bark crushed.

In the Order Combretaceæ, which is mostly characterised by the hardness of its woods, it is singular to note that the timber of Combretum arbuscula is soft and useless, except for firewood and the making of beehives. The roots are boiled and the infusion used for preparing gruel, which is believed to cure pains in the chest, &c. They are also boiled with other roots and leaves, and used for inducing perspiration in fevers, the patient leaning over the steaming pot, with a blanket covering him on all sides to the ground. The wood of Terminalia sericea is described as being durable, and the bark as having a curious netted appearance.

The Natural Order Myrtaceæ is represented by four species of Eugenia, only two of which, namely, E. cordata and E. owariensis, furnish edible fruits, much relished by the natives. The wood of the first-named species, which is known to the English settlers as the Water Tree, and grows to a height of 30 feet before branching, is much used by the natives for building huts. In the large and important economic Order Rubiaceæ there are comparatively few plants described as possessing useful properties, and these are chiefly of a minor character, as the following will show: Cephalanthus natalensis produces fruits described as being about the size of a Mulberry with the appearance of a Raspberry, and having a flavour between that of Raspberry and Gooseberry. The jam made from these fruits is described as excellent.

Adiana microcephala is a tall evergreen tree with a straight trunk, producing a very durable handsome reddish-coloured wood, which is said to resist attacks from borers and white ants. The roots are bitter, and are commonly chewed by the natives, or an infusion made from them and drunk as a remedy for colic. A similar use is made of the roots of Pentas purpurea, while the large, glossy, fusiform green fruits of Gardenia tigrina are great favourites with the forest monkeys, and it is comparatively rare to find one which is not at least partially eaten. The timber, which is whitish and very straight in growth, is durable and very little touched by borers. The toughness and thorny nature of Gardenia asperula has given to it an interesting use for closing kraal gates against lions. In the genus Vangueria several new species are recorded, V. esculenta being one of them. It furnishes an edible fruit known as the Chirinda Medlar. It is of a bright gamboge colour, ripening and falling from the trees in March and April. The fruit of V. infausta is also much sought after by the natives. It will be remembered that the fruits of V. edulis are eaten in other parts of tropical Africa as well as in Madagascar, and in fact in most countries where the plant grows.

Two new species of Coffea are described, one under the name of C. ligustroides and the other under that of C. Swynnertonii. Of the former we read: "This is the shrub yielding Chirinda coffee; it forms the main undergrowth of the Chipete Forest patch. The crop is always small, though heavier in alternate years, the dense shade under which most of it grows being prejudicial to heavy cropping. The berries are eaten greedily by the forest bulbuls and robins, as well as by baboons. The larvæ of a large white and brown longicorn beetle (Anthores leuconotus) destroy this shrub, entering just above the ground and completely eating out the root and base of the trunk. Samples of this coffee sent by me to London were valued at 80s. per cwt. at a time when our cultivated Arabian coffee (grown from Blantyre seed) was valued at 53s." A note appended to the description of the new species Coffea Swynnertonii says: "This coffee grows wild in quantities on the Juababa River, Portuguese E. Africa, at about 1,000 feet. Seed brought thence a few years ago. The Coffee yielded by these berries is said to be of excellent quality."

It is singular that in such an extensive Order as the Compositæ, and one so varied in its useful products, two plants only should be referred to as having any application among the people, and these are Vernonia natalensis and V. podocoma. The first constitutes the bush tea of the settlers. It is a common herb, sometimes infused in water by the white settler, and used to induce perspiration in fever; it forms a good substitute for tea or coffee. V. podocoma is described as being exceedingly plentiful along the outskirts of Chirinda, where in some places it forms a hedge, and is attractive to Lepidoptera. The bark of the roots is very bitter and is chewed for pains in the chest, for which it is said to be a good cure. Another plant said to have similar uses is Mæsa lanceolata, belonging to the Myrsineæ, the roots and leaves of which are boiled and the decoction drunk. *J. R. Jackson, Claremont, Lympstone, Devon.*

(To be continued.)

The Week's Work.

THE ORCHID HOUSES.

By J. Collier, Gardener to Sir Jeremiah Colman, Bart., Gatton Park, Surrey.

Odontoglossum.—Plants of Odontoglossum grande and O. Insleayi with its variety leopardinum are starting into growth afresh, and should be potted or top-dressed as may be necessary. Any plants that have sufficient pot room for another year, and with compost in a good condition, should be immersed in water so as thoroughly to soak the soil, afterwards allowing them to become partially dry, when portions of the old materials should be picked out from between the roots on the surface of the pots and replaced with fresh compost. Plants that need repotting should have all the old compost shaken from the roots, and be potted up afresh in receptacles large enough to accommodate them for two seasons. The compost may consist of equal parts Osmunda fibre and A1 fibre with Sphagnum-moss and crushed crocks added, incorporating the materials well together. After potting, water should be applied sparingly until the young roots have grown well into the new compost, when moisture may be afforded liberally until the season's growth is completed. Plants of Odontoglossum Uro-Skinneri are sending forth new roots from the base of the young shoots, and should be potted or top-dressed according to their requirements, using a compost similar to that already described. All these plants are best grown during the summer months in the warmest position of the Odontoglossum house. Plants of O. Rossii majus and its many hybrids will, as they pass out of flower, require repotting or top-dressing. These plants are best grown in plain shallow pans without side holes, suspended from the roof-rafters in the cool Odontoglossum house. A compost similar to that advised for O. grande is suitable. When dealing with specimens possessing numerous back leafless pseudo-bulbs with growths that have developed over the sides of the pans, the plants should be broken up, the back pseudo-bulbs cut away, leaving three or four behind the lead, and be made up again into specimens of a required size. O. triumphans has passed out of flower, and should be repotted if the roots need fresh rooting materials.

Temperatures.—At the present time and during the summer months the inmates of the Odontoglossum house should be kept as cool as possible. Endeavour to maintain a day temperature of 60° to 65° and a night temperature of 60° or a little lower. Fire heat should not be employed during the day, but on damp chilly nights the hot-water pipes should be slightly warmed. This small amount of fire-heat may be counter-balanced by opening the bottom ventilators a little extra; the fresh air will be beneficial to the plants, and will prevent the flowers from becoming spotted through condensed moisture settling on them. The house should be damped thoroughly three or four times during bright days, and the plants judiciously shaded and watered. Those not in flower should be spraved overhead twice at intervals on sunny days, affording the last wetting sufficiently early in the afternoon for the leaves to become dry before night arrives. Admit air freely through the bottom ventilators on all favourable occasions.

PLANTS UNDER GLASS.

By Thomas Stevenson, Gardener to E. Mocatta, Esq., Woburn Place, Addlestone, Surrey.

Chrysanthemum.—Where large numbers of Chrysanthemums are cultivated, the grower will be experiencing a busy time. All the earliest-rooted plants should be in a suitable condition for removal from the frames, but they should be afforded a little temporary shelter in case of late frosts: if the plants are well hardened, one or two degrees of frost will not harm them. Large, soft-foliaged varieties are liable to damage from winds, and this must be guarded against. Batches of late-struck plants should be potted when the roots require increased room, using the syringe to keep them from flagging, rather than maintain close conditions in the frames during the hottest part of the day. It is not too late to insert a batch of cuttings to furnish plants for flowering in small pots. Certain of the single varieties are especially suitable for this purpose, but probably Caprice du Printemps and its sports are even better for growing in very small pots.

Hydrangea paniculata.—Plants of Hydrangea paniculata purchased this season that were potted and plunged in the autumn are pushing their buds, and should be pruned. The shoots should be cut back, leaving only about two pairs of buds. Growth will develop very quickly afterwards, so that the plants may be removed soon to a cool greenhouse or pit. Older established plants are well in growth and, if required, may be forced into bloom, although I prefer to keep this Hydrangea as backward as possible. During the growing season the plants should be supplied liberally with water and liquid or artificial manure at frequent intervals. Syringings are necessary during hot, dry weather to combat red spider, which attacks this species more than any other Hydrangea.

Greenhouse Cyclamen.—Plants of Cyclamen latifolium having finished flowering may be removed to a cold frame, where they should be watered carefully until the foliage shows signs of dying, when water should be gradually withheld. Afford plenty of air and expose the corms to the sunshine as much as possible to ripen them. Young plants that were potted as advised some time since should be growing freely; they should be encouraged to make plenty of growth. A little shade is necessary during the middle of the day, especially if the plants are growing in pits, to keep the foliage in a healthy condition. Both mornings and afternoons the leaves should be sprayed with clear soot water, which will assist in keeping down attacks of the yellow thrip, which is one of the most insidious pests of these plants.

FRUITS UNDER GLASS.

By E. Harriss, Fruit Foreman, The Royal Gardens, Windsor.

Early Fruit Trees in Pots.—When the fruits of Peaches and Nectarines commence to ripen, the atmosphere of the house should be kept dry, and plenty of air admitted by both the top and bottom ventilators. At this stage, stimulants should be withheld, but the roots must not be allowed to become excessively dry. The pots should, if possible, be plunged in a bed of litter, or be shaded from the direct rays of the sun, to prevent the soil from drying soon. Syringings must be discontinued when the fruits are ripening, but as soon as the fruits are gathered the trees should be washed with an insecticide and placed out-of-doors in a sheltered position for a few days. Later on, they may be placed in a sunny position, plunging the pots to the rims. The foliage will require to be syringed thoroughly, late in the afternoon each day, to keep down red spider.

Early Permanent Trees.—The fruits on trees planted in the borders must be exposed to the sunshine as much as possible. When they commence their final swelling, all lateral growth should be removed, and, if necessary, the fruits propped up to the light by means of portions of laths or wooden labels. The trees should be afforded a copious watering just before the fruits commence to ripen, as it would be detrimental to the flavour to afford water whilst the fruits are actually ripening. At that stage, the trees should be afforded the same treatment as advised for pot trees. It is better to gather the fruits when they are not quite ripe, rather than over-ripe. When determining the condition of ripeness, only touch the underside of the fruits, which should be gathered as early in the morning as possible. It may be necessary, in the case of some varieties, to place a thin shading over the glass to prevent the sun from scorching the fruit. Fruits of Nectarine are very prone to injury from the effects of excessive sunshine. A double thickness of fish netting or very thin lime wash will answer the purpose.

Figs.—As soon as the fruits of the earliest crop have been gathered, effort should be made to rid the trees of insect pests. Red spider may be destroyed easily by two or three applications of a strong solution of soft soap and sulphur. Afterwards wash the foliage thoroughly with water applied by means of the garden engine or a hose. If it is intended to mature a second crop of fruits, the latter should be thinned liberally. Attend to the stopping of the young growths, and use the knife freely where the shoots are too thick. Syringe the trees vigorously twice daily, and at the second syringing, about 3 p.m., close the house. The trees will need copious supplies of water at the roots, also stimulants. It is not advisable to allow pot trees to develop two crops in the same season. Pot trees should be subjected to a thorough cleansing, and, when sufficiently hardened, placed in a sunny position out-of-doors, plunging the pots in ashes. It may be necessary to thin the shoots to allow the remaining growth to become ripened thoroughly. The roots must not be allowed to suffer for want of water: they may be given an occasional watering with diluted liquid manure. Later trees, which are carrying heavy crops of fruit, must be afforded plenty of stimulants till the fruits are ripening. Admit plenty of air to the trees during favourable weather; the top ventilators should be left open a little all through the night. Thoroughly spray the foliage in the early morning, and again at closing time; promote a moist atmosphere by damping all available spaces frequently whenever the weather is hot. Shallow borders should be mulched with a thick layer of rich manure. Artificial heat should be used sparingly. Should it be necessary to hasten the maturation of the crop, it may be done by closing the house early in the afternoon, after the trees have been sprayed with tepid rain-water.

THE FLOWER GARDEN.

By J. G. Weston, Gardener to Lady Northcote, Eastwell Park, Kent.

Canna.—Cannas are not only beautiful flowering plants, but their foliage is also extremely handsome, hence they are especially valuable for use in sub-tropical bedding, massing in large beds by themselves, or intermingling with other subjects. Plants for sub-tropical bedding may be raised from seeds, which should be sown early in the year, growing the seedlings on in moderate warmth. They should be repotted in rich soil, and not allowed to become stunted whilst they are young. Cannas should be started into growth in slight warmth hardening them afterwards in cold frames, but exposed to full sunshine. Treated in this manner, they should be ready for planting out at the beginning of June. It is a mistake to grow the plants in a very high temperature, as this causes the foliage to grow soft and tender, thereby rendering the leaves susceptible to damage by strong winds. The plants require a maximum amount of sunshine, and should be planted in a warm situation in soil that has been trenched and manured for some time previously.

Sub-Tropical Bedding.—Large beds of handsome foliage plants are an agreeable change from the ordinary flower-bedding, and, when well arranged, never fail to give pleasure. The majority of the plants used in sub-tropical bedding are of a tender nature, and, in order to be successful with them out-of-doors, they require to be in a robust healthy condition for planting out early in June. A few plants suitable for the purpose are Ricinus, including the bronzy-leaved R. Gibsonii, R. cambodgensis, and some of the green-leaved varieties with red stems; Melianthus major (Honey Flower), which is moderately hardy, and sometimes survives the cold of winter in warm situations; Cordyline indivisa, Musa, variegated-leaved Maize, Acacia, Grevillea robusta, Abutilon Savitzii, A. Thompsonii, A. tessalatum, Solanum marginatum, Wigandia Vigieri, Eucalyptus Globulus, and Cannabis gigantea, the Giant Hemp. The last-named is a quick-growing, graceful plant, being especially suitable for furnishing a bed early in the season. The growth is very free, and the plant requires keeping in check by judicious pruning. A suitable edging or groundwork for sub-tropical beds may be formed of the silver-leaved Centaureas, such as C. ragusina and C. gymnocarpa, or Cincus (Chamæpeuce) diacanthus, the Fish-bone Thistle. Many plants suitable for sub-tropical bedding may be raised from seeds sown in January. Such plants should now be fair-sized specimens, and must on no account be allowed to become stunted in small pots. Afford them a liberal treatment, and, if they have filled the pots with roots, shift them into

receptacles of 5½ or 6 inches diameter. The plants should be grown in cool frames fully exposed to the sunshine that they may be hardened towards the end of the present month ready for planting out during the first or second week of June, according to the locality. When selecting a site for these plants shelter from winds should be the first consideration. The plants should never be placed in an open position, the ideal situation being one well sheltered and fully exposed to full sunshine.

General Remarks. — Space in the glasshouses will be in great demand just now, therefore plants should be hardened as soon as possible so that they may be stood out-of-doors. The more tender subjects may be transferred from the houses to cold frames. Tender plants with soft growth, such as Heliotrope, Coleus, Salvia, and Iresine, must be treated carefully or the plants may receive a check. In many gardens the fruit houses are utilised for housing bedding plants in spring, but when the permanent vines and Peach trees are in full growth the bedding plants should be removed to frames. Ventilate the frames freely whenever the weather is favourable; in a few days the lights may be withdrawn entirely, and this will lead to a firm, healthy growth. Sheltered corners of walls or by the sides of glasshouses may often be utilised for bedding plants to relieve the congestion under glass, but make preparations to cover the plants at night should frost threaten.

THE HARDY FRUIT GARDEN.

By F. Jordan, Gardener to Lady Nunburnholme, Warter Priory, Yorkshire.

Watering.—In view of the unusual drought ot April, accompanied by drying winds, it will be advisable to examine the fruit borders, and more especially recently-planted trees, to ascertain if water is required. If the trees were mulched as advised in previous articles, the mulches will have done much good in conserving the moisture in the soil, but even where mulches have been applied, it is remarkable how dry the ground is. Taking recently-planted trees first, it will be necessary to afford a thorough watering at once, repeating the application in two or three weeks time unless rain falls freely in the meantime. Timely waterings at this season are of the greatest importance in successful growing. Apricot trees should be examined next, and, if the soil is dry, watered thoroughly, as they are generally the first wall trees to suffer from lack of moisture, the borders being composed of materials which allow water to pass through freely. If once Apricots are allowed to suffer injury from drought, no amount of attention afterwards will repair the damage. Cordon Pears, Wall Pears, Peaches, Nectarines and other trees should all receive attention in this matter; the labour expended in timely watering is repaid over and over again in the size and quality of the fruit, and the condition of the trees generally. The trees have developed an extraordinary amount of blossom, and will soon become exhausted if neglected.

Gooseberries and Currants.—Both these fruits promise well, and in the north appear to have escaped damage from the recent severe frosts. Now is the time to guard against the Gooseberry and Currant sawfly, which commences to hatch at the end of April and beginning of May. Prompt measures must be taken to destroy the pest. Where the bushes are few, the grubs may be destroyed by pinching them between the finger and thumb. Large plantations may be sprayed with arsenate of lead, this insecticide being more effective than Paris Green and much safer to use. A dusting of fine lime and soot is beneficial to the trees, and will destroy many insects. Red spider, one of the worst enemies of the Gooseberry, was very plentiful last year, and may give trouble again this season. There are specifics on the market which, if applied according to directions, will destroy this pest without injury to either fruit or foliage. Green and black aphis on Currant bushes may be destroyed by syringing with Quassia extract or a similar insecticide; the trees should be syringed afterwards with clear water if the pests are of large size.

Late Frosts.—Growth is sufficiently forward to afford a certain amount of protection to the fruits of Apricots, Peaches and similar trees, but do not remove protective materials unless the winds blow from a warmer quarter and the weather becomes more genial. Where the trees have been protected with branches of Spruce or other evergreens, injurious insects may have collected, and these must be destroyed.

THE KITCHEN GARDEN.

By Edwin Beckett, Gardener to the Hon. Vicary Gibbs Aldenham House, Hertfordshire.

Broccoli. — Towards the middle of May another small sowing of Broccoli may be made to furnish plants for a very late supply next spring. One of the very best varieties for the purpose is Model, being self-protecting, whilst Late Queen is another variety to be recommended. Sow thinly, in a narrow border, and protect the seeds from the birds by a covering of hexagonal netting. Should dry weather continue, the bed should be watered in the afternoons by means of a rose can.

April Weather. — At the time of writing (April 25) no rain has been registered at Aldenham during the whole month. An abundance of sunshine, cold winds, and two severe frosts on the mornings of the 11th and 12th ult. (10° and 12° were registered respectively), have characterised the weather during this unusual April. Though the ground has worked well, allowing the arrears of work caused by the unusually wet weather of March to be completed, the climatic conditions have not been at all favourable to the germination of small seeds, and much irregularity in the crops will probably result.

Broad Beans. — Make a further sowing of Broad Beans out-of-doors to furnish a late supply of pods, selecting, for preference, land of a retentive nature that has been enriched with well-decayed manure, so that the plants will be able to withstand drought and heat. The seeds may be sown in shallow trenches formed at a distance not closer than 3 feet apart. Sow the seed in two rows drawn 4 to 5 inches apart.

Savoys. — Make a sowing of Savoys during the first half of the present month for a winter supply, selecting the smaller-growing varieties, which are the best for small gardens and ordinary requirements. Tom Thumb and Dwarf Green Curled are two excellent varieties for this sowing. The plants, when transferred to their permanent quarters, will succeed best if planted on land that has been recently worked and enriched with manure. Plants from an earlier sowing may be planted in succession to early Peas, the ground being merely made level with the rake. Holes may be made with an iron bar, or something similar, the plants inserted, and the soil made firm. After the planting is finished, afford each plant a liberal watering.

New Zealand Spinach. — This vegetable should be included in all gardens, being especially valuable in dry seasons, when the crop comes to perfection. An early crop may be obtained by sowing the seed in boxes, raising the seedlings in heat, and afterwards transferring them to the open ground. For general purposes seed may now be sown in the open ground in shallow drills drawn 3 feet apart. This Spinach delights in an open, porous soil, therefore heavy land should have plenty of open material incorporated with it. When large enough, thin the young plants to a distance of 2 feet 6 inches apart.

Leeks.—The earliest plants of Leeks should by now be planted in trenches formed as described in an earlier calendar. To ensure blanched stems, the blanching should be done as the plants develop. At Aldenham, we use stiff brown paper collars, raising these at intervals as growth proceeds, covering the base with soil. Rough boards placed along each side of the row and secured to short stout posts will keep the soil in position; as the Leeks grow, a second board may be added, filling up with ordinary garden soil (it matters not how poor in quality), until the desired height is reached. By this method it is possible to supply an abundance of water and stimulants to the roots in the easiest possible manner. When required for exhibition purposes, as soon as the blanching is complete, the paper collars may be removed and the top covered with long straw, which will prevent the blanched portion and axils of the leaves from becoming splashed with soil when heavy rains prevail.

PUBLIC PARKS AND GARDENS.

By Chief Officer.

Pierrot Performances in Parks.—While the provision of bands during the summer months of the year is now looked upon as an essential feature of a public park, it can hardly be said that the introduction of a pierrot troupe is regarded by the officials concerned as necessary. One cannot very well help from associating entertainers of this description with the crowded sands of a gay watering place, and even the very best class of them seem somewhat incongruous when placed in the peaceful and picturesque surroundings of a pleasure ground. It seems, however, with the strenuousness of life on the increase that there is a growing demand on the part of the public to be provided with amusement of the most flimsy and superficial character. This being the case, it very naturally follows that where any attempt is made on the part of a Parks Department to keep abreast of the times, this form of amusement—however out of place it may seem—must be provided. Good band music, we are told, is all very well in its way, but even this begins to pall before the season is over, as is evidenced by the falling away of attendances at the performances as the days begin to draw in. When pierrot entertainments are intermixed with band performances the added lightness and variety attract the public so strongly that the last performance is quite as well attended as the first.

Different Methods.—There are two distinct methods of providing pierrot entertainments in public parks, each of which is followed by different authorities. One of these is to let the rights of giving such entertainments to a company for a given sum of money per annum, just in the same way as would be done in the letting of a refreshment pavilion or the rights of boating on a lake. The other method is for the Parks Department to engage pierrots to give performances from time to time and pay them for so doing just as if they were a band. Of the two modes the latter is far more satisfactory, both as regards the interests of the public and of the department. In the former case the pierrots become more or less masters of the situation, and provide merely what form of entertainment best suits their own convenience. When the Parks Committee hire the services of the pierrots the Committee is—as it should always be in such cases—the ruling power. In such circumstances they are in a position to stipulate the kind of programme to be carried out—a matter of no small importance in catering for public tastes. There is no reason for allowing the management of these entertainments to pass out of the hands of the Parks Department.

Necessary Structures.—Where these entertainments are given in parks it is essential to provide a special kind of structure for them, as it is worse than useless attempting to utilise a bandstand for the purpose. The best kind of structure is really what is nothing more or less than a miniature theatre stage wholly composed of wood. Such a building is all the better when constructed in such a way as to be easily taken to pieces. When made in this manner it can be removed and stored under cover during the winter when it is not required for use. Although it is not necessary to do so, it is found to be a very great advantage to provide two dressing rooms at the back of the stage. Usually a structure with a frontage of about 25 feet and a depth of 20 feet is found quite large enough for ordinary purposes. If an overhead canopy stretching 5 or 6 feet beyond the edge of the stage can be affixed to the roof there will no doubt be a great improvement in the acoustic properties of the structure.

The Best Situation.—As the majority of park officials know to their cost the ground immediately surrounding a bandstand—especially if it be of turf— is invariably trodden down, and soon comes to look very shabby and unsightly. For this reason it is a wise policy to place a pierrot stage—where this class of entertainment is provided—in as near a proximity as possible to the bandstand rather than in a distinct part of the grounds. An additional advantage in choosing a site near the bandstand is that the chairs used on the occasion of a band performance can also be used during a pierrot entertainment, for it would hardly happen that in one park the two forms of entertainment would be in progress at one and the same time.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, *as well as specimens of plants for naming, should be addressed to the* **EDITORS, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Special Notice to Correspondents.—*The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.*

Local News.—*Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Illustrations.—*The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c., but they cannot be responsible for loss or injury.*

APPOINTMENTS FOR MAY.

SATURDAY, MAY 4—
Soc. Française d'Hort. de Londres meet. North of England Hort. Soc. Conference at Newcastle on "Horticulture in Secondary Schools and Farm Institutes."

TUESDAY, MAY 7—Scottish Hort. Assoc. meet.

WEDNESDAY, MAY 8—Croydon Spring Fl. Sh.

MONDAY, MAY 13—
United Hort. Benefit and Prov. Com. meet.

TUESDAY, MAY 14—
Royal Hort. Soc. Coms. meet and Tulip Sh. (Masters' Memorial Lecture by Prof. I. Bayley Balfour on "Gardening and Drought.") Devon County Sh. at Plymouth (3 days). Horticultural Club meet.

WEDNESDAY, MAY 15—
Royal Meteorological Soc. meet. North of England Hort. Soc. meet at Leeds. (Lecture by Mr. J. H. Priestley on "Electricity in Relation to Horticulture.") Paris Spring Sh. 15–22.

THURSDAY, MAY 16—
Manchester and North of England Orchid Soc. meet.

WEDNESDAY, MAY 22—
Royal International Hort. Exh., in the Chelsea Hospital Gardens. Exhibition open to the public on every week day until May 30 inclusive. Bath and West and Southern Counties Sh. at Bath (5 days). Royal Botanic Soc. meet.

FRIDAY, MAY 24—
Linnean Soc. meet. and Anniversary.

THURSDAY, MAY 30—
Manchester and North of England Orchid Soc. Ann. Meet.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—59·1°.

ACTUAL TEMPERATURES:—

LONDON.—*Wednesday, May 1* (6 P.M.): Max. 64°; Min. 44°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—*Thursday, May 2* (10 A.M.): Bar. 29·6°; Temp. 63°; *Weather*—Fine.

PROVINCES.—*Wednesday, May 1:* Max. 59° Leicester; Min. 53° Scotland, N.

SALES FOR THE ENSUING WEEK.

WEDNESDAY—
Border Plants, Hardy Bulbs, &c., at 12; Liliums and Miscellaneous Bulbs at 3.30; Palms and Plants at 5; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

FRIDAY—
Orchids at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.45.

Plants and the Production of Alcohol.

There are not lacking prophets to predict that when the last seam of coal has been won, and the last gallon of petrol pumped from the earth, the power on which men rely will be "white coal," that is the falling water of cascades and rivers, and, perchance, the heaving waters of the tides. Such prophets foresee the migration of industries to countries like Norway and Switzerland, where water power is all but unlimited.

They overlook, however, one great source of power which is likely to come to the aid of the manufacturer of the future; that source is vegetation, and the material whence it may be obtained is alcohol. At the present day experimenters are actively at work in solving the problem of the use of alcohol in petrol engines for the propulsion of motor-cars, and when that problem is solved it will not be long before alcohol takes its place beside coal and petrol as a source of power.

For the material for the production of alcohol is universal—every plant which produces sugar is potentially a source of alcohol.

The plant synthesises sugar from water and carbon-dioxide, and another plant, the yeast fungus, converts the sugar into alcohol. Hence if alcohol may be used as a source of power there only remains the question of suitable plants for sugar-production. Already, in Germany, alcohol is produced on a large scale from Potato refuse, as well as, of course, from Beet.

Having regard to these considerations, the article by Mr. J. H. Holland in *The Bulletin of Miscellaneous Information* (Kew, No. 3, 1912) is of more than ordinary interest. In that article are considered the various vegetable sources from which alcohol is obtained. These sources include all parts of the plant—fruit and seed, stem, leaf, inflorescence—and also the partially decayed plant remains known as peat.

For wherever starch occurs in the plant, there we have a source of sugar. Thus it is easy to obtain sugar from starch and easy also to derive alcohol from sugar.

The list of fruits which serve as sources of alcohol is of course extensive, and includes, besides the Grape, Apple—from which in the United States of America close upon three-quarters of a million gallons of spirit were distilled in 1905—Pear, which contains 10 per cent. of sugar and provides France with large quantities of spirit, Peach, Cherry (used in Germany in the production of the popular Kirchwasser), Plum (from which the German extracts 64,000 gallons of spirit per annum), and many others. The Strawberry tree, Arbutus Unedo, yields much spirit in Italy, and the virtues of the Banana in the way of spirit production are much appreciated in the West Indies; Palms, Prickly Pears, Dates, the Pine-apples in Malay, and the Mulberry in the Caucasus all yield their quota of alcohol.

Of roots and root stocks, the Potato comes first in Mr. Holland's list, and in Germany the industry of alcohol production from the Potato is fostered by the State and search is made for the most suitable varieties. The extent of the Potato industry in Germany may be gauged by the fact that in 1910 the area under cultivation was upwards of eight million acres and the crop more than 42 million tons. The average yield of spirit is 44 gallons proof per ton—roughly a gallon per bushel. In spite of the magnitude of this industry in Germany, responsible opinion doubts whether there are in growing Potatos for spirit the makings of a profitable industry in this country. Other roots yielding spirit are Beet—especially in France, where alcohol is used for household purposes much more largely than here—Sweet Potato, Cassava, Arrowroot, Artichoke, and Yam, and many another. Grain represents yet another source, Barley, Rye, Maize and Rice being among the chief plants used for this purpose.

Of stems, the Sugar-cane is the main tropical source of sugar, but the stems of many other plants—Maize, Sorghum, Grass Trees (Xanthorrhoea Preisii, &c.), and various Palms, including the Date Palm, are also used in the manufacture of spirit.

In addition to the sources enumerated already are the woody parts of hard-wooded trees, sawdust and peat.

That this source of power is well under way toward successful commercial exploitation is indicated by the remark of Mr. Holland that it is not unusual even now in agricultural operations for alcohol to be employed in working machinery over the same ground which grew the material from which it was developed.

AN ORCHID CONFERENCE. — As already announced in these pages a special Orchid Show will be held by the Royal Horticultural Society on November 5 and 6 in the Society's Hall, Vincent Square, Westminster, to demonstrate the growing importance of Orchids as autumn-flowering plants. A Conference will conjointly be held in the Lecture Room on the second day from 11 to 1 and from 2 to 4. Luncheon will be obtainable between 1 and 2 p.m. Those interested in the subject are invited to prepare scientific or practical papers on the particular branches of the subject in which they are specially interested. As it will be impossible in the few hours of the Conference to deal with all the papers prepared, it is proposed to read on the occasion those only which lend themselves most readily to discussion. But all papers will be published in the Society's Journal. Papers and discussion are invited on the following subjects:—(a) The early history of fertilisation and hybridisation, dealing more especially with any points not generally known or published; (b) the germination and early stages of growth of the seed; (c) method of sowing, possible germination without the presence of fungus, &c.; (d) points of good cultivation; quick methods of growing, time being an important factor; (e) the selection of plants possessing qualities which, though not very decorative in themselves, might be utilised in breeding for producing favourable results in the next generation; (f) the ideal flower; what are its essential points? (g) what are the limits of hybridisation and cross fertilisation? (h) the production of albino varieties and others of definite colours, as, for instance, a yellow Cattleya or a blue, spring-flowering Odontoglossum; (i) in what direction should Orchid growers look for improvement? Have we reached a suitable limit in size, in colour, or in the amount of flower an individual plant will produce? (j) is the amount of heat necessary for some hybrids prejudicial to their general cultivation? Is it, for example, possible or worth while trying to create a cooler growing section of Lælio-Cattleya, &c., by the use of parents of cool-growing species, such as Lælia Jongheana and Lælia pumile? (k) the wonderful results obtained from the use of certain species in hybridisation; (l) the cultivation of difficult species might with advantage be discussed, as, for example, Vanda cœrulea and V. Sanderiana. It is not proposed to touch on nomenclature and the scientific classification of species.

CROYDON SPRING FLOWER SHOW. — The Croydon and District Horticultural Society has arranged to hold a spring flower show in the Horniman Hall, North End, Croydon, on Wednesday, the 8th inst. Admission will be free, and there are neither entrance fees nor prizes. The honorary secretary is Mr. H. BOSHIER, 62, High Street, Croydon.

Photographs by George Forrest.

RHODODENDRON FOREST ON THE SUNG KWEI PASS.

Printed by Temple Press Ltd., London, E.C.

Royal Meteorological Society.—A meeting of this Society will be held at Southport, by invitation of the Mayor and Corporation, on Saturday, the 11th inst. A popular lantern lecture, "A Chat about the Weather," will be given by Mr. W. Marriott, in the Temperance Institute, London Road, at 8 p.m. The programme for Monday, the 13th inst., includes a visit to the Marshside Anemograph Station, luncheon at the Town Hall at 1.30 p.m., and a visit to the Fernley Observatory, Hesketh Park, at 2.45 p.m. It is proposed to give a demonstration of the sending up of a Ballon-Sonde, with meteorograph attached. At a meeting of the Society in the Lecture Hall of the Science and Art Schools, at 5 p.m., papers will be read on (1) "Results of Hourly Wind and Rainfall Records at Southport, 1902-11," by J. Baxendell, and (2) "The South-east Trade Wind at St. Helena," by J. S. Dines, B.A. Fellows and their friends will dine together at 7.15 p.m.

Kew Guild Dinner.—The annual dinner of the Kew Guild will be held at the Holborn Restaurant, in the Venetian Chamber, on Tuesday, May 28, at 7.30 p.m. The dinner will be preceded by the annual general meeting at 6.45 p.m. Lt.-Col. D. Prain, C.M.G., Director of Kew Gardens, will preside at the dinner, which it is expected will be largely attended, as many Kewites will be in London for the International Exhibition. Members intending to be present are asked to notify the Hon. Secretary, Mr. Herbert Cowley, South Side, Kew Green.

An Archway of Pears.—In fig. 147 is illustrated an archway of Pear-trees, in Balcombe House Gardens, Balcombe, Sussex, showing the fine effect when the trees are in blossom. The gardener, Mr. Mitchell, to whom we are indebted for the photograph, informs us that the path runs from north to south, and is furnished with about 200 cordon trees, which rarely fail to give a good crop of fruits. There is another archway planted with about 200 cordon Apples. The trees have been planted nine years.

Nursery Employee's Long Service.—Mr. Robert Singleton, of Messrs. E. P. Dixon & Sons, Ltd., Hull, completed, on April 7, 60 years' service with the firm. To mark the occasion he was recently entertained at dinner at the Imperial Hotel, Hull, by Mr. R. A. Dixon, managing director of the firm, and many prominent horticulturists in the East Riding, and in the presence of the heads of departments and principal members of the staff. Mr. Singleton was the recipient of presents from Mr. Dixon, and from his fellow employees. Mr. Singleton has had charge of the firm's plant houses, first at Sculcoats and afterwards at Cottingham, for over 50 years.

International Exhibition at Bruges.—The "Société Royale d'Horticulture de Bruges" will hold an International Horticultural Exhibition from August 11 to August 18 next at the old market place and in the adjoining Government Buildings and Belfry of Bruges. In August the famous market place in Bruges will be transformed into a flower garden surrounded by giant Bay trees, for which Bruges is so famed, and in the adjacent buildings below the belfry exhibitors will find spacious halls where they will be able to group their collections of Orchids and Palms, and new and rare plants. The visitors in August who have travelled to see "the Venice of the North," with its museums and art galleries and quaint Flemish architecture, will find another attraction in this horticultural exhibition. Programmes will be supplied and inquiries answered by Mr. Ch. Steinmetz, Secretary, Bruges, Belgium.

Imperial College of Science and Technology.—That the interests of botanical science are well cared for by the governing body of this institution is evident from the decision to extend the activity of the Botanical Department. As announced already, Professor V. H. Blackman has been appointed to the chair of Plant Physiology and Pathology. The erection of a new building devoted to botanical work has been sanctioned, and Dr. Groom has been appointed Professor of Technology of Woods and Fibres. Professor Farmer is to be congratulated in thus making clear to his colleagues on the governing body the importance of botanical research both in the domains of horticulture and agriculture, and also in the region of technology.

Fig. 147.—Archway of cordon pear trees at Balcombe House Gardens, Sussex.

Horse Poisoning by Equisetum arvense.—The *Kew Bulletin* draws attention to some experiments regarding horse poisoning by Equisetum, carried out at Valley, Nebraska, the results of which are published in a report of the Agricultural Experiment Station, Nebraska. Two animals were experimented upon, one an aged mare, and the other a six-year old gelding. The experiments were apparently continued longer with the horse than with the mare. No grain was given, and the amount of dried Equisetum mixed with the hay was gradually increased from ½ lb. to 6 lbs. per day. At first the animals seemed to prefer the Equisetum to the rest of the hay, but on the fourth day the mare, and on the twelfth the horse, showed an aversion to it, which increased as the experiment continued, till near the end the greatest difficulty was experienced in getting the animals to touch it. The first symptoms of poisoning appeared early. On about the fourteenth day the animals began to show a hesitating, staggering gait, which alternately appeared and disappeared throughout the course of the experiment. Other symptoms noted were loss of muscular control, poor condition of the flesh, and an unusual sensitiveness of the shoulder, these being accompanied by normal or subnormal temperature and a good appetite. The diuretic properties of the plant were shown by the constant saturation of the ground with urine, which was persistently alkaline. It was found that in general the attacks of staggering coincided with the wet, cold days, at least during the first half of the experiment. Towards the last the horse, losing control of its legs, fell many times. It also appeared more stupid and yawned frequently. The experiment was abandoned owing to the refusal of the horse to take Equisetum, either as hay or as a decoction. The vicious nature of the animal prevented the use of the decoction as a drench. The conclusions arrived at are two, namely, that the weed must be present in large quantities to be dangerous to horses, and that when taken in sufficient amount it is fatal to these animals.

Zoological Gardens, Regent's Park.—Reporting on the gardening side of its work, the Council of the Zoological Society state that, under the capable superintendence of Mr. John Young, the floral decoration of the gardens has maintained its high character. Although some of the existing flower-beds had to be occupied for other purposes, a large number of new beds were made last year, and the provision of narrow floral borders surrounding the enclosures was greatly increased with the double object of adding to the beauty of the gardens and keeping visitors from too close an approach to railings guarding horned animals. Many parts of the gardens formerly occupied by unsightly bushes were cleared and planted with flowers, so that the number of bedding-out plants and the area occupied by them was made larger than it has ever been before. The President, the Secretary, and other Fellows made gifts of bulbs and seeds suitable for floral decoration. New greenhouse forcing sheds and potting sheds are being erected on the north bank of the canal, and the gardeners' department will be transferred thither early in the summer.

Bread Fruit and the Mutiny of the "Bounty."—All who are interested in historical curiosities will feel grateful to the *Times* for reminding them, in the course of a leading article on the "Mutiny of the 'Bounty'" of the fact that the ship which was the witness of the tragic events in 1789 had been despatched to the South Seas for the express purpose of transporting the Bread Fruit tree (Artocarpus incisa) to the West Indies. Captain Cook had discovered the tree, and to Bligh, who had accompanied him on his immortal voyage, was entrusted the task of obtaining supplies of the tree. In accordance with this special service the "Bounty" was fitted out for the carriage of plants, and proceeded to Tahiti. There after some time—spent in the peaceful practice of botanising—the mutiny occurred. It was not till eight years later that the indomitable Bligh, who in the meantime had, after being cast adrift from the "Bounty," experienced remarkable adventures, succeeded in effecting the object which the voyage of the "Bounty" failed to achieve. Sailing in the "Providence" in 1797, Bligh collected Artocarpus incisa and carried the trees to the West Indies, where they are now acclimatised. The mutineers—or most of them—had in the meantime transplanted themselves, together with some South Sea islanders, from Tahiti to Pitcairn Island, where their presence was not discovered till 1809.

Geffrye's Garden.—The Parks Committee of the London County Council have had under consideration the question of the laying out of Geffrye's Garden, which has been temporarily opened for the use of the public since December last. When the property was acquired, it was thought that the garden attached to the almshouses could be left in its original state, but as a result of careful inspection made since it has been opened, the Committee are advised that certain works of improvement are required in order to make it suitable as a place of recreation and pleasure for the public. These works include the removal of certain worn-out trees and shrubs, the abolition of the central path running north and south, the widening and reconstruction of the remaining principal paths, the raising and improvement of the lawns, the formation of flower borders between the walks and the almshouses, and the planting of the border abutting on Kingsland Road. The total cost of the works proposed for the laying out of the whole garden is estimated not to exceed £1,000, and it is proposed to proceed with the work.

More New Malayan and Papuan Orchids.—From time to time we have recorded the recent publication of descriptions and figures of new Orchids from the Malayan Archipelago and New Guinea, chiefly by Dr. J. J. Smith. The total number now known from these regions is very large, but, as we have remarked before, few of the very numerous recent discoveries are of a showy character. The *Bulletin du Jardin Botanique de Buitenzorg*, 2me série, n. 3, contains further Orchidological contributions by the same botanist, including descriptions of some thirty-five new species. Among them upwards of a dozen are species of Dendrobium, mostly very small-flowered. D. compressicolle, nearly allied to Lindley's D. longicolle, has the largest flowers of those described, with sepals slightly exceeding two inches in length. Several have quite minute flowers, those of D. remotum, for example, measuring no more than 1-12th inch in diameter. Those of D. sociale are scarcely larger, but as the plant is terrestrial and carpets relatively large areas it constitutes a conspicuous feature in the vegetation when bearing its rosy-red and white flowers.

Western New York Horticultural Society.—The report of the *Proceedings* of the 57th annual meeting of this society, held in January, 1912, is a substantial volume, full of valuable information on the cultivation of plants—and particularly fruit trees. The presidential address by Mr. W. C. Barry sets forth graphically the admirable work which the society has accomplished, and shows how it has played a large part in extending the cultivation of Apple and Peach to its present vast dimensions. Mr. Barry points out that Apple cultivation is extending towards the south and west, and that the Peach has moved north and east, till the hill-lands of New England are being reclaimed and occupied by profitable Peach orchards. Many of the contributions contained in the volume are of permanent value, and all show that the members of the society have not only their individual welfare but also that of their State at heart.

International Horticultural Exhibition.—Fig. 148 shows the large tent that will be one of the features of the exhibition in the course of erection. As stated in the last issue, it will cover about 3½ acres of ground. Mr. Harold Piggott, of Messrs. Piggott Bros. & Co., Bishopsgate, London, who are erecting the tents at the Chelsea Hospital grounds, has given us some interesting particulars concerning this mammoth canvas-coloured structure. The five spans are each 36 feet high and 52 feet wide; they vary slightly in length, the largest measuring 280 feet, whilst the total breadth is 280 feet, the extra 10 feet being accounted for by the gutters, which are laid between each span, and which, should it unfortunately be necessary, will conduct rain water to drains which have been laid throughout the exhibition grounds. As will be seen in the illustration, large numbers of poles are being utilised for the support of the 40,000 square yards of canvas which will be employed as a covering. The wire guys weigh 40 tons, and the ridge-wires, which keep in place the ventilating hoods, weigh 7 tons 10 cwt. The system of ventilation is the invention of Messrs. Piggott, who, after having thoroughly tested it during the winter, are now putting it into practical use. As in all the tents, electricity will be used for lighting purposes; a 300 horse-power engine is to be requisitioned, similar to those at the large railway stations, to generate electricity for 64 flame arc lamps. This will be the largest plant tent ever erected; it is twice as large as the building at Olympia, where the R.H.S. summer show was held last year. The tall granite obelisk shown in the illustration, which was erected to the memory of the officers and men of the XXIVth Regiment who fell at Chillianwallah on January 13, 1849, is almost absorbed in one division of the tent, only the golden orb and a foot or so of the plinth appearing above the canvas. A large marquee 470 feet long and 40 feet wide is to be attached to the main tent. The other tents in the exhibition grounds, many of them of great size, appear to be mere pigmies compared with the principal structure. The tents set aside for the exhibits from France, Belgium and Holland, which are the

Fig. 148.—Royal International Horticultural Exhibition.
(Erecting the frame-work of the large tent. The "Chillianwallah" Memorial is on the left-hand side.)

biggest single-spanned tents in London, are each 140 feet long and 85 feet wide. The Orchid tent, which is to be heated by hot-water pipes and kept at an even temperature of 60° Fahr., will be 250 feet long by 70 feet wide, and 46 feet high. The cut flower tent covers a space 600 feet long by 40 feet, and in the hopes of prolonging the flowers, this tent will be ventilated by means of a special compensating principle, which, whilst permitting the heated air to escape, keeps the ridge taut and thus renders the tent water-tight. A special staff of electricians will be in charge of the lighting plant, and 40 men are detailed to look after the many tents. There will be abundance of water at all points; a 3-inch main has been laid, hydrants are to be fixed in all tents, and a plentiful supply is assured for the rock and water gardens. Drains have been laid, so that should the weather be unpropitious the visitors may feel confident that, as sometimes happens at provincial agricultural shows, they will not lose their boots or shoes in the mud. In connection with the drains, it is interesting to record that timber to the value of £98 was used to line the drain trenches, before the drain pipes could be laid. We are indebted to Mr. W. G. Phillips of *The World* for the photograph reproduced in fig. 150.

———The cup presented by Lancashire is illustrated in fig. 149. The diameter of the bowl is 14 inches, and the arms of the County are engraved on one side. The cup weighs 170 ounces, and is 12 inches high. The county cups, including that presented by Somersetshire (see fig. 151), will be awarded at the discretion of the Executive Council. The proprietors of *The Gardeners' Chronicle* have presented a cup shown in fig. 150, and it will be given to the best new plant, species hybrid or variety, which has not been exhibited previously. The cup weighs 160 ounces, and is 21½ inches high; it was manufactured by Sydenham Brothers, Birmingham.

Condition of the Corn Crops. — The April number of the *Bulletin of Agricultural Statistics*, published by the International Institute of Agriculture, has just been issued. The figures showing the area sown with winter crops in the Northern Hemisphere are, for the greater part, the same as those published in the March *Bulletin*. The information as to the condition of the crops is, in general, satisfactory. In

Fig. 149.—Royal International Horticultural Exhibition.
(Cup presented by the subscribers in Lancashire.)

several countries the crops are more advanced and looking more healthy than at this time last year; but in the United States and Japan the condition is not quite up to what it was in April, 1911. The conditions in the United States, expressed in percentages of a condition promising an average yield, are as follow:—Winter Wheat, 93.6 on April 1, 1912, as against 95.9 on April 1, 1911. Winter Rye, 97.7 on April 1, 1912, as against 99.0 on April 1, 1911. Spring sowing for Wheat, Rye, Barley, and Oats has been brought

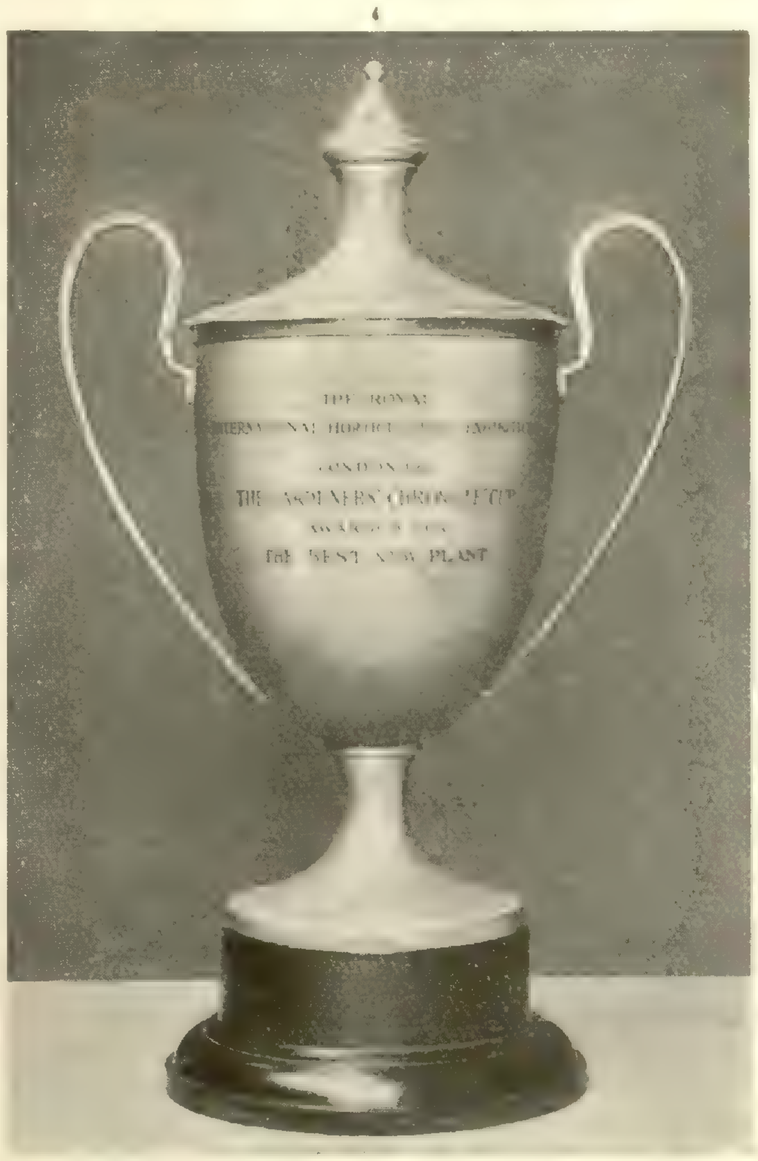


Fig. 150.—Royal International Horticultural Exhibition.
(The *Gardeners' Chronicle* Cup.)

to an end in most countries during the present month, and the crops appear, in the majority of cases, to be coming up very evenly. The final returns for 1911 are given for the cereal harvest in Japan as follow:—Wheat, area 1,223,000 acres, production 13,309,000 cwts. Barley, area 3,101,000 acres, production 40,719,000 cwts. Oats, area 110,000 acres, production 1,261,000 cwts. The results of the live-stock census taken in Croatia and Slavonia in 1911 are also given.

Flax Fibre. – A new process of treating Flax straw has been discovered and acquired by the Canada Flax-Fibre Co., Ltd., of Toronto, which is incorporated under the Federal Companies Act with a capital of $3,000,000 for exploiting the patent. It is stated that the process will extract the tow from which yarns will be spun suitable for the manufacture of linen cloth, and that the refuse can be converted into valuable stock for paper making. Flax is grown on an extensive scale in Western Canada for its seed, the "linseed" of commerce, the straw being destroyed.

Expert Forestry Information for Landowners.—Grants from the Development Fund of sums of £2,500 per annum for three years will be distributed by the Board of Agriculture and Fisheries as grants to certain institutions in England and Wales to enable them to supply technical advice to landowners and others interested in forestry. It is proposed to attach an experienced forest expert to the forestry departments of two universities and three colleges, whose chief duty will be to supply to landowners and others advice as to the general and detailed working of their woods. Each institution will, therefore, become for a given district a centre for information, to which application may be made on all questions relating to the formation, treatment, utilisation, and protection of woods.

Publications Received. — ***Carnations,*** by James Douglas. (London: Agricultural and Horticultural Association.) Price 1d.—***Homes with Incomes: How to Own a Freehold of a Ready-made Fruit Farm in South Ontario.*** (London: The Southern Ontario Land Company, Limited, 2, Lombard Street.)

ROYAL INTERNATIONAL HORTICULTURAL EXHIBITION.

PRIVILEGE TO OFFICIAL GARDENERS' SOCIETIES.

The directors have decided to grant a special privilege to members of bonâ fide gardeners' mutual improvement and similar societies. The secretaries of such societies purchasing not fewer than 20 admission tickets for the exhibition will be accorded a discount of 20 per cent. upon 1s. tickets, and 10 per cent. upon all higher-priced tickets. A parcel of 20 tickets and upwards need not be comprised of tickets all of the same value; in fact, it may be made up in any way convenient to the society, so long as not fewer than 20 are purchased at the same time. Societies wishing to avail themselves of these facilities must apply for their tickets on or before May 13, as no discounts can be allowed after that date.

EXHIBITION CUPS.

It is felt that the public should have an opportunity of inspecting the numerous cups and plate to be presented at this exhibition, and arrangements have been made to exhibit them at a meeting of the Royal Horticultural Society, on May 14, in the Society's Hall, Vincent Square, Westminster. They will also be on view at the International Exhibition on May 22, 23, and 24, the first three days of the show.

SOME OF THE ENTRIES FOR THE EXHIBITION.

From the entries received it is evident that all types of Carnations will be represented in abun-

Fig. 151.—Royal International Horticultural Exhibition.
(Rose bowl presented by Somersetshire.)

dance. The perpetual-flowering section, the Souvenir de la Malmaison, the border varieties—all will vie with each other in presenting a brilliant show of colour. There are, for instance, four entries in a class for groups of Carnations in flower, arranged on spaces of 200 square feet

each. The tuberous-rooted Begonias, so resplendent at most of the summer shows, will contribute some of the most brilliant colouring ever seen. There are three entries in a class in which each exhibit can claim an area of 200 square feet.

Streptocarpuses—a race of greenhouse plants which has come into special notice during recent years—have attracted four entries in a class for exhibits occupying 200 square feet each.

In no division, however, is there more reason for satisfaction than in that for Alpine plants and rockeries. Nine entries appear in the class for Alpine plants arranged in spaces of 100 square feet, and seven entries in another competition for exhibits occupying 50 square feet. There will be 14 or more great rockeries constructed in the open garden, 7 in a class for rockeries of 600 square feet each, and 7 in a competition where the space is limited to 400 square feet.

In the cut-flower section, Sweet Peas will figure largely, although most of the flowers will have been grown under glass, in order to be ready for the early date. There are 14 entries in a competition for the "Sherwood" Cup for groups of Sweet Peas in spaces of 12 feet by 3 feet, and 8 competitors for Messrs. Dobbie's cup, in spaces of 6 feet by 3 feet. Four exhibitors will compete in a class for new Sweet Peas introduced to commerce since September, 1910.

BOY SCOUTS AND VETERAN SOLDIERS.

Arrangements will be made for employing Boy Scouts as messengers, especially on the first day of the exhibition, May 22, when the findings of the 75 sections of the jury will be communicated to the commissariat immediately each class is adjudicated upon. All members of the jury are asked to be present at the Exhibition at 7.30 a.m., and it is expected that most of the judging will be completed before 11 o'clock a.m. Veteran soldiers in uniform, from the Chelsea Hospital, will be employed as attendants, and ambulance corps will be furnished by the St. John's Ambulance Society. Indeed, all will be done that is possible not only to provide against accidents, but to secure the comfort of the visitors to this great exhibition. *R. Hooper Pearson, Hon. Press Secretary.*

"FARRER" CUP FOR ROCK PLANTS.

The cup illustrated in fig. 152 has been presented by Mr. Reginald Farrer to the Council of the Royal Horticultural Society for competition in an open class at the fortnightly meeting of the Society on June 4. It will be awarded for six new or rare dwarf rock plants, naturally about 9 inches in height; not fewer than six nor more than twelve specimens of each. New colour forms of well-known plants are admissible, but double flowers are excluded. Variety, novelty, interest, and correctness of name will be considered before size of specimens. It is not essential that all, or even more than one plant, of any species should be in bloom. Every exhibitor must attach a card stating in print or in very clear writing the history of each set of plants, and observation remarks such as ease or difficulty of cultivation, suitable soil, positions and uses, methods of propagation, and peculiarities. The cup is copied from an old design, and stands upon a detachable square plinth; around its base, in fifth century characters, runs the opening couplet from the first speech of Hippolytos, which has a special bearing on the matter of the competition, for, being translated, it reads: "My lady, I have twined and brought you this garland from the unharvested meadow" (which neither scythe nor herd has ever ravaged). No stipulation is made as to method of display, whether in pots or out of pots, in rockwork or unadorned.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

Pot Strawberries.—Mr. Godfrey (p. 285) states that the best method of wintering Strawberries is to lay the pots on their sides. Why did he not say one of the best methods? When high winds prevail during the winter, does not Mr. Godfrey find that the soil in the pots dries up, and what method does he then adopt of watering them? If they are placed in a cold frame there is no fear of the soil becoming water-logged. Probably his method is the best to adopt if frames are not available. *W. H. Kent.*

Frost and the Fruit Crops.—With reference to Mr. W. E. Bear's enquiry on p. 285, I may say that 4°, 2° and 4° of frost in this district on April 10, 11 and 12 respectively caused much injury to the blossoms of both Plums and Pears. The crops of Plums of the varieties Golden Transparent, Nouvelle de Dorelle, Kirke's Anna Späth, Bryanston Gage, Coe's Golden Drop and Jefferson have been almost entirely destroyed, also Pears Marie Louise D'Uccle, Beurré Clairgeau, Doyenné du Comice, Catillac, Vicar of Winkfield, Verulam, Fondante du Comice and Louise Bonne of Jersey. The trees are all bush trained: many varieties of both Plums and Pears, including some of those named, are comparatively uninjured on walls. Gooseberries and Currants (red, black and white) have also escaped injury. The garden faces north-east, and is situated about 12 miles from the sea-coast as the crow flies. *D. Wilmshurst, Eastwell Park Gardens, Ashford, Kent.*

Fig. 152.—Mr. Farrer's cup for rock plants.

———Mr. Bear may congratulate himself on his crop escaping so lightly. Here, on the borders of Wiltshire and Berkshire, we experience much more frost than is usual in the north of Scotland, and at about the dates mentioned by your correspondent we had frosts varying from 8° to 11°, although slight frosts occurred for three weeks. Considerable damage has been done to the fruit crops hereabouts; those of Pears, Plums and Cherries are badly injured, and in the case of unprotected trees quite spoiled. Trees on walls, although protected with double netting, have more than half the crop ruined; Pears on walls with glass copings protected with a double layer of netting were also frozen; Gooseberries and Currants escaped, except at the top of the bushes. Peaches and Nectarines were, fortunately, a little past flowering, but the continued cold winds may still affect them, as in the case of Apricots, which flowered well this year. Pears in this neighbourhood blossomed better than for many years past; Plums and Cherries also flowered freely, but Apples, and especially old trees, are not so full of blossom as usual, and a few of the earliest flowers of these are blackened as the result of frost when they were in the bud state. This garden, in addition to sloping to the north, is quite unprotected from the north and east, hence the crops usually suffer damage at this time of the year. *J. G. Littlecote, Hungerford, Berkshire.*

———The following are the gross readings of the thermometer in these gardens for April and the last week in March:—March 28, 7°; 30, 2°; April 1, 12°; 2, 5°; 3, 3°; 6, 6°; 8, 3°; 9, 5°; 10, 17°; 11, 19°; 12, 8°; 13, 6°; 14, 9°; 15, 13°; 16, 8°; 17, 13°; 18, 11°; 19, 9°; 20, 7°; 21, 9°; 22, 6°; 23, 1°; 24, 6°; 25, 6°; 26, 6°; 27, nil; 28, 15°. The greatest frost occurred on the night of April 19, when the thermograph in the screen registered a period of nine hours below the freezing point. I am afraid the Apple and Plum crops are ruined. Most of the Apple blossom is falling without opening, and Pears on a south wall are spoiled, the fruits being frozen, although blinds were employed. Gooseberry and Currant crops are not injured much, although the fruits of Gooseberries are quite dark on one side. The rainfall here for this past 36 days has only amounted to .15 of an inch. *J. Sherlock, Fowley Gardens, Liphook, Hampshire.*

Red Spider on Vines (see p. 256).—Mr. Molyneux is to be congratulated on again bringing to the notice of growers, and, what is more, suggesting a remedy for, that worst of all vine pests, red spider. If the present dry weather continues the pest will soon be largely in evidence, and I have no doubt but that the simple remedy Mr. Molyneux recommends will be tried by very many of your readers. I believe I am the correspondent referred to, with regard to the vines being the sole occupants of the Grape house, and I am quite in agreement with Mr. Molyneux as to the impossibility of this procedure in the majority of gardens. If I remember rightly, I penned the note in answer to a correspondent in a preceding issue, who appeared to imply negligence on the part of gardeners, who were troubled with red spider. According to his article one had only to keep the house saturated with water to ensure the vines being immune from attack. Gardeners know from experience that, given a dry summer, water alone will not prevent red spider from gaining a footing on vines. Such statements very often cause considerable annoyance to gardeners, and it was to destroy the impression that red spider necessarily means negligence on the part of the gardener that my previous note was written. *M. Sargent, Rockshaw.*

Early Sweet Peas.—During a recent visit to Mr. C. W. Breadmore's Nursery, at Colden Common, I found two large glasshouses filled with most healthy plants of Sweet Peas. Each lofty span-roofed house contained 1,000 plants down the centre, planted in deeply-prepared trenches. In height the plants ranged from 5 to 7 feet, and the stems were extra stout, carrying luxuriant foliage, thus giving an indication of the wealth of blossom that will follow. Already there were open flowers. None but the very best varieties are included, and all are of the "Spencer" type. Large blocks of certain sorts were on trial. Among prominent varieties I noted Nubian, chocolate maroon; the newer Lord Curzon, which is a much improved Menie Christie; Elsie Herbert, Maud Holmes, Mrs. C. Breadmore, Aggie Elder, a promising new colour in Sweet Peas, which is best described as a Geranium red; Freda, the best of all white-flowered varieties; Princess Mary, electric blue. The wings rich blue, but standard with a tinge of bronze; Dazzler, Marjorie Linzie, Senator Spencer, Charles Foster, Mrs. R. Hallam, salmon pink; Melba, May Campbell, George Herbert and the delicately-tinted pink Iris which originated in these nurseries. Many of the flower stems already measure 20 inches long. *E. M.*

SOCIETIES.

ROYAL HORTICULTURAL.

APRIL 30.—There was a large attendance at the fortnightly meeting of this Society on Tuesday last, which took place in conjunction with the annual show of the National Auricula Society. Orchids were not so numerous as usual, but there were several novelties, and the ORCHID COMMITTEE granted two First-class Certificates to novelties.

The FLORAL COMMITTEE found many exhibits worthy of recognition. Roses were shown finely, and a Gold Medal was awarded to Messrs. GEORGE MOUNT & SONS for an exceptionally good exhibit of these flowers. Sweet Peas were shown well from indoor plants, but Chrysanthemums appeared most unseasonable. The FLORAL COMMITTEE bestowed 21 medals and nine Awards of Merit; the Saxifrages well deserved the honour, a finer or more attractive collection has seldom been seen.

The Darwin Tulips, although a fortnight before their proper season, were exceedingly well shown by many firms. The highest trade award of the NARCISSUS COMMITTEE, which also passes judgment on Tulips, was given to Messrs. SUTTON & SONS for a fine display. A similar medal was awarded to the splendid collection exhibited by Sir RANDOLPH BAKER. The NARCISSUS COMMITTEE granted two Awards of Merit to Tulips.

The outstanding exhibit in the fruit and vegetable section was Messrs. SUTTON & SONS superb collection of vegetables, for which a Gold Medal was awarded. This committee made no award to a novelty.

At the three o'clock meeting of the Fellows a lecture on "Potatos" was delivered by Dr. R. N. Salaman.

Floral Committee.

Present: H. B. May, Esq. (in the Chair); and Messrs. C. Blick, J. Green, G. Reuthe, R. Hooper Pearson, John Dickson, W. R. Cranfield, R. C. Notcutt, J. F. McLeod, C. R. Fielder, F. Herbert Chapman, W. Howe, R. C. R. Nevill, C. E. Shea, W. Cuthbertson, Chas. E. Pearson, W. P. Thomson, E. H. Jenkins, W. G. Baker, H. J. Jones, Ed. Mawley, J. W. Barr, and E. A. Bowles.

Messrs. GEORGE MOUNT & SONS, Canterbury, made an imposing display with an enormous number of excellent cut Roses. Large stands were filled with blooms of Ulrich Brunner, fine deep-pink flowers on long, stout stems; the paler-pink Mrs. George Shawyer contrasted equally well with the rich-red Liberty on one side as with deep-yellow Le Progrès on the other side. That popular red variety, Richmond, and the beautiful Mrs. John Laing were also shown in quantity. Stands of cut blooms contained Lady Alice Stanley (pink), Mme. Ravary (yellow shade), Mons. Paul Lede (apricot and rose), and Gustave Grunnerwalde (pink), as fine as might be expected in June. (Gold Medal.)

Messrs. FRANK CANT & Co., Colchester, staged Roses in pots and cut blooms of same. Sprays of the difficult yellow Banksiana bore plenty of flowers. Veilchenblau, an uncommon but not pretty shade of mauve, will doubtless find favour with some growers. In boxes we noticed fine blooms of Marechal Niel, Joseph Low, and Lady Alice Stanley. (Silver Banksian Medal.)

Messrs. W. PAUL & SON, Waltham Cross, again filled one corner of the hall with well-flowered pot Roses. The feature of this exhibit was the new Roses President Vignet, a velvety-red H.T. variety; Ellen Poulsen, a pale-pink cluster variety; white Tausendschön and the gold and pink Juliet. (Silver Banksian Medal.)

Messrs. B. R. CANT & SONS, Colchester, staged many fine Roses; the new Rose du Barri, recommended for bedding purposes, was again shown in fine form. Boxes contained many good blooms, of which Avoca, Colcestria, Florence Pemberton, and The Bride are a selection. (Bronze Banksian Medal.)

Messrs. J. VEITCH & SONS, Chelsea, again exhibited a good selection of Cinerarias from their Feltham nursery. The compact-flowered Antique Rose, with its varying shades of rose-pink, is a very good form of this beautiful greenhouse plant. Snowball, a pure white, and Intermediate Blue are excellent companions to Antique Rose. The 17 varieties exhibited also included some of the smaller-flowered, but very decorative, forms, such as Decorator (rose-purple), Cactus (light blue), and many shades of Cineraria stellata. Altogether this was a very attractive exhibit. Against the side wall Messrs. VEITCH showed excellent plants of the Dropmore variety of Anchusa italica and equally good examples of the paler variety Opal. In view of the Auricula Society's show, Messrs. VEITCH exhibited a large group of Auriculas and species and hybrids of Chinese Primulas, including the hybrid Unique. (Silver Banksian Medal.)

Messrs. THOS. ROCHFORD & SONS, Turnford Hall Nurseries, Broxbourne, exhibited novel forms of Araucaria excelsa and Asparagus Sprengeri variegata. Besides a number of the golden variety of Araucaria, which received an Award of Merit, there were many specimen plants of the variety Silver Star, in which the young growths have white tips, giving the trees an uncommonly attractive appearance. In the background there was a tall specimen named Mme. Storey, with dense, dark-green leaves. All the plants shown exhibited good cultivation.

Messrs. STUART LOW & Co., Bush Hill Park, Middlesex, contributed well-grown stove and greenhouse plants. Groups of profusely-flowered Acacia pendula, A. cordata, and A. armata stood out prominently. The brilliant Correa cardinalis contrasted well with the varying shades of the large heads of Hydrangea hortensis. Although not so fragrant as the commoner species, Boronia heterophylla is exceedingly bright and desirable. This firm also exhibited a meritorious collection of cut Carnations. Besides many of the standard varieties, we noticed La Mode, a small, purple-shaded bloom; Fireglow, a fragrant orange-yellow and red flower; and Gloriosa, a hardy Pink of an attractive shade of mauve.

Messrs. H. B. MAY & SONS, Upper Edmonton, displayed several forms of Hydrangea hortensis, (Mariesii being especially fine), Clerodendron Balfourianum, the sweet-scented Jabernæmontana, coronaria plena, Verbena Aurora Boreale (a good scarlet variety), and the popular pink variety Miss Willmott. (Silver Flora Medal.)

Messrs. JAS. PARKER & Co., Whetstone, Middlesex, staged Pteris Parkeri, a strong-growing form of P. major, with rich dark-green fronds, which received an Award of Merit on March 5 last.

Messrs. JOHN PEED & SON, West Norwood, showed Caladiums with beautifully delicate leaves, also Gloxinias and Streptocarpus in good strains. (Silver Banksian Medal.)

Messrs. H. CANNELL & SONS, Swanley, Kent, filled a table in the annexe with profusely-flowered fancy and Zonal Pelargoniums. The varieties Lady Lansdowne, King George V., and Purity, amongst the fancies, were very pretty. The Zonals included Maxime Kovalesky, a fine orange-crimson variety. (Bronze Banksian Medal.)

Mr. W. J. GODFREY, Exmouth, showed fancy Pelargoniums and Verbenas in round baskets; the plants bore large numbers of blooms.

Mr. PHILIP LADDS, Swanley Junction, staged, in Ambrosia (pink), Paul Crampel (scarlet), and Salmon Paul Crampel, three excellent bedding varieties of Pelargoniums. East Lothian Stocks, growing in 5-inch pots, were very fresh and fragrant.

Mr. H. J JONES, Ryecroft, Lewisham, again exhibited a very showy collection of cut Zonal Pelargonium blooms.

Messrs. WM. CUTBUSH & SONS, Highgate, set up large stands of cut Carnations. The bright-crimson Lord Rothschild (a large-flowered variety with a delicious perfume), Lady Elphinstone (flesh pink, free-flowering, and also fragrant), and the large-flowered Souvenir de la Malmaison variety Lady Coventry are the pick of a fine collection. (Silver-gilt Banksian Medal.)

Messrs. ALLWOOD BROS, Haywards Heath, Sussex, again exhibited Carnations.

Mr. G. ENGLEMANN, Saffron Walden, Essex, staged such good varieties of Carnations as Triumph, Scarlet Glow, Carola, and White Perfection. (Silver Banksian Medal.)

Mr. H. BURNETT, Guernsey, again staged choice blooms of Carnations in many varieties. (Silver Banksian Medal.)

Messrs. JOHN WATERER & SONS, Bagshot, Surrey, set up a group of Rhododendron Pink Pearl. The plants were magnificently flowered, and the trusses made a striking display. (Silver Banksian Medal.)

Messrs. PIPER, Bayswater, set up an attractive exhibit in the form of a pool surrounded by old paving stones and with a low, dry stone wall at the back. Various lowly-growing plants were disposed between the flagstones, and the wall was brightly planted. Huge Toadstools in concrete were very incongruous, otherwise the exhibit was of a pleasing nature. (Silver-gilt Banksian Medal.)

Mr. C. ELLIOTT, Stevenage, arranged a low rockery, planted with a profusion of rock plants in large breadths, making an effective display. (Silver Banksian Medal.)

THE BURTON HARDY PLANT NURSERY, Christchurch, Hants., arranged an attractive rockery, well filled with choice Alpines, such as Silene Hookeri, Androsace Chumbyii Brilliant, Asperula tuberosa, Saxifraga lingulata, Primula pedata bicolor, and Primula sikkimensis. A profusely-flowered Primula Auricula with double yellow flowers and Corydalis tomentosa were also noticeable.

Mrs. E. LLOYD EDWARDS, Bryn Oerog, Llangollen, exhibited a choice selection of many Saxifrages. The rose-coloured Edward VII, Queen Mary (white), Novelty (pink and white), Trevor Giant, and Sanguinea superba are the best of a fine collection containing many varieties. (Silver Flora Medal.)

Mr. MAURICE PRICHARD, Christchurch, Hants, designed a good rockery. Amongst the many suitable plants we noted Primula japonica splendens, the dwarf Delphinium nudicaule, Scutellaria japonica, Viola pedata, and Aubrietia "Lavender" with very large, showy flowers. (Bronze Banksian Medal.)

Mr. H. HEMSLEY, Crawley, also exhibited rock plants and hardy shrubs, the latter including Veronica Hulkeana, Pentstemon Scouleri and P. Roezlii three desirable species.

Messrs. G. and A. CLARK, LTD., The Nurseries, Dover, arranged a collection of cut border flowers, including Anchusa "Opal," Geum Mrs. Bradshaw, many kinds of Irises, Lupins, and Tree Pæonies. (Bronze Banksian Medal.)

Messrs. J. CHEAL & SONS, Crawley, made a low rockery which they backed with cut sprays of flowering trees and shrubs bearing abundant blossoms. (Bronze Banksian Medal.)

The Misses HOPKINS, Shepperton, arranged a very pretty rockery with a pool.

Messrs. BARR & SONS, Covent Garden, set up a neat and well-furnished rockery in the annexe. Myosotis Alpine Blue exhibited a rich, dark shade of colour. Lychnis alpina bore a quantity of purple flowers. Aubrietia Lavender, which bears large flowers, is appropriately named. Several plants of the interesting Primula involucrata occupied a niche in the rockery. (Bronze Banksian Medal.)

Mr. L. R. RUSSELL, Richmond, arranged an attractive rockery containing Alpines and flowering shrubs.

Messrs. WM. CUTBUSH & SON, Highgate, displayed in a cork rockery a fine group of Daphne Cneorum major, Mertensia primuloides (a dwarf form of Mertensia bearing attractive blue and purple Forget-me-not like flowers), and Silene Hookeri with flowers of a pleasing pink shade. At the end of the rockery this firm staged many profusely-flowered hardy shrubs, such as Cytisus præcox alba, Lilacs, Laburnum Vossii and Wistaria.

Mr. L. T. GREENING, Richmond, set up a small dripping well or stream planted with Ferns, Veronicas and Alpines.

THE GUILDFORD HARDY PLANT NURSERY staged interesting hardy plants, chiefly growing in small pots.

Messrs. WM. FELLS & SON, Hitchin, arranged a low rockery planted with Alpines and dwarf shrubs.

Messrs. REAMSBOTTOM & Co., Geashill, Kings Co., Ireland, staged an exceedingly fine collection of cut blooms of St. Brigid Anemones embracing many colours.

Messrs. W. H. ROGERS & SON, LTD., Red Lodge Nursery, Southampton, arranged Rhododendrons in bloom and a selection of cut sprays of other hardy shrubs.

Messrs. WHITELEGG & PAGE, Chislehurst, Kent, again set up an attractive low rockery in the annexe. The breadths of Leptospermum Heavenly Blue, Primulas, and mossy Saxifrages made a good show.

Mr. G. Reuthe, Keston, Kent, contributed flowering shrubs and Alpines. The golden, pendulous flowers of Edwardsia tetraptera formed an interesting feature of this collection of uncommon plants.

Messrs. John Peed & Son, West Norwood, arranged a low, informal rockery well furnished with flowering plants and small Japanese Maples.

Mr. Geo. Jackman & Son, Woking Nurseries, staged an attractive collection of hardy flowers. Iris Fichieri, I. excelsa, Isatis glauca, and the forms of Alyssum saxatile were very showy.

Messrs. Phillips & Taylor, Bracknell, Berks., exhibited Primula Sieboldi "Brilliant," dwarf Phlox, and floating spikes of Aponogeton distachyon which attracted many visitors.

Messrs. Dobbie & Co., Edinburgh, have taken time by the forelock, for not only have they already exhibited fine Sweet Pea blooms, but have included in Dobbie's Scarlet, Brunette, Inspector, Thos. Stevenson and Lavender varieties not yet in commerce. Messrs. Dobbie also showed fine spikes of Antirrhinum. (Silver Flora Medal.)

Mr. Chas. Breadmore, Winchester, also showed cut blooms of Sweet Peas. The well-coloured blooms were borne on surprisingly long, stout stalks. (Silver Banksian Medal.)

Messrs. Wells, Merstham, exhibited Chrysanthemums, which appeared very much out of season.

Awards of Merit.

Cheiranthes mutabilis "Keeley's variety."—A bushy, floriferous Wallflower, with blooms which when first open are puce colour, but soon change to purple. From Mr. R. W. Richards, Usk Priory.

Lewisia Howellii.—A herbaceous perennial suitable for growing in the rock-garden. The plant forms a rosette of undulate coriaceous leaves. The yellow flowers, which have faint pink stripes, are 1¼ inch across. Shown by Mr. Maurice Prichard.

Echium truncatum.—The large spikes of this Canary Island plant bore quantities of blue flowers with pinkish filaments; the contrast was not pleasing. Shown by W. Astor, Esq., Cliveden.

Celsia cretica "Cliveden variety."—A very desirable form of Selsia. The spikes shown were well furnished with large golden-coloured flowers, which have purple centres. Also shown by W. Astor, Esq.

Cineraria, Pompadour strain.—A compact strain of Cineraria; the flowers have various ground colours, and all are striped with blue. Shown by Messrs. Jas. Veitch & Sons.

Deutzia longifolia.—A bushy, free-flowering shrub from China, with pale-lilac flowers, showing yellow stamens. The species is perfectly hardy and it forces well. Shown by Miss Willmott.

Saxifraga Mrs. J. T. Tottenham.—A hybrid Saxifraga, which produces plenty of large white flowers; the flower-buds are pink.

S. "Comet."—A similar hybrid to the foregoing; in this plant the large white flowers are borne on taller stems. These are very excellent rockery plants. Both shown by Mrs. Lloyd Edwards.

Araucaria excelsa elegantissima aurea.—A Norfolk Island Pine, in which the young growths are yellow and the mature leaves are paler than those of the species. A very pretty, graceful form. Shown by Messrs. Rochford.

Narcissus Committee.

Present: E. A. Bowles, Esq. (in the Chair); Miss E. Willmott, Messrs. W. Poupart, C. Bourne, J. D. Pearson, P. R. Barr, Joseph Jacob, F. Barchard, G. W. Leak, W. T. Ware, and Chas. Curtis (secretary).

Sir Randolph Baker, Bart., M.P., Ranston, Blandford (gr. Mr. A. E. Usher), exhibited a very comprehensive selection of Darwin and other May-flowering Tulips, attractively staged. The blooms were fine and fresh, betokening good cultivation and artistic selection. (Silver-gilt Flora Medal.)

Messrs. W. T. Ware, Ltd., Bath, contributed cut Tulips arranged in wicker-covered vases.

Messrs. Sutton & Sons, Reading, filled a stretch of staging with cut blooms of Tulips, attractively arranged with Adiantum Ferns in small pots. As elsewhere, the Darwin varieties were most in evidence, and of the many varieties, Bronze Queen, Feu Ardente, The Sultan (whose names sufficiently indicate their colours), Pride of Haarlem (a vivid pink), Faust (dark maroon), and the mauve and purple Erguste were the best of a fine selection. Amongst the Cottage Tulips we noted Picotee, White Swan, and Golden Eagle. A group of Phlox Drummondii erecta Sutton's Purity at one end of the Tulip display was very good. (Silver-gilt Flora Medal.)

Messrs. Barr & Sons, Covent Garden, London, staged an interesting selection of cut Tulip blooms. The Darwin varieties predominated, but there was also a number of the brilliant-coloured, quaint-looking Parrot varieties. We noticed the decorative yellow Tulip retroflexa and its superba variety. In spite of the daily Press writers, the Black Tulip has not been resuscitated, although La Tulipe Noire, when casually viewed, proves almost black. Queen of Spain and Louis XIV., are other dark-coloured blooms of the same class. The bright-pink Darwin varieties greatly please the eye; Salmon King, Mr. Francombe Sanders, and Admiral Togo are very good examples. The softer shades of pink were well represented by Inglescombe Pink and Clara Butt, whilst amongst the species of Tulipa, in addition to T. retroflexa, T. Billietiana found many admirers. The "Cottage" Tulips are already in flower. Fireblaze, Merry Maid, Orange Globe, and Cassandra are very showy varieties. (Silver-gilt Banksian Medal.)

Messrs. R. Wallace & Co., Colchester, staged a collection of Tulip flowers, the Gesneriana hybrids being very good. Amongst the "Cottage" varieties, the orange-scarlet Coronia was very striking. The "Darwins" included many good blooms, such as Clara Butt, Mr. Francombe Sanders, Viola, Zephyra, Wedding Veil, and the Rev. H. Ewbank. This exhibit also contained a fine selection of Iris, Primula pulverulenta, and P. Forrestii. (Silver-gilt Banksian Medal.)

Messrs. R. H. Bath, Ltd., Wisbech, showed a bright collection of Tulips arranged with Ferns in pots. The yellow Parisiana, Wedding Robe, Elegans alba, Bleu Aimable, King Harold, and Mme. Krelage are a few varieties in a good collection. (Silver Flora Medal.)

Messrs. Cartwright & Goodwin, Kidderminster, contributed some very fresh and brightly-coloured cut blooms of Tulips. Julie Viriot (flesh-pink Darwin), Fulgens (red species), Inglescombe Yellow, and William III. (a double red) were especially noteworthy. (Silver Banksian Medal.)

Messrs. G. & A. Clark, The Nurseries, Dover, staged a collection of Tulips.

Messrs. Geo. Bunyard & Co., Maidstone, Kent, exhibited Tulips and rock plants. Iberis gibraltarica, I. Little Gem, and Phlox lilacina, amongst the latter, were noteworthy. The Tulips included Cornuta chinensis, Zulu, Golden Crown, and several good Parrot varieties.

Awards of Merit.

Tulip Velvet King.—A very fine, dark, glossy-purple Darwin variety, with a white centre, and borne on stout stalks. Shown by Messrs. Barr & Sons.

T. Grenadier.—A very large orange-scarlet bloom, after the style of T. Fosteriana, with a yellow colour in the eye. Shown by Messrs. W. T. Ware.

Orchid Committee.

Present: J. Gurney Fowler, Esq. (in the Chair); and Messrs. Jas. O'Brien (hon. sec.), Harry J. Veitch, de B. Crawshay, Gurney Wilson, W. Thompson, Stuart Low, R. G. Thwaites, J. S. Moss, F. J. Hanbury, F. M. Ogilvie, T. Armstrong, A. A. MacBean, W. Cobb, J. Cypher, J. Charlesworth, W. H. Hatcher, J. Wilson Potter, W. P. Bound, J. E. Shill, H. G. Alexander, A. Dye, W. H. White, W. Bolton, J. S. Moss and R. Brooman-White.

Mr. S. Flory, Tracy's Nursery, Twickenham, was awarded a Silver Flora Medal for an effective and well-arranged group, which contained some exceptionally good white forms of Odontoglossum crispum and several showy hybrids, including a distinct form of unrecorded parentage with the sepals and petals of a violet colour, with white margins. O. eximium, claret-red; O. percultum, O. Pescatorei, with a fine branched spike; several scarlet Odontiodas raised between Odontoglossum gloriosum and Cochlioda Noezliana; Odontoglossum Charlesworthii, O. Bradshawiæ, &c., were also shown. Also good Cattleya Schröderæ, Trichopilia Backhouseana and the rare T. oicophyllax, Cymbidium eburneum, good Cattleya Mendelii and C. Schröderæ, and a pretty yellow Mormodes.

Messrs. Stuart Low & Co., Bush Hill Park, were awarded a Silver Banksian Medal for an effective group of Cattleya Mendelii, C. Mossiæ, C. Schröderæ, Renanthera Imschootiana, and other showy Orchids. Among the Dendrobiums were D. infundibulum, D. Jamesianum, and a very fine form of D. Donnesiæ, which appears to be intermediate between D. formosum giganteum and D. Jamesianum; also D. secundum, Cymbidium Devonianum, Cattleya intermedia alba, and various Brasso-Cattleyas.

Messrs. Sander & Sons, St. Albans, were awarded a Silver Banksian Medal for a group of very good varieties of Cattleya Schröderæ, C. Mendelii, and C. Mossiæ. A good feature in the group were several excellent specimens of Dendrobium albo-sanguineum, good D. thyrsiflorum, D. lituiflorum, D. secundum, and other Dendrobiums. The white Trichopilia Hennesiana, Cirrhopetalum cæspitosum, Oncidium pulchellum, Polystachya bracteosa, and other interesting species were noted.

Messrs. Charlesworth & Co., Haywards Heath, staged a select group, for which a Silver Banksian Medal was awarded. On each side were pans of the clear-yellow Lælio-Cattleya G. S. Ball, and with them Lælio-Cattleya Wellsiana, L.-C. Dominiana, various Brasso-Cattleyas, Gongora atropurpurea, G. leucochila, the white-lipped Miltonia vexillaria Cobbiana, several forms of the very finely-coloured Odontoglossum Aireworth, the new Lælio-Cattleya Pelias (L.-C. Fascinator × C. Warneri alba), with a pretty blush-white flower with purple markings on the lip.

Messrs. J. & A. A. McBean, Cooksbridge, secured a Silver Banksian Medal for a group having a distinct yellow-petalled Lælio-Cattleya highburyensis at the back, with fine C. Mossiæ. C. Skinneri of the true old type, C. Schröderæ, and some excellent Odontoglossums, Lycaste Deningiana and fine scarlet Odontiodas were included.

Messrs. J. Cypher & Sons, Cheltenham, were awarded a Bronze Banksian Medal for an effective group of Lælio-Cattleya G. S. Ball, L.-C. Fascinator, Brasso-Cattleya Mme. Chas. Maron, and other Brasso-Cattleyas; Brasso-Lælio-Cattleya Triune (B.-C. Digbyano-Schröderæ × L.-C. Hyeana), several forms of which were shown with finely-shaped pale-lilac flowers with purple lines on the lip, Odontoglossums and Odontiodas.

Messrs. Hassall & Co., Southgate, received a Bronze Banksian Medal for a group of hybrid Odontoglossums, including varieties of O. Jasper, O. eximium and others. Miltonia vexillaria Cobbiana, M. Roezlii rosea, Trichopilia Backhouseana, Dendrobium Bronckartii, and other Dendrobiums were good in this group.

J. Gurney Fowler, Esq., Glebelands, South Woodford (gr. Mr. J. Davis), showed a small plant of Odontioda Royal Gem (O. Vuylstekeæ × O. ardentissimum), with good white flowers tinged with lilac and bearing effective red spotting, the rare Cymbidium tigrinum, and the very handsome Cattleya Schröderæ Glebelands variety.

Sir Trevor Lawrence, Bart., K.C.V.O., Burford (gr. Mr. W. H. White), sent Brasso-Lælio-Cattleya Triune (L.-C. Hyeana splendens × B.-C. Digbyano-Schröderæ), a pale-lilac flower of good shape with purple markings, and Odontoglossum Uro-Skinneri magnificum (see Awards).

Mrs. Gratrix, West Point, Whalley Range, Manchester, sent Odontoglossum crispum Mary Gratrix, a grand, clear-white form of fine shape.

W. R. Lee, Esq., Plumpton Hall, Heywood, Lancashire, sent Odontioda Leeana (O. crispum × Harryanum × C. Noezliana), a very fine, deep-red flower like a large O. Charlesworthii.

F. M. Ogilvie, Esq., The Shrubbery, Oxford (gr. Mr. Balmforth), sent Odontoglossum Lambeauanum Vallerie, a good, dark flower; and the handsome Cypripedium Mary Beatrice.

F. P. Walker, Esq., Heatherwood, Putney Heath (gr. Mr. MacGregor), showed Odontoglossum Royal Purple with violet-purple flowers and white front to the lip.

Francis Wellesley, Esq., Westfield (gr. Mr. Hopkins), sent Cattleya Mendelii Chief Justice, a good white flower with light violet front to the lip, veined with silver-white; Cattleya Mossiæ Lady Northcliffe with two spikes, each of four flowers; and the richly-coloured Lælio-Cattleya Mrs. Henriques.

Sir JEREMIAH COLMAN, Bart., V.M.H., Gatton Park, Reigate (gr. Mr. Collier), showed Dendrobium acuminatum Colmanæ with a handsome spike of rose-tinted flowers. The plant was imported from the Philippines as D. Lyonii Oakes Ames, and it appears to be a local form of the D. Treacherianum of Borneo, figured in the *Orchid Album*.

AWARDS.

FIRST-CLASS CERTIFICATES.

Odontoglossum Uro - Skinneri "Burford variety," from Sir TREVOR LAWRENCE, Bart., K.C.V.O., Burford (gr. Mr. W. H. White).—A phenomenal form, with the broad labellum nearly 2 inches across, white beautifully freckled with rose; the greenish sepals and petals blotched with chestnut-red.

Cattleya Schröderæ Glebelands, from J. GURNEY FOWLER, Esq., Glebelands, South Woodford (gr. Mr. J. Davis).—A very handsome flower in all respects. Sepals and petals of a delicate peach-blossom tint. Lip for the greater part rich orange-yellow, with a lilac-tinted margin and tube. The flower shows a greater amount of yellow than is present in any other form.

Fruit and Vegetable Committee.

Present: G. Bunyard, Esq. (in the Chair); and Messrs. A. H. Pearson, J. Cheal, W. Bates, O. Thomas, A. Grubb, J. Willard, H. Markham, A. Bullock, W. E. Humphreys, H. Williams, P. C. M. Veitch, J. Davis, A. R. Allan, E. Beckett, W. Fyfe, G. Woodward, G. Wythes, A. W. Metcalfe, A. Dean, J. Harrison, W. J. Jeffries, and W. Poupart.

Messrs. SUTTON & SONS, Reading, excelled all their previous displays of vegetables this season in a remarkably fine collection comprising some 80 dishes. In the centre of the collection was a group of dwarf French Beans in pots, well furnished with pods. The varieties were Masterpiece, Early Forcing, and Plentiful. The pots were 9 inches in diameter, and each contained three or four strong plants. On either side of the Beans were baskets, mounds, or dishes of Golden Ball, Early Paris, and Tom Thumb Cabbage Lettuces, also superb heads of Cos Lettuce White Heart. The collection also embraced Flower of Spring and April Cabbages; Satisfaction Broccoli; Early Giant and Ideal Peas; Tender and True, Princess of Wales, and Evergreen Climbing French Beans; and Satisfaction, Sutton's Market, Reliance, and Pride of the Market Cucumbers. Besides these were growing clumps of Mushrooms, fine tubers of Potato May Queen; Asparagus; Early Market, Satisfaction, and Princess of Wales Tomatos; various Radishes; Mustard and Cress; Cauliflowers; and Carrots. (Gold Medal.)

Messrs. J. VEITCH & SONS set up in the annexe an excellent collection of 25 dishes of vegetables. Cucumbers; Mushrooms; model Broccoli; Early Favourite, Early Dwarf Wonder, and Golden Wax Pod dwarf French Beans; Cabbage Lettuces Petite Noire and Early Frame; Victoria and Champion Rhubarb; Spinachs; Asparagus; Turnips; and Radishes. (Silver-gilt Banksian Medal.)

G. S. BERGHEN, Esq., Belsize Court, Hampstead, showed large over-ripe fruit of Artocarpus, the Jack Fruit or Bread Fruit.

Seven dishes of Apples of very good quality were shown by Mr. W. W. WORTHINGTON, Whitchurch, Shropshire. The best samples were Dumelow's Seedling (Wellington), Mère de Ménage, and Bramley's Seedling. (Silver Banksian Medal.)

S. HEILBUT, Esq., Holyport, Maidenhead, showed pods of home-grown Vanilla preserved in a bottle.

NATIONAL AURICULA & PRIMULA.

(SOUTHERN SECTION.)

APRIL 30.—The annual show of this society was held on Tuesday last in the Royal Horticultural Hall, Westminster, in conjunction with the R.H.S. fortnightly meeting. Owing to the unusual season, Auriculas and Primulas have flowered abnormally early, and the show suffered in consequence, but not so much as was anticipated. Alpine Auriculas were remarkably good, but Primulas were almost a negligible quantity.

The 1st prize for 12 Auriculas, dissimilar, was won by Mr. JAMES DOUGLAS, Edenside Nursery, Great Bookham, Surrey, in competition with five other exhibitors. His plants were splendidly grown and well-flowered, and included the fine varieties George Lightbody, Prince Charming, Peggy Gibson, Eucharis, Acme, Shirley Hibberd, A. Barker, Mikado, Favourite, Victor and George Rudd. The 2nd prize was awarded to Mr. J. L. GIBSON, Silverwood, Leatherhead, Surrey, whose best examples were Mikado, Acme, Henry Wilson, Shirley Hibberd and Harrison Weir; 3rd, Messrs. PHILLIPS & TAYLOR, Bracknell, Berkshire. We noticed choice plants of Mrs. Henwood and Geo. Lightbody in this collection.

There were seven exhibits in the class for six Auriculas, dissimilar, and again Mr. DOUGLAS excelled. A notable specimen of Victor was adjudged the premier show Auricula in the exhibition. Very fine also were plants of Peggy Gibson, Harrison Weir, and Prince Charming. Mr. GIBSON again followed, showing Rifleman, Rev. F. D. Horner and Smiling Beauty very finely. 3rd, Mr. W. M. SHIPMAN, Altrincham.

The best of three exhibits in the class for four Auriculas, dissimilar, was shown by Mr. A. S. HAMPTON, Tilehurst Road, Reading. The plants were all of exceptional merit, and especially the varieties Mikado and Dinham.

FIG. 153.—ODONTOGLOSSUM URO-SKINNERI "BURFORD VARIETY."

(Awarded R.H.S. First-class Certificate on Tuesday last.)

Mr. F. W. PRICE, 55, Wickham Road, Beckenham, Kent, excelled in the class for two Auriculas, showing Mrs. Henwood and Shirley Hibberd; 2nd, Mr. A. S. HAMPTON, Reading, with Richard Headley and Dr. Kidd.

SINGLE SPECIMEN CLASSES.

Green-edged variety: 1st, Prince Charming, shown by Mr. JAMES DOUGLAS; *grey-edged variety:* 1st, George Lightbody, shown by Mr. SHIPMAN: *white-edged variety:* 1st, Acme, shown by Mr. SHIPMAN; *self:* 1st, Mikado, shown by Mr. JAMES DOUGLAS.

Mr. GIBSON was the only exhibitor in the class for four show Auriculas, open only to amateurs who cultivate their plants themselves. His best varieties were Daffodil, Amy Robsart and Umbra.

Mr. DOUGLAS was easily 1st in the class for 24 Alpine Auriculas in not fewer than 12 distinct varieties, having grand plants, well-flowered, of Golden Eye, Muriel, Roxburgh, Majestic, Prince of Tyre, Phyllis Douglas, Claude Halero, Duke of York, and others; 2nd, Messrs. PHILLIPS & TAYLOR, whose collection included a splendid plant of Mars, which was selected as the Premier gold-centred Alpine Auricula in the show. Very fine also were Argus, Empire, Her Grace, and Majestic.

Mr. DOUGLAS led in the class for 12 Alpine Auriculas, distinct, with a remarkably fine exhibit, a plant of Prince of Tyre being of outstanding quality. The 2nd prize was awarded to Mr. W. M. SHIPMAN, who showed fine plants of Argus, Ilene, Lucrece and Bluebell.

Mr. PRICE excelled in the classes for six and four Alpine Auriculas, dissimilar, respectively.

The best plant of an Alpine Auricula with a gold centre was Muriel, shown by Mr. DOUGLAS, and the best plant of a white or cream-centred Alpine Auricula Phyllis Douglas, shown by Mr. F. W. PRICE.

Mr. PRICE won the Silver Medal offered by Mr. James Douglas to the amateur exhibitor obtaining the highest aggregate number of points in the smaller classes.

The Silver Medal offered by Mr. ROBERT MORTON for the best exhibit by an amateur of six Alpine Auriculas was awarded to Mr. G. E. W. HERBERT, Streatham.

The Douglas Memorial Cup, offered for the best exhibit in Classes 1, 2, 13 and 14, was won by Mr. SHIPMAN, who also secured the R.H.S. Silver-gilt Medal offered by Mr. DOUGLAS to the exhibitor securing the highest aggregate number of points in certain specified classes.

FIRST-CLASS CERTIFICATES were awarded to the following Auriculas:—Mars, a gold-centred Alpine variety, shown by Messrs. PHILLIPS & TAYLOR; Cleveley Gem, a green-edged show variety, exhibited by Mr. W. M. SHIPMAN; and Mrs. W. H. Parton, a gold-centred Alpine variety, shown by Mr. W. H. PARTON.

MIDLAND DAFFODIL.

APRIL 25, 26.—The 14th annual exhibition of this Society, held in the Botanical Gardens, Edgbaston, on these dates, was smaller than usual. The quality of the flowers, too, was below the Birmingham standard. Owing to the exceptionally early season, several prominent Daffodil raisers and exhibitors were not represented, but non-competitive exhibitors of miscellaneus plants and flowers helped to compensate for the deficiency. Although the weather on both days was unusually warm, the glass-covered hall in which the flowers were displayed was delightfully cool, owing to the roof being shaded, and as the floor was damped down both morning and evening, the flowers kept wonderfully fresh.

There were only about 30 exhibitors in the competitive classes, and it is doubtful if the number of entries equalled the number of prizes offered. Competition for the various cups and trophies was weak. There were three exhibitors against six last year for the Bourne Cup; two compared with four for the Herbert Chapman trophy of a year ago; and one against five for the Walter Ware Challenge Cup. Last year there were four contestants for the Cartwright Challenge Cup. On the present occasion there was no exhibit.

In the evening of the first day of the show Mr. Robert Sydenham entertained to dinner at the Grand Hotel the principal exhibitors and visitors. After the dinner, which forms such a pleasant part of the Birmingham meeting, a discussion on the effects of the weather on Daffodils was opened by the president, the Rev. G. H. Engleheart, and continued by the Rev. Joseph Jacob, the Rev. T. Buncombe, and Messrs. Rudolph Barr, Adams, Waveren, Batson, Hawker, Bourne, Mallender, and others.

CUT FLOWERS (OPEN CLASSES).

The leading class was one for 50 varieties of Daffodils fairly representing all sections. There were three contestants, namely the Rev. JOSEPH JACOB, Whitewell Rectory, Whitchurch; Messrs. CARTWRIGHT & GOODWIN, Kidderminster; and Mr. JOHN POPE, King's Norton; and the prizes were awarded in the order named. The specimens in the 1st prize collection were of good size, beautifully fresh, and nicely arranged. Some of the best varieties were Comus, Horace, Cassandra, Rosalind, White Lady, Highland Mary, Steadfast, Whitewell, Hoar Frost, Lucifer, Puritan, Aspasia, White Ensign, Orange Cup, Eoster, Candidata, Mars, Nance Bromley, Sunny Jim, and several unnamed seedlings. Messrs. CARTWRIGHT & GOODWIN had good flowers of Oliver Goldsmith, Mrs. Betteridge, White Lady, Moonbeam, Barcarolle, Genial Star, Princess, Ena, Matthew Arnold and Epic.

Mr. W. A. MILNER, Sheffield, and Mr. J. MALLENDER, Bawtry, were the only exhibitors in a class for 12 varieties of Trumpet Daffodils,

and they were placed 1st and 2nd respectively. The first-named exhibitor showed nice, clean flowers of Agincourt, Copenhagen, Toski, Poitiers, Trafalgar, Grandee, Falkirk, Monarch, Hastings, Omdurman, Tel-el-Kebir, and Waterloo.

Mr. Milner was the only competitor in the next class, which was for six varieties of Incomparabilis Daffodils, and he was deservedly awarded the 1st prize. He showed shapely flowers of Strongbow, Lose Hill, Orangeman, Will Scarlet, James I Anson, and Deep Dale.

Of the three entrants in a class for six varieties of Barrii Daffodils, Mr. H. D. Phillips, of Olton, took the lead with well-formed examples of Ptarmigan, Bullfinch, Tangerine, Persian Orange, Northern Queen, and Rosella. 2nd, the Rev. Joseph Jacob, whose best flowers were Puritan, Killarney, and Highland Mary. 3rd, Mr. W. A. Milner.

The class provided for 12 varieties of Leedsii Daffodils was poorly contested, Mr. J. Mallender being the sole competitor. The leading varieties in this exhibit were May Flower, White Lady and some promising unnamed seedlings.

The best of three exhibits of three varieties of Triandrus hybrids came from Mr. W. A. Watts, St. Asaph, who showed excellent specimens of White Swallow, Gwyn and Cemæs. 2nd, the Rev. Joseph Jacob, whose flowers of Richard Strauss were very fine.

The last-named exhibitor was the only competitor in a class for nine varieties of Tazetta and Tazetta hybrid Daffodils. His best varieties were Elvira, Orange Cup, Jaune de Merveille, and Orange Blossom. In the next class, which was for nine varieties of True Poeticus Daffodils, Mr. Jacob had another "walk over." His flowers of Oliver Goldsmith, Carol, Matthew Arnold, Cassandra, and Ben Johnson were very beautiful.

Single-Bloom Classes (Open).

There was fairly good competition in a few of the single-bloom classes, but on the whole the flowers were below average merit. Mr. J. Mallender had the best white Trumpet Daffodil in the variety Sibyl Foster; 2nd, Mr. T. Batson with Princess.

The winning bicolor Trumpet was labelled P—1, and exhibited by Mr. John Pope; 2nd, the Rev. Joseph Jacob with Nance Bromley.

Mr. W. A. Watts took 1st prizes in two classes reserved for Incomparabilis Daffodils with the varieties S.J. 9 and Idris respectively.

The best Barrii Daffodil was exhibited by the Rev. Joseph Jacob, whose specimen of Puritan was very choice; 2nd, Mr. W. A. Watts with B. × B. 10.

Mr. C. Bourne had the best Leedsii Daffodil in Moonbeam, which was much admired; 2nd, Mr. F. H. Chapman with Daughter of the Gods.

Trilogy was the best Triandrus hybrid Daffodil, shown by Messrs. Cartwright & Goodwin. Mr. J. Mallender was placed 2nd with J. 60.

Mr. H. D. Phillips was awarded 1st prize in a class for Jonquilla hybrid Daffodils with the beautiful variety Buttercup.

The best specimen of a Tazetta or Tazetta hybrid Daffodil came from J. A. Kenrick, Esq., Harborne (gr. Mr. R. Usher).

Mr. C. Bourne and Messrs. Cartwright & Goodwin were placed 1st and 2nd respectively in a class for True Poeticus Daffodils. Mr. Bourne's Sonata was particularly good.

The best double Daffodil came from Messrs. Cartwright & Goodwin.

Bourne Challenge Cup.—This trophy, together with a gold medal offered for 12 varieties of Daffodils raised by the exhibitor, generally brings forth strong competition, but on the present occasion only three exhibits were placed before the judges, who awarded the premier position to Mrs. Crosfield, Bridgwater, for a very fine display. Unfortunately, all the varieties were shown under numbers, which robbed the exhibit of a good deal of interest. 2nd, Mr. W. A. Milner, whose best flowers were Dovedale, Elade, Lums Dale, Warley Dale, and Deep Dale. 3rd, Mr. W. A. Watts.

Competition was disappointing in the class for six varieties of Daffodils raised by the exhibitor and not in commerce. First prize withheld.

Messrs. Cartwright & Goodwin excelled in a class for three varieties of seedling Daffodils raised by the exhibitor and not in commerce. Unfortunately, these were under numbers. 2nd, Mr. C. L. Adams, Wolverhampton.

A pair of silver vases offered by Mr. C. Bourne for three varieties of seedling Daffodils raised by the exhibitor who has never won a prize for seedlings was not awarded. 2nd, Mr. H. F. Holmes, Duffield, Derby.

In a class for six varieties of Daffodils that have not been in commerce more than four years, the Rev. Joseph Jacob was placed 1st with good flowers of Killarney, Richard Strauss, Sybil Foster, Puritan, Fire Grenade, and an unnamed seedling; 2nd, Mr. H. D. Phillips.

The Herbert Chapman Poeticus Trophy, offered for six varieties of true Poeticus Daffodils that have not been in commerce more than four years, was won by the Rev. Joseph Jacob with Lullaby, Kestrel, O. Goldsmith, Rudyard Kipling, Tom Hood and an unnamed seedling; 2nd, Mr. W. A. Watts.

The Walter Ware Challenge Cup was offered for 18 varieties of obvious Triandrus hybrid Daffodils. The only exhibitor was Mr. W. A. Milner, and he was awarded the cup. The flowers of Oxlon, Toddington Dale, Wardlow and Middleton Dale were of outstanding merit.

Amateur Classes.

In a class for six varieties of Daffodils that have not been in commerce more than four years the 1st prize was awarded to Mr. T. Batson, who showed creditable flowers of Treasure Trove, Chryseis, Stanya, 140, 161 and 15 (c).

In classes for (1) 24 varieties of Daffodils and (2) nine varieties of Trumpet Daffodils, the 1st and 2nd prizes were withheld.

The best three varieties of Barrii Daffodils came from J. A. Kenrick, Esq., who had the winning stand of three varieties of Tazetta and Tazetta hybrid Daffodils.

Mr. T. Batson won the 1st prize in a class for six varieties of true Poeticus Daffodils.

Several classes were provided for exhibitors who have never won more than three 1st prizes at any of the Society's exhibitions. Mr. R. Bruce Waite, Harborne, was successful in classes for (1) 12 varieties of Daffodils, (2) six varieties of Trumpet Daffodils, and (3) three varieties of Leedsii Daffodils.

The 1st prize in a class for six varieties of Barrii Daffodils was won by Mr. J. Padley, Worksop.

Miscellaneous Cut Flowers and Plants.

In a class for six varieties of Darwin Tulips the 1st prize was well won by the Rev. Joseph Jacob. 2nd, J. A. Kenrick, Esq., Harborne (gr. Mr. R. Usher). The last-named exhibitor showed (1) the best half-dozen pots of early-flowering single Tulips and (2) six pots of Darwin Tulips

Mr. John Pope won the 1st prize in a class for a vase of Darwin Tulips, and in another class for a bowl of Daffodils.

J. A. Kenrick, Esq., Edgbaston (gr. Mr. A. Cryer), won 1st prizes in classes for (1) three vases of Lily-of-the-Valley grown without drainage in moss-fibre and (2) three pots of Spiræas.

The Barr Cup was won by J. A. Kenrick, Esq. (gr. Mr. R. Usher), with 42 points.

The Birmingham Botanical and Horticultural Society's medals were awarded as follow:—Classes 2 to 25: Silver medal won by the Rev. Joseph Jacob with 53 points; bronze medal by Mr. W. A. Milner with 36 points. Classes 12 to 25 and 26 to 34: Silver medal won by the Rev. Joseph Jacob with 38 points; bronze by Mr. W. A. Watts with 36 points. Classes 12 to 25 and 36 to 46: Silver medal won by J. A. Kenrick, Esq. (gr. Mr. R. Usher), with 42 points; bronze medal by Mr. T. Batson with 39 points.

Awards of Merit.

Narcissus Trafalgar.—A shapely bicolor flower with a pale, sulphur-coloured trumpet and an ivory-white perianth. (From Mr. W. A. Milner, Sheffield.)

Narcissus Deepdale.—A large Incomparabilis variety with an ivory-white perianth and a clear-yellow cup. (From Mr. W. A. Milner.)

Narcissus Flame.—A Barrii variety with a pure-white perianth and a flat, red cup. (From Mr. W. T. Ware, Bath.)

Carnation Lady Northcliffe.—A large, pale, salmon-pink variety of the Perpetual-flowering type with serrated edges.

Carnation Triumph.—A shapely, deep-crimson flower with serrated edges of the Perpetual-blooming section. (Both shown by Messrs. R. Felton & Co., Hanover Square, London.)

Non-Competitive Exhibits.

Messrs. Barr & Sons, Covent Garden, occupied one end of the hall with a collection of Daffodils, in which the varieties Cervantes, Bloodstone, Masterpiece, White Queen, Una, Mrs. H. D. Betteridge, Noblesse, Red Beacon, Socrates, and Lewis Carol were noteworthy. The exhibit was further enhanced by the addition of a small but interesting collection of Alpine plants. Messrs. Barr also occupied a large space on one side of the hall with a very fine collection of Darwin Tulips, probably the finest ever seen at Birmingham. (Gold Medal.)

From the Rev. G. H. Engleheart, Dinton, came a very choice display of unnamed seedling Daffodils, in which the Poeticus varieties were largely represented. (Silver-gilt Medal.)

Robert Sydenham Limited, Birmingham, exhibited a representative collection of Daffodils, in which we noted Nellie Price, Bianca, Red Chief and Aftermath in extra good condition. Sweet Peas, Anemones, Darwin Tulips, and retarded Lilies-of-the-Valley were also included in this group. (Large Silver Medal.)

Mrs. M. Wilson, Junr., Holmesfield, sent an interesting collection of seedling Daffodils. Daffodils were also exhibited by Mr. Van Waveren, Holland, and Mr. H. D. Phillips, Olton.

Messrs. Sutton & Sons, Reading, made an extensive display of white, pink and red Stocks, Mignonette, and splendid Calceolarias. Also very fine strains of the florists' and stellata Cinerarias and a new variety named Reading Gem, the result of a cross between C. stellata and the trailing Teneriffe variety. The loose heads of starry flowers are purplish and white. (Silver-gilt Medal.)

Mr. C. Engelmann, Saffron Walden, exhibited an artistically-arranged group of Perpetual-flowering Carnations, in which were several new varieties of some promise. Each variety was displayed in bold masses in separate stands and baskets, and relieved with long sprays of Asparagus. Roses were also included in this meritorious group. (Silver-gilt Medal.)

Another collection of Perpetual-flowering Carnations, arranged in tall vases, came from Mr. S. Mortimer, Farnham. The front of the group was edged with flowers of a very good strain of white Stocks. (Large Silver Medal.)

Messrs. Hewitt & Co., Solihull, also exhibited Perpetual-flowering Carnations in large bunches over a groundwork of Ferns. The varieties included Scarlet Glow, Triumph, Mrs. Burnett and two pink varieties, Empire Day and Lady Northcliffe. Several pots of Lilium longiflorum were well shown. (Large Silver Medal.)

Mr. C. Bourne, Bletchley, had an interesting collection of Daffodils, in which the following varieties were noteworthy:—Moonbeam, Alpine Snow and Harvest Home, the last-named nearly 3 inches across, perianth very delicate sulphur, cup lemon with a green eye. (Vote of Thanks.)

Mr. R. d'E. Day, Sutton Scotney, Hants., contributed a collection of Spanish Irises. Each variety was represented by unusually large bunches of beautifully-fresh flowers. (Large Silver Medal.)

Mr. H. N. Ellison, West Bromwich, showed Ferns and hybrid Gerberas. (Silver Medal.)

From Mr. W. A. Watts, St. Asaph, came a group of Daffodils, Tulips, and Polyanthuses. (Silver Medal.)

J. A. Kenrick, Esq., Edgbaston, sent plants of a good strain of Schizanthus, mostly of the light-coloured varieties. (Vote of Thanks.)

Messrs. B. R. Cant & Sons, Colchester, showed excellent Roses in boxes, tall stands and vases. A new Hybrid Tea Rose named St. Helena, stated to be a cross between Joseph Hill and Senateur St. Romme, has large, substantial, cream flowers shaded bronze. Dr. Audry, Dean Hole, Mrs. Myles Kennedy, Tausendschön and the Austrian Yellow and Austrian Copper Yellow Briars were also included. (Large Silver Medal.)

Messrs. Bakers, Wolverhampton, exhibited large masses of Saxifragas, Phlox divaricata, Aubrietias and a few miscellaneous subjects on a low rockery. (Large Silver Medal.)

Mrs. Lloyd Edwards, Bryn Oerog, Llangollen, showed eight small circular baskets, each containing one variety of mossy Saxifrage covered with flowers. The best deep-red-flowered variety was named Sanguinea superba. (Vote of Thanks.)

Messrs. Cartwright & Goodwin, Kidderminster, had a fine display of Daffodils, mostly of the Poeticus varieties, and some very good Darwin Tulips. (Large Silver Medal.)

NURSERY AND SEED TRADE.

April 2.—The general meeting of this association was held at the offices of the association, on this date. The 35th annual report of the committee stated that the present number of members is 176, of whom 132 are resident in the United Kingdom, and 44 abroad. Four new members joined the association during the past year. Status enquiries to the number of 1,011 have been answered, and £23 16s. 9d. has been expended for special enquiry fees and searches at the Companies' Registry, Somerset House, during the year. Last year the total amount collected through the association was £5,287 3s. 11d., £1,322 6s. 5d. being collected by the secretary, and £3,964 17s. 6d. by the solicitors.

The principal Acts of 1911 which affect members are the Shop Act and National Insurance Act, which are too long to be dealt with in this report, but attention is drawn to the Protection of Animals Act of last year, which, amongst other matters, provides (Section 8) that if any person (*a*) shall sell, or offer, or expose for sale, or give away, or cause or procure any persons to sell, or offer or expose for sale, or give away, or knowingly be a party to the sale or offering or exposing for sale or giving away of any grain or seed which has been rendered poisonous, except for bonâ fide use in agriculture; or (*b*) shall knowingly put or place or cause or procure any persons to put or place or knowingly be a party to the putting or placing in or upon any land or building, any poison or fluid or edible matter (not being sown seed or grain) which has been rendered poisonous; such person shall, upon summary conviction, be liable to a fine not exceeding £10. Provided, that in any proceedings under paragraph (*b*) of this section, it shall be a defence that the poison was placed by the accused for the purpose of destroying rats, mice, or other small vermin, and that he took all reasonable precautions to prevent access thereto of dogs, cats, fowls, or other domestic animals.

The retiring members of the committee, Messrs. E. Bull, G. H. Barr, G. Bunyard, W. Y. Baker, J. Harrison, W. Iceton, and W. J. Jefferies, were re-elected.

The subjects of railway rates, Agricultural Rates Act, Shop Act, and National Insurance Act were discussed, and a letter from a member was read on the subject of the Workmen's Compensation Act. The matter was discussed at some length, but it was not thought possible that an insurance company could be formed by the trade.

At the committee meeting which followed the general meeting, Mr. N. N. Sherwood was re-elected president, Mr. H. W. W. Nutting treasurer, and Mr. G. H. Barr and Mr. H. Simpson trustees.

SHROPSHIRE HORTICULTURAL.

April 23.—The annual meeting of this society was held at Shrewsbury on this date; the Deputy Mayor of Shrewsbury (Alderman B. Blower) presided. Messrs. Adnitt and Naunton, the hon. secs., presented the annual report, in which it was recorded that the railway strike affected in a marked degree last summer's show, which, from the number of entries received, had promised to be a record one. The figures showed that the total receipts for the year amounted to £4,236 as against £5,756 in the previous year. For the first time since the establishment of the society, 37 years ago, a loss was reported, this amounting to £450. Notwithstanding this loss, the society has spent during the past year £2,800 on extending the grounds and avenues of the Quarry in which the annual show is held. Mr. Phillips, of Berwick Hall, was elected president, and he has offered a challenge cup to be competed for in a class for Roses at the next summer show. Mr. W. E. Litt was elected chairman of the committee in succession to the late Col. E. C. Peele.

MARKETS.

COVENT GARDEN, May 1.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—Eds.]

Cut Flowers, &c.: Average Wholesale Prices.

	s.d.	s.d.
Anemones St. Bridgid, per dozen bunches:		
— all colours ...	2 0	2 6
Arums (Richardias)	1 6	2 0
Camellias, per box of 18's and 24's	1 6	2 0
Carnations, p. doz. blooms, best American var.	1 6	1 9
— smaller, per doz. bunches	10 0	15 0
— Carola, crimson, extra large	2 6	3 0
— Malmaisons, p. doz. blooms ...	10 0	15 0
Eucharis, per doz.	2 0	2 6
Gardenias, per box of 15 and 18 blooms... ...	1 6	3 0
Gladiolus Blushing Bride, per doz. bunches ...	8 0	9 0
— Bride, white ...	8 0	9 0
— Peach Blossom	10 0	12 0
Gypsophila, p. dz. bunches:		
— white	3 0	4 0
— pink	3 0	4 0
Iris (Spanish), per doz. bunches:		
— white, mauve, yellow and blue	6 0	10 0
Lilac, per bunch white	2 6	3 0
— mauve	3 0	3 6
Lilium auratum per bunch ...	4 0	5 0
— candidum, per doz., long ...	1 6	1 9
— — short ...	0 9	1 0
— longiflorum, per doz., long	2 0	2 6
— — short ...	1 6	2 0
— lancifolium alba, long ...	2 0	2 6
— — short ...	1 6	2 0
— speciosum rubrum, per doz., long	1 9	2 0
— — short ...	0 9	1 0
Lily of the Valley, p. dz. bunches:		
— extra special ...	15 0	18 0
— special... ...	10 0	12 0
— ordinary ...	8 0	—
Marguerite, per doz. bunches:		
— Yellow... ...	1 6	2 0
Myosotis (Forget-me-not), p. dz. bunches ...	3 0	4 0
Narcissus, per doz. bunches:		
— double, white	4 0	8 0
— Poeticus ...	1 6	2 0
Orchids, Cattleya, per doz. ...	12 0	—
— Odontoglossum crispum ...	3 0	4 0
Pelargoniums, p. dz. bunches	4 0	5 0
— Double Scarlet	4 0	6 0
Roses, 12 blooms,		
— Bridesmaid,	1 0	1 6
— C. Mermet ...	1 0	1 6
— Frau Karl Druschki ...	1 6	2 6
— General Jacqueminot ...	1 0	1 3
— Liberty ...	2 0	4 0
— Madame A. Chateney ...	1 6	3 0
— Niphetos ...	1 0	1 6
— Richmond ...	1 0	2 6
— Sunrise ...	1 0	1 6
— President Carnot	1 6	2 6
— Lady Roberts	1 0	1 6
— Lady Hillingdon	1 0	1 6
— Franz Deegan	1 0	1 6
— Kaiserine ...	1 0	2 0
Spiræa (Astilbe) japonica, per. doz. bunches	4 0	5 0
Sweet Peas, pr. dz. bunches:		
— white	1 6	2 0
— coloured ...	4 0	6 0
Stephanotis (72 pips)	2 0	2 6
Tulips, per bunch:		
— white	6 0	8 0
— Darwin, all shades, per bunch	0 9	1 0
Violets, p. dz. bchs.	1 3	2 0
— Princess of Wales, per doz. bunches ...	3 0	4 0
— Parma	2 0	2 6
Wallflowers, per dozen bunches	1 6	2 0

Cut Foliage, &c.: Average Wholesale Prices.

	s.d.	s.d.
Adiantum Fern (Maidenhair), best, dz. bnchs.	6 0	7 0
Agrostis (Fairy Grass), per dz. bunches ...	2 0	4 0
Asparagus plumosus, long trails, pr. ½ doz.	1 6	2 0
— medium, doz. bunches ...	12 0	18 0
— Sprengeri ...	10 0	12 0
Carnation foliage, doz. bunches...	4 0	—
Croton foliage, various, per dozen bunches ...	12 0	15 0
Cycas leaves, artificial, per doz.	3 0	12 0
Eulalia japonica, per bunch ...	1 0	1 6
Moss, per gross ...	6 0	—
Myrtle, dz. bchs. (English), small-leaved ...	6 0	—
— French ...	1 0	—
Smilax, per bunch of 6 trails ...	1 6	—

Plants in Pots, &c.: Average Wholesale Prices.

	s.d.	s.d.
Acacia lineata, 48's, per dozen ...	18 0	21 0
Aralia Sieboldii, p. dozen	6 0	7 0
Araucaria excelsa, per dozen ...	18 0	21 0
Asparagus plumosus nanus, p.dz.	10 0	12 0
— Sprengeri ...	8 0	9 0
Aspidistra, p. dz., green	21 0	30 0
— variegated ...	30 0	60 0
Boronia megastigma, 48's, p. dz.	21 0	24 0
Cinerarias, pr. dz.	8 0	9 0
Cocos Weddeliana, per dozen:		
— 60's	6 0	12 0
— larger, each ...	2 6	10 6
Croton, per dozen	18 0	30 0
Cyperus alternifolius, per doz.	5 0	6 0
— laxus, per doz.	4 0	5 0
Dracæna, green, per dozen ...	10 0	12 0
Ericas, per dozen:		
— Willmorei, 48's	15 0	18 0
— persoluta ...	27 0	30 0
Ferns, in thumbs, per 100... ...	8 0	12 0
Ferns, in small and large 60's ...	12 0	20 0
— in 48's, doz. ...	6 0	—
— choicer, sorts per doz. ...	8 0	12 0
— in 32's, per dozen	10 0	18 0
Ficus elastica, per dozen	9 0	12 0
Fuschias	7 0	9 0
Genistas, 48's, per doz.	10 0	12 0
Geonoma gracilis, 60's, per dozen	6 0	8 0
— larger, each ...	2 6	7 6
Heliotropes ...	6 0	8 0
Hydrangeas, white, 48's, per dozen	18 0	21 0
— pink	10 0	15 0
Kentia Belmoreana, per dozen	5 0	42 0
— Fosteriana, 60's, per dozen	4 0	6 0
— larger, per dozen	18 0	60 0
Latania borbonica, per dozen ...	12 0	30 0
Lilium longiflorum, per dozen	20 0	24 0
Lilium lancifolium rubrum in pts., per dozen ...	15 0	18 0
— lancifolium alba	15 0	18 0
Lily of the Valley	21 0	24 0
Marguerites, white, per dozen ...	8 0	10 0
Mignonette, 48's, per dozen ...	6 0	8 0
Pandanus Veitchii, per dozen ...	36 0	48 0
Pelargoniums, Ivy-leaved	7 0	9 0
Phœnix rupicola, each	2 6	21 0
Rhodanthi, per. dz. pots	5 0	6 0
Spiræa japonica, per dozen pots	10 0	12 0
— pink	10 0	12 0
Stocks, white, pink and red ...	6 0	8 0

Plants in Pots, &c.: Average Wholesale Prices *(Contd.)*.

Fruit: Average Wholesale Prices.

	s.d.	s.d.
Apples, Nova Scotian, per barrel	17 0	22 0
— Californian Newtowns, pr. case	4 0	7 0
— (Canadian), per barrel	20 0	—
— Oregon (Newtowns) p. case	10 0	14 0
— American, per barrel	20 0	32 0
— Australian per case	8 0	12 6
Bananas, bunch:		
— Doubles ...	10 0	12 0
— No. 1	8 0	10 0
— Extra	10 0	12 0
— Giant	14 0	18 0
— Loose, per dozen	0 6	1 0
— Red coloured...	5 6	6 6
— Jamaica Giants, per ton ...	£10	£12
— Jamaica Ordinary, per box (9 doz.) ...	4 0	5 0
Cranberries, per case (30 qts.)...	10 0	11 0
— Cape Cod, per case (30 quarts)	9 6	—
Dates (Tunis) doz. boxes	4 6	5 6
Figs, Guernsey, pr. doz.	6 0	15 0
Gooseberries, per strike	4 6	—
Grape Fruit, case: — 96's ... ... — 80's ... ... — 64's ... ... — 54's	14 0	20 0
Grapes, Australian, per case ...	10 0	20 0
— English (new) per lb.	1 6	2 0
— Muscats ...	12 0	15 0
— Almeria, per barrel	16 0	21 0
Per dozen lbs.	4 0	6 0
Grapes:		
— (Cape) per case White	3 0	12 0
Lemons:		
— (Naples), case	26 0	30 0
— Messina, p.case	7 6	17 0
Limes, per case ...	4 0	—
Mangoes, per doz.	6 0	10 0
Melons	0 10	1 6
— (English) ...	2 0	3 6
Nuts, Almonds, per bag	52 6	—
— Spanish, per sack	40 0	42 0
— Barcelona, bag	35 6	36 6
Nuts, Chestnuts, per bag ...	3 6	19 0
— Cocoanuts, 100	18 0	23 0
— English Cobs per lb.... ...	0 3	—
— Walnuts (Naples) kiln dried, cwt. cases	54 0	—
Oranges:		
— Denia, case ...	14 0	32 0
— Jaffa, per case	12 0	—
— Blood, per case	8 0	9 0
— Mandarins, per box ...	0 6	3 6
— Bitter, per ½ chest	16 0	18 6
— Seville Sour ½ chest ...	15 0	18 0
Peaches (Belgian), per dozen ...	9 0	24 0
— English, dozen	9 0	30 0
Pears (Californian), p. bdle, 3 boxes	12 0	15 0
— (Australian) per case	12 6	—
— (American) per barrel, 180 lbs.	25 0	26 0
— cases	7 0	—
— (Cape)	5 0	6 0
Pineapples, St. Michael ...	3 0	4 6
Strawberries, p. lb.:		
— A quality ...	2 0	4 0
— B quality ...	1 0	1 6

Vegetables: Average Wholesale Prices.

	s.d.	s.d.
Artichokes (Globe), per dozen ...	2 0	2 6
Asparagus —		
— Toulouse ...	1 6	2 0
— Montauban ...	2 3	2 6
— Dijon	0 8	0 9
— Lauris ...	0 9	1 6
— (English) bndl.		
— Cambridge ...	0 7	1 6
— Worcester ...	1 0	6 0
Beans, Guernsey Dwarf, per lb.	0 10	1 3
— (English) p. lb.	0 10	1 3
— French, per packet, lb. ...	0 8	0 10
Beetroot, p. bshl.:		
— Long	2 6	3 0
Broccoli, sprouting, per bag ...	6 0	—
Celeriac, per doz.	2 6	3 0
Cabbages (French) per dozen ...	1 6	2 6
— Cornish, p. dz.	2 6	3 0
— Evesham, pots	5 0	5 6
Cauliflowers, per dozen	2 6	3 6
— (Cornish), per crate	12 0	15 0
Celery, doz. bndls.	10 0	14 0
— (washed), per dozen bundles	12 0	—
Carrots (English), pr. doz. bun....	7 0	8 0
— (French) per dozen bundles	7 0	8 0
— per cwt. ...	7 0	—
— (washed) p. bag	8 0	10 0
Chicory, per lb. ...	0 4	—
Cucumbers, p. doz.	1 6	2 6
Endive, per dozen	1 0	1 6
Greens (Spring), p. bag	6 0	7 0
Herbs (sweet), pkts., p. gross	7 0	—
Horseradish, 12 bundles ...	10 0	14 0
Leeks, per doz. ...	2 6	3 0
Lettuce (French), per doz. ...	4 6	—
— (English) per dozen	4 6	—
Mint, per dozen bunches ...	2 0	3 0
Mushrooms, cultivated, p. lb. ...	0 8	1 0
Mustard and Cress, per dozen punnets ...	1 0	—
Marrows, each ...	4 0	12 0
Onions, (Spanish), per case ...	10 0	11 0
— Egyptian ...	6 0	7 0
Parsley, ½ sieve ...	1 6	2 6
— per doz. bun.	3 0	4 0
Parsnips, per bag	7 0	—
Peas (French) per pad	5 0	6 0
— (Guernsey), lb.	0 4	0 8
— (English) p. lb.	0 4	0 8
Radishes (English), per dozen ...	0 9	1 0
— (French) p. dz.	0 9	1 0
— (Jersey) long...	0 4	0 6
Rhubarb, forced, per 12 bundles	0 10	—
— Outdoor, p. dz.	2 6	—
Spinach, pr. bshl.	3 6	4 0
Seakale, p. punnet	0 10	1 0
— ½ bushel ...	1 6	2 6
Tomatos (Canary Islands), per bundle... ...	12 0	16 0
— Guernsey. lb.	0 8	0 10
— English, lb. ...	10 0	1 0
Turnips (English), per dz. bunches	4 0	5 0
Watercress, p. dz. bunches ...	0 4	0 6

Remarks.—Supplies of English and Channel Islands Grapes are equal to the demands. A few bunches of Muscat of Alexandria are obtainable. The crop of Belgian Gros Colman Grapes will be finished this week. Hot-house Peaches to the amount of from 50 to 100 dozen fruits have been received during the past week. Melons and Green Figs are obtainable in larger quantities, the quality of the fruits being excellent. Produce from the Cape this week has been limited to a few boxes of Grapes. Gooseberries are obtainable; the fruits are packed in peck baskets containing

about 12 lbs. English and Continental Asparagus has been a good average supply considering the cold winds. Forced Strawberries have been very plentiful. Arrivals of Apples and Pears from Australia this past week amounted to about 100,000 cases. We have received information that a consignment of several thousand cases of Apples is now on its way from New Zealand to London. Tomatos from English growers and the Channel Islands are available in large quantities; those from the Canary Islands are still arriving, best samples being in demand. All out-door vegetables are still very scarce, but supplies of forced vegetables have been about equal to the demand.—*E. H. R., Covent Garden, May 1, 1912.*

Potatos.

	per cwt. s.d. s.d.		per cwt. s.d. s.d.
Kents—		**Lincolns—**	
Queen's	4 0– 4 6	Maincrops ...	4 0– 4 6
Up-to-Date ...	4 0– 4 6	Blacklands ...	3 0– 3 3
Lincolns—		**Bedfords—**	
Up-to-Date ...	3 9– 4 6	Up-to-Date ...	3 9– 4 0
British Queen ...	3 9– 4 3	**Dunbars—**	
King Edward ...	4 0– 4 6	Up-to-Date ...	4 9– 5 3
Northern Star ...	2 9– 3 6	Maincrop ...	5 3– 5 6
Evergoods ...	3 6– 3 9		

New Potatos.

Teneriffe ... ... 12 0–14 0 | Algerian — ... 13 0–14 0
Jerseys 18s.–20s. per cwt.

Remarks.—Trade in old tubers is very slow and stocks are still large. New Potatos from Jersey are realising 18s.–20s. per cwt. *Edward J. Newborn, Covent Garden and St. Pancras, May 1, 1912.*

THE WEATHER.

THE WEATHER IN WEST HERTS.

Week ending May 1.

The fifth dry week in succession. The early part of the week was rather warm, but since then lower temperatures have prevailed, and on the coldest night the exposed thermometer registered 10° of frost. The ground is still warm for the time of year, being 3° warmer at 2 feet deep, and 2° warmer at 1 foot deep, than is seasonable. There was a little rain for a short time on the evening of April 29th, but not sufficient to measure. The ground is now getting dry, as there has been no percolation through either of the soil gauges since April 7th, or for over 3 weeks. The sun shone on an average for 8½ hours a day, or for 3 hours a day longer than is usual at the end of April. Light airs and calms alone prevailed during the week, the light airs coming almost exclusively from some point between north and east. The mean amount of moisture in the air at 3 o'clock in the afternoon fell short of a seasonable amount for that hour by 8 per cent. A selected Lilac tree in my garden came first into flower on April 29th, which is 11 days earlier than its average date for the previous 26 years, and earlier than in any year since 1896, or for 16 years.

April.

The driest April for over 50 years, and the driest month but one during that period.—Taking the month as a whole this was the warmest April for eight years. The days, with seven exceptions, were all warm. In fact, the average maximum temperature was, with one exception, higher than in any April during the past 26 years. On the other hand, there occurred only eight warm nights, and the average minimum temperature was rather below the mean for the month. On the warmest day the temperature in the thermometer screen rose to 71°, or, with four exceptions, higher than in any April during the past 26 years, whereas on the coldest night the exposed thermometer indicated 16° of frost, or a lower reading than in any April since 1893, or for 19 years. Rain fell on only two days, and to the total depth of less than a tenth of an inch—making this the driest April during the last 56 years, and with one exception, February, 1891, when the total measurement fell short of that of the past month by four-hundredths of an inch, drier than any month during the same period. The sun shone on an average for as much as eight hours a day, which is three hours a day longer than the average duration for April, and, with the exception of that of 1893, the sunniest April during the past 26 years. This was the calmest April recorded here during the same 26 years. Still another remarkable feature of this remarkable month was the great dryness of the air, the mean amount of moisture at 3 p.m. falling short of a seasonable quantity for that hour by as much as 8 per cent. Only in three previous Aprils during the past 26 years has the air been as dry. *E. M., Berkhamsted, May 1, 1912.*

DEBATING SOCIETIES.

SOUTHAMPTON & DISTRICT GARDENERS'.—The monthly meeting of the above society was held in the Highfield Institute on Thursday, 25th ult., when there was an excellent attendance. It was stated that the committee had decided to devote a short period at the close of the ordinary business at the monthly meetings to the discussion of subjects of general interest. Four new members were elected. Mr. W. F. Copeland gave a lecture on "The Hybridisation of Daffodils," tracing the history of species, explaining methods of cross fertilisation, and concluding with hints of practical utility. A vote of thanks was accorded those who had brought exhibits.

BRISTOL AND DISTRICT GARDENERS'.—The fourteenth annual meeting of this association was held on April 23 at St. John's Parish Rooms, Clifton. Mr. Thoday presided over a good attendance. Mr. J. Scott read the annual report and the financial statement, and both were considered satisfactory. Col. Cary Batten was again elected president, Mr. P. Thoday was appointed chairman, and Mr. J. Bastor vice-chairman. Mr. J. Scott was re-elected hon. secretary and treasurer, and Mr. H. Wiltshire assistant-secretary.

Obituary.

John Easter.—The death of this well-known gardener occurred on the 25th ult., at the age of 75, from pneumonia. Mr. Easter was gardener to Lord St. Oswald, Nostell Priory, Wakefield, Yorkshire, for over 20 years. He was a successful exhibitor at the York Gala Shows, and a member of the Yorkshire Association of Change Ringers. The funeral took place at Wragby Parish Church, on the 27th ult.

Peter Ogg.—The death of Mr. Peter Ogg, who retired from his post as gardener to the late Lord Sempill, at Fintray House, N.B., about six years ago, and has since lived in retirement, is announced. Mr. Ogg, who was upwards of 80 years of age, was appointed gardener to Colonel Hay, Duns Castle, Berwickshire, in 1857, and remained there until 1870, when he took charge of the gardens at Fintray House.

A. Davidson.—We have received news of the death of Mr. A. Davidson, gardener to J. E. Hutchison, Esq., Cairngall House, Longside, Aberdeen, in his 82nd year. Mr. Davidson was for 60 years in the employment of the Hutchison family as gardener at Cairngall. He served his apprenticeship in the Aberdeen district, and was for two years foreman in the gardens at Ellon Castle.

Martin E. Ryan.—Mr. Martin E. Ryan, florist, of Middletown, New York, died on Thursday, March 28. Deceased was born in Ireland, and emigrated to America when a boy, For the past 30 years he had conducted a florist's business in California Avenue, Middletown.

Robert Innes.—The death of Mr. R. Innes, florist, occurred on March 28 at Brooklyn, New York. Mr. Innes, who was 82 years of age, was born in England, and for the last half-century had lived in Brooklyn.

John Beaton.—We learn from the American papers of the sudden death of Mr. John Beaton, a native of Aberdeenshire, at Sandwich, N.H., at the age of 45. For the past 22 years Mr. Beaton has been in the employ of Messrs. R. & J. Farquhar & Co., Boston.

Mr. T. Jones.—We have to record the death at the age of 86 of Mr. T. Jones, who was for a period of 19 years gardener to the late Queen Victoria at Frogmore, Windsor. Mr. Jones was held in high esteem by his Royal mistress, who made him a presentation on the occasion of his relinquishing charge of the Royal gardens in 1891. After his retirement, a pension was granted Mr. Jones, who purchased a small estate in the village of Pattingham, in Staffordshire, not far from Wolverhampton, employing his leisure time in farming and gardening. His father was a farmer in the county of Denbigh, from whom he inherited a sturdy constitution. The late Mr. Jones had a wide knowledge of every aspect of gardening, but he especially excelled in fruit and vegetable growing. Previous to going to Frogmore, he was for many years head gardener at Petworth. His wife predeceased him by some years, and there is no issue.

ENQUIRY.

A White "Crown Imperial" (Fritillaria imperialis).—Does any reader know if the white Crown Imperial is still in cultivation? I have never seen it. Parkinson, in 1656, says: "Some have boasted of one with white flowers, yet I could never hear that any such have endured." Yet, at almost the same time, the *Florilegium renovatum*, 1641, gave a good figure of it, and in the *New Flora Botanica*, 1812, Edwards mentions the white among other varieties of the flower. If there is such a variety, I should like to see it and possess it. *Henry Ellacombe.*

TRADE NOTICE.

Messrs. Wm. Wood & Sons, Ltd., Horticultural Sundriesmen, have received the Royal Warrant, appointing them purveyors of horticultural requisites to Her Majesty Queen Alexandra.

ANSWERS TO CORRESPONDENTS.

Address: *J. W. H.* The Honorary Secretaries of The Association of Economic Biologists are Mr. Walter E. Collinge and Mr. W. G. Freeman, 55 Newhall Street, Birmingham.

Ants: *Agent.* Sometimes it will be found that the haunts are in positions where boiling water can safely be poured over them, and in such cases this means is sufficient to destroy the ants. Or another method of destroying them is by injecting a little bisulphide of carbon, or Vaporite, the fumes of which will at once kill the ants. The "Ballikinrain Ant Destroyer" is one of the best proprietary articles on the market for destroying ants.

Cucumber Leaves: *Darnhall.* The disease is caused by a fungus, Hormodendron Hordei. Spray the plants on alternate days with a solution of liver of sulphur, using 1 ounce in 3 gallons of water.

Fig Diseased: *H. H.* There is no disease present on the fragment of Fig tree sent. The injury may be due to some disease lower down on the stem. The white deposit may be due to lime in the water used for spraying.

International Horticultural Exhibition: *J. M., Leatherhead.* The prices for admission to the International Show at Chelsea were published in the issue for November 4, 1911, page 323. The answer to your inquiry respecting *The Plums of New York* was given in the issue for March 23.

Names of Fruits: *Wessex.* Scarlet Nonpareil. —*F. S. & S.* Annie Elizabeth.

Names of Plants: *W. B.* Prunus Padus, Bird Cherry.—*A. C. W.* Trillium grandiflorum.—*J. L. W.* Populus tremuloides.—*E. B.* Prunus Padus.—*W. A. H.* Berberis aethnensis (vulgaris).—*H. T. Z.* 1, Ruscus aculeatus; 2, Berberis japonica; 3, Olearia Haastii; 4, Berberis Fortunei; 5, B. Aquifolium var.; 6, B. Wallichiana; 7, B. Darwinii; 8, B. buxifolia; 9, B. aethnensis; 10, B. vulgaris foliis purpureis; 11. Spiræa Thunbergii; 12, Pyrus floribunda.—*Hants.* 1, Erica lusitanica (codonodes); 2, Pyrus auricularis; 3, Thuya occidentalis var.; 4, Griselinia littoralis; 5, Sciadopitys verticillata.—*G. H. J.* (a) Acer platanoides purpurea; (b) A. p. var.; (c) Amelanchier canadensis.—*P. J. P.* Ribes aureum.—*M. M., Orpington.* A good variety of Odontoglossum Rossii majus.

Pear Leaves: *W. H. C.* The Peach tree is attacked by the Pear-leaf Blister Mite (Phytoptus pyri). The mites are very small, and can scarcely be seen without lens. In winter they hide themselves beneath the scales of the young buds, and when the leaves unfold in the spring they remove to the foliage, and soon produce blister-like spots on each side of the leaf. A small hole may be found, on the under surface, in each blister, by which the mites have escaped to other parts of the leaf or to different leaves, where they produce new galls. It is obvious that when the mites are hidden in the leaves they are safe from the effects of insecticides, but it has been found that spraying the trees with kerosene emulsion in winter kills a large number. It would be well also to pick off all infested leaves and burn them.

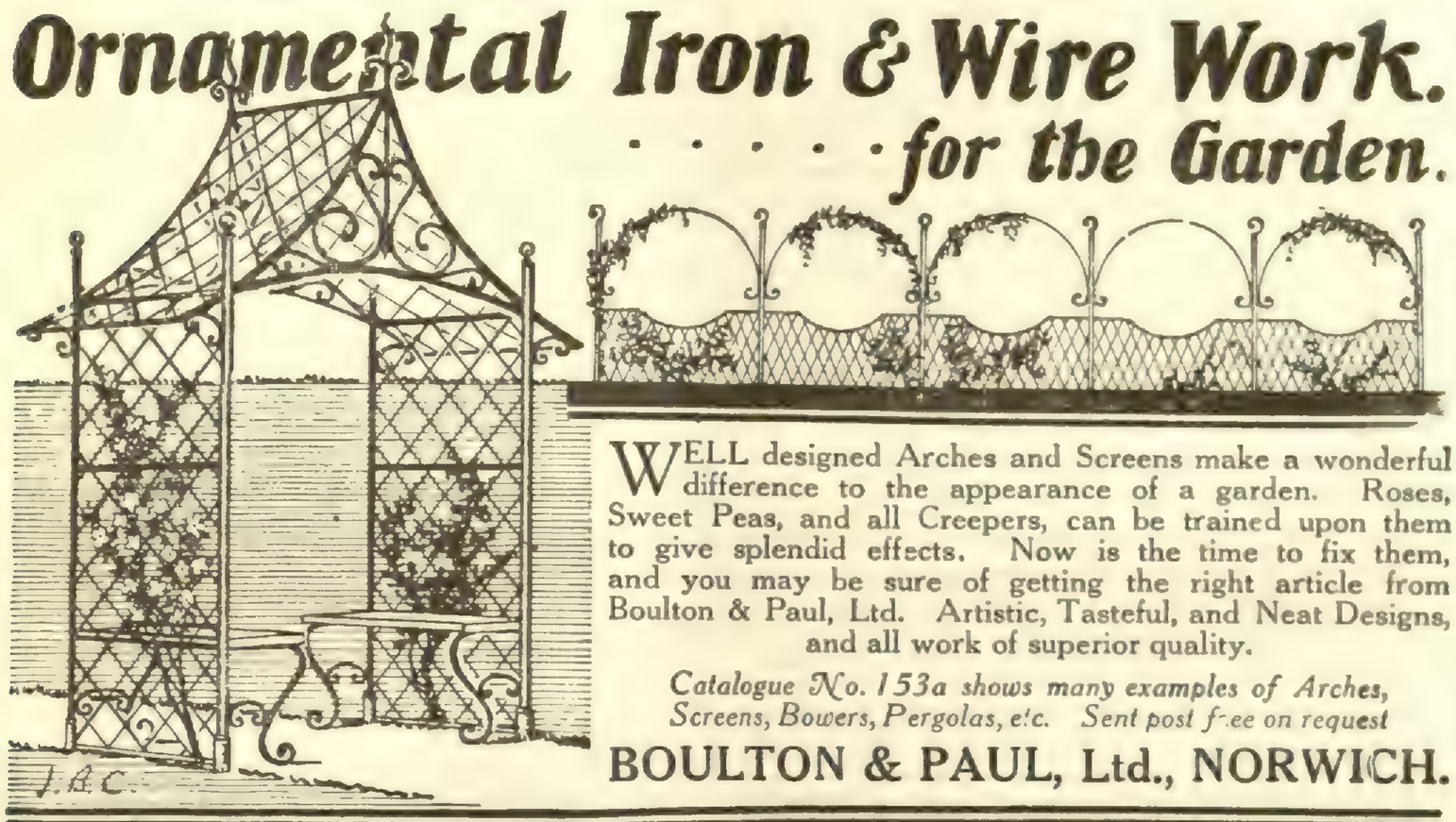
Street Trees Overhanging: *W. Hughes.* The question of damage caused by overhanging trees was dealt with in the "Answers to Correspondence" column in the issue for May 1, 1909. Your right of action would now be barred by the Public Authorities Protection Act, 1893, which requires any action against a public body to be brought within six months.

Tulips Unhealthy: *W. B.* No disease is present in your Tulips. The trouble must be due to some wrong cultural treatment.

Yew Hedge: *R. O. F.* The present is a suitable time to clip Yew hedges. If the weather is dry syringe or spray the hedge with water twice daily. The final clipping for the year should not be done much later than at the end of August.

Communications Received.—T. & Co.—A. D. W.—A. W.—T. S.—C. F. C.—W. H.—C. R.—Abbey Lodge, W. M. P.—B. & Sons—Lich—A. C. Prestonkirk—R. D. G.—C. Y. & H.—E. S. H.—G. F.—G. B. & F., Bologna—W. A. C.—E. W.—L. Brothers—P. A.—G. P.—N. H. J. M.—F. B.—E. M.—F. C.—B. D. K.—J. L. W.—C. T., Bristol—C. H.

Ornamental Iron & Wire Work.
. . . . . for the Garden.



WELL designed Arches and Screens make a wonderful difference to the appearance of a garden. Roses, Sweet Peas, and all Creepers, can be trained upon them to give splendid effects. Now is the time to fix them, and you may be sure of getting the right article from Boulton & Paul, Ltd. Artistic, Tasteful, and Neat Designs, and all work of superior quality.

Catalogue No. 153a shows many examples of Arches, Screens, Bowers, Pergolas, etc. Sent post free on request

BOULTON & PAUL, Ltd., NORWICH.

PARISIAN {Wood / Lath} BLINDS

MOST DURABLE OUTSIDE SHADING.

SEND FOR ESTIMATE.

SUPPLIED ONLY BY

W. RICHARDSON & Co.,

HORTICULTURAL WORKS,

DARLINGTON.

GARDEN {From Stock} FRAMES

BENTLEY'S WEED DESTROYERS

are the most powerful, produce the most permanent effects, and have the largest sales of any Weed Destroyer manufactured.

1 to 50 (Liquid): 3 galls., **10/-**; 6 galls., **18/-**; 12 galls., **£1 13**; 20 galls., **£2 7 6**; 40 galls., **£4 10.**
1 to 80 (Liquid): 3 galls., **14/6**; 6 galls., **£1 6**; 12 galls., **£2 5**; 24 galls., **£4 7 6.**

BENTLEY'S COMPOUND LIQUID QUASSIA EXTRACT. (The Original.)

An infallible non-poisonous destroyer of Aphis in all its forms.

20 to 40 galls., **3/6**; 10 galls., **3/7**; 5 galls., **3/8** per gallon. 1 gall., **4/2**; ½-gall., **2/6**; 1 quart, **1/6**; 1 pint, **1/-**

BENTLEY'S SWEET PEA MANURE.

The only Fertilizer in the World which has helped to grow Sweet Peas worth £1,000 a bunch.

5 cwts., **£4 10**; 1 cwt., **£1**; ½ cwt., **12/-**; 28 lbs., **7/-**
Tins, 2/- and **6d.** each.

BENTLEY'S VITALIZER.

A complete all-round Fruit, Plant and Vegetable Manure.

1 ton, **£15 5 0**; 10 cwts. **£7 15 0**; 5 cwts., **£4**; 1 cwt., **17/-**; ½ cwt., **9/6**; 28 lbs., **5/6.**
Tins, 2/- and **6d.** each.

Carriage paid on 5/- orders and upwards.

Bentley's General Horticultural Specialities

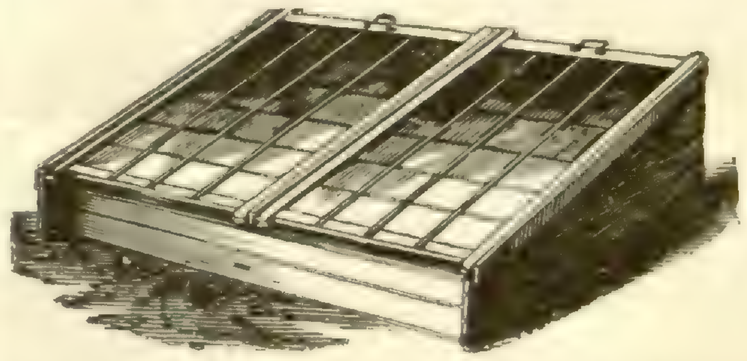
(Royal International Horticultural Exhibition, Sundries Section).

Sole Manufacturers:

JOSEPH BENTLEY, Ltd., Chemical Works, Barrow-on-Humber, HULL.

Portable Cucumber Frames.

OUR WELL-KNOWN MAKE.



These Frames are made of the Best Materials, and can be put together and taken apart in a few minutes by any one. Sizes and Prices, Glazed and Painted:—

			£	s.	d.
1-Light,	4 ft. by 6 ft.	CASH PRICES, CARRIAGE PAID.	2	0	0
2 ,,	8 ft. by 6 ft.		3	0	0
3 ,,	12 ft. by 6 ft.		4	2	6
4 ,,	16 ft. by 6 ft.		5	5	0
5 ,,	20 ft. by 6 ft.		6	7	6
6 ,,	24 ft. by 6 ft.		7	10	0

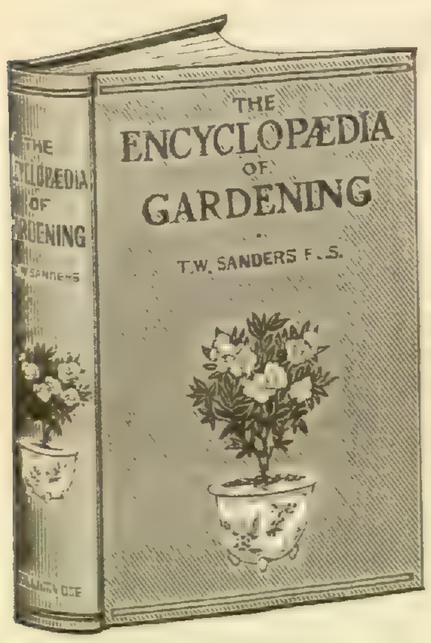
LARGER SIZES AT PROPORTIONATE PRICES.

R. HALLIDAY & CO.,

ROYAL HORTICULTURAL WORKS,

Middleton, Manchester.

NO GARDEN LIBRARY IS COMPLETE WITHOUT THIS BOOK.



FOURTEENTH — EDITION. —

Revised and Improved.

THE ENCYCLOPÆDIA OF GARDENING.

Crown 8vo, 482 pages, bound in cloth.
NET 3/6: by post, 3/10

By T. W. SANDERS, F.L.S., F.R.H.S.

A COMPLETE GUIDE AND DICTIONARY to the Culture, Propagation and Description of Flowers, Fruit, Vegetables, Plants, Trees, Shrubs, etc.

Time of Planting. Position. Soil. Manures. Temperatures. Common or Popular Names. Botanical Names. Watering. Natural Order. Date of Introduction. Species Cultivated. Propagation. Colour. Height. Time of Flowering. Duration. Forcing. Potting. Pruning. Cultural Details.

☞ *SEND POSTCARD FOR COMPLETE CATALOGUE OF BOOKS ON ALL GARDEN SUBJECTS,*

ORDER FORM.

To the Publishers, City Press, Aldersgate Street, E.C.

Please send me a Copy of the New Edition of "THE ENCYCLOPÆDIA OF GARDENING," by post, for which I enclose remittance of 3/10.

Name.....

Address.....

FOURTH EDITION. **NOW READY.**

Price One Shilling. Post Free 1/1½.

PRONUNCIATION

— OF —

PLANT NAMES.

This Book is having a remarkable sale. The First Edition was exhausted in a week from publication, and the Second and Third Editions are sold out.

PRESS NOTICES.

"It is desirable we should have a recognised mode of pronunciation, and the list is a good attempt to provide one."—*The Field.*

"This is a distinctly useful little book. Although primarily intended to encourage uniformity of pronunciation on the part of those engaged in horticulture, it will also repay perusal by the professional botanist."
—*Nature*

"So useful a book should have a ready sale."
—*Journal of Horticulture.*

"All who essay to call by their names the plants they grow in their gardens and greenhouses will welcome this little volume."
—*Amateur Gardening.*

"We commend this list to all who desire to get a knowledge of the pronunciation of botanical generic names."
—*Gardening World.*

"The hearty thanks of horticulturists are due to the 'Gardeners' Chronicle' for this necessary and well-nigh complete little dictionary of botanical names and how to pronounce them."—*Scottish Gardener.*

"Every young gardener should possess a copy."
—*Irish Gardening.*

"The work is a credit to the author and to the publishers. It should be in the library of all persons interested in horticulture."
—*The Canadian Horticulturist.*

"The volume is one which every gardener and florist should have at all times conveniently at hand."—*Horticulture* (America).

"This handy book will be welcomed as furnishing a standard for reference by all who believe in a correct delivery of our somewhat difficult nomenclature."
—*Florists' Exchange* (New York).

"The pronunciation is clearly shown by the phonetic spellings, and the book will be useful for reference not only for the pronunciation, but for the orthography of plant names."—*The Oxford Review.*

THE PUBLISHER,
"Gardeners' Chronicle" Offices,
41, WELLINGTON ST., COVENT GARDEN,
LONDON, W.C.

SITUATIONS VACANT.

Four Lines 3s. (Head-line counted as Two), 6d. for each succeeding line.

PRIVATE.

H. R. W., Hever Castle Gardens, begs to Thank all Applicants for Journeyman's place, which is Now Filled.

WANTED, as GARDENER (Head Working), unmarried MAN; keenly interested in his profession, especially Outdoor Work; Shrubs, Perennials, Alpines; one with an eye for decorative effect preferred; good Vegetable cropper; able supply continuous succession well-grown Plants for House from two small Glasshouses; two other men kept for Lawns and Vegetable Garden.—Address, with full particulars, age, and work in present and previous places, and wages received, to Box 309, care of R. J. White & Son, 33, Fleet Street, E.C.

WANTED, GARDENER, first-class man, for Inside and assist Outside; abstainer; married, no children preferred; good character indispensable; wife to make herself useful.—State wages and full capabilities, enclosing copies of testimonials, KENT, care of Mather and Crowther, Ltd., 10, New Bridge Street, London.

WANTED, a strong, active MAN, not under 26, to take LEAD in Pleasure Ground; must have a good knowledge of Rock, Alpine, and Herbaceous Plants, also Roses and choice Shrubs, &c.; take turns with duty; no Bothy.—Apply, with full particulars, to J. ELWORTHY, Sparrows Herne Hall Gardens, Bushey Heath, Herts.

WANTED, for Kent, active MAN to take entire charge of two Greenhouses, Plants, Carnations, Peaches, and Vines, Forcing House and Frames; must be good Propagator; to help Outside occasionally; good personal character indispensable; Scotchman preferred.—M. M., Box 11, 41, Wellington Street, Covent Garden, W.C.

WANTED, good MAN for Hardy Fruits; must understand Pruning and Training and take a keen interest in his work; wage to commence 17s. per week, Bothy, milk and vegetables.—Write full particulars to A. R. SEARLE, Castle Ashby Gardens, Northampton.

WANTED, MAN for Pleasure Ground; one having some knowledge of Water Plants preferred.—Apply, HEAD GARDENER, Wittington, Marlow.

WANTED, at once, strong, active MAN for Inside; well up in Vines, Peaches, Melons, and Flowering Plants; 18s., Bothy, &c.—D. BURCHNALL, The Gardens, Edgcote Park, Banbury.

WANTED, (Hertfordshire town), MARRIED MAN; Single-handed; Kitchen Garden, Flowers, Fruit, Greenhouse; abstainer; wages 25s.—Full particulars to G. R., Box 27, 41, Wellington Street, Covent Garden, W.C.

WANTED, GARDENER (Second); married, no family; experienced Vines, Peaches, Carnations; good Plantsman; wages 19s., cottage.—HEAD GARDENER, Henley Park, Henley-on-Thames.

WANTED, GARDENER (Second, Inside and Out); good general experience; 18s. per week, room, light, firing, vegetables; abstainer preferred.—E. DREDGE, The Gardens, Letton Hall, Thetford, Norfolk.

WANTED, GARDENER (Second); smart, active Young Man; thoroughly experienced in Herbaceous Borders and Pleasure Ground work; must be well recommended; abstainer preferred.—State wages to H. QUICK, The Gardens, Island, Petersfield.

WANTED, a good SECOND, to take charge of Glass under Gardener; must have good knowledge of Carnations, &c.; age about 23; wages £1, Bothy, milk, &c.—Apply, with full particulars, to H. GRANTHAM, The Gardens, Harwood Hall, Upminster, Essex.

WANTED, GARDENER (Under, Inside); age about 20, with Inside experience; good reference required; wages 16s. per week.—HEAD GARDENER, Bartley Lodge, Cadnam, Southampton.

WANTED, GARDENER (Under); age 18 to 20; Flower and Kitchen Gardens; strong; experienced; some knowledge Inside; 18s., no Bothy.—Apply, giving particulars, Mr. MOLES, Lodge, Munstead Corner, Godalming.

WANTED, FOREMAN (Inside); a thorough experienced, energetic, reliable Man, not under 26 years of age, for extensive ranges of Fruit and Plant Houses; wages 23s. per week, no Bothy; duty once a month, for which extra is paid.—Write particulars to A. C. LEHANE, Park Hall Gardens, Mansfield, Notts.

WANTED, FOREMAN (Inside); must be energetic and experienced in Orchids, Plants, and Fruit; four Inside; wages 22s. per week, Bothy, milk, &c.; state age and particulars.—G. P. BOUND, Grimston Park Gardens, Tadcaster.

WANTED, FOREMAN of three for the Houses; he must be energetic and persevering in his work and well experienced in Fruit and Plant growing; not under 25 years of age; wages 20s. per week and Bothy.—Apply, W. NORMAN, Hawkstone Park Gardens, near Shrewsbury.

WANTED, FOREMAN (Pleasure Ground) for place in Essex; experienced in Roses, Herbaceous and Water Gardens; wages £1 per week, no Bothy.—Apply, stating age and experience, to W. C. S., Box 3, 41, Wellington Street, Covent Garden, W.C.

WANTED, JOURNEYMAN (Inside); experienced Fruit and Plants, House and Table Decoration; state if cricketer; wages 16s., Bothy, milk, and vegetables.—Age and particulars of experience to W. G. CLEAVER, Blankney Hall Gardens, Lincoln.

WANTED, private JOURNEYMAN (Inside); experienced; immediate; Dumfries; 18s., Bothy, &c.—Particulars, STEWART & CO., 13, South St. Andrew Street, Edinburgh.

WANTED, JOURNEYMAN for Fruit and Plant Houses; must be strong and active and had some experience with Vines and Peaches; wages 16s. per week, Bothy.—Apply, WM. PETTIT, Lamport Hall Gardens, Northampton.

JAMES VEITCH & SONS, LTD., require for a private establishment in Kent a first-class JOURNEYMAN (Outside); wages 18s. per week and lodgings found.—Apply, with fullest particulars of experience, &c., to Royal Exotic Nursery, Chelsea, S.W.

WANTED, YOUNG MAN for Kitchen Garden under Foreman; age about 20; smart, good worker; wages 15s. per week, Bothy, milk and vegetables; duty every 6th week; Sunday duty is paid for, 2s. 6d.; Cricketer for estate team preferred.—Apply by letter, giving references, &c., to J. R. BATTY, Skelton Castle Gardens, Skelton in Cleveland, York.

WANTED, YOUNG MAN for Kitchen Garden and Pleasure Grounds; used to Mowers and Scythe; Bothy.—Apply HEAD GARDENER, Alderwasley Hall, Matlock, Derbyshire.

WANTED, a YOUNG MAN, age about 21, at once, for Pleasure Ground Work, and take turn on duty every third week; wages 16s. per week; Bothy and vegetables.—H. F. BRIGGS, Munden Park, Watford.

WANTED, IMPROVER for Pleasure Grounds and general work, to take duty every third week; must be active, strong and obliging; age 17 to 19 years; wages 14s. per week with Bothy.—Apply, R. PRATT, Beachborough Park, near Shorncliffe, Kent.

WANTED, strong LAD, about 15, to work under a Gardener and help in House (Boots, Knives, &c.); board, lodging, and small wage.—Dr. FISHER, King's Langley, Herts.

WANTED, middle-aged MARRIED COUPLE, without family preferred; man to drive Electric Engine, act as Night Watchman; wife to look after gardeners' Bothy; comfortable place.—STRONG, High Grove, Pinner.

WANTED, MAN, single, to take charge of Electric Plant under Head Gardener (Crossley's Gas Engine), also Water and Repairs; must thoroughly understand his work.—WM. PETTIT, Lamport Hall Gardens, Northampton.

TRADE.

WANTED, GROWER; energetic, reliable; able to take charge and produce general stuff in large quantities.—Reference to W. A. HERRING, Lincoln.

WANTED, ROSE GROWER; rapid and reliable Budder and Grafter essential; permanent position and good prospects for energetic young man.—X. Y., Box 11, 41, Wellington Street, Covent Garden, W.C.

WANTED, good CUCUMBER GROWERS for Market Nursery near London; wages 26s. per week; overtime and bonus paid.—Apply, CLARKE, Park Road Nursery, Enfield Lock.

WANTED, at once, for the West of England, a MAN who has had a large experience of Fruit Growing; must be thoroughly acquainted with every detail as regards Sales, Keeping of Accounts, &c.—Apply by letter in the first instance to GEORGE MONRO, LTD., Covent Garden, London.

WANTED at once, MAN well up in Ferns and Bedding Plants; good wages to suitable man.—Full particulars to FURNESS BROS., Nurseries, Catford Hill, Catford, S.E.

HINTS ON EXHIBITING.

THE GARDENERS' CHRONICLE

ESTABLISHED 1841

No. 3724

No. 1,324.—VOL. LI. {THIRD SERIES.} SATURDAY, MAY 11, 1912 {Registered as a Newspaper. WITH SUPPLEMENT. PRICE 3d. POST-FREE, 3½d.

SUBSCRIPTION—Inland, 15/-; Foreign, 17/6 [22fr. 10c.] [$4 26c.] per annum. Entered at the New York Post Office as second-class matter.

Postal Address—41, Wellington Street, Covent Garden, W.C. Telegraphic Address—"Gardchron, London." Telephone—Gerrard, 1543.

☞ For CONTENTS see page 311.

INTERNATIONAL HORTICULTURAL EXHIBITION.

The attention of advertisers is directed to the arrangements made by the "Gardeners' Chronicle" (see announcement, p. 318) for reporting the International Exhibition. The issues (May 25, June 1 and 8) containing the three Exhibition Supplements will be sold at the usual price (3d. each).

WEBBS' WALLFLOWERS.
The finest strains in existence.
WEBBS' Canary Bird (golden-yellow).
WEBBS' Ruby Gem (ruby-violet).
WEBBS' Vulcan (deep velvety crimson).
WEBBS' Eastern Queen (salmon shaded).
WEBBS' Universal (single mixed).
WEBBS' Double (mixed; very fine).
Each, 1s. per packet, post free.
WEBBS' Kinver Favourite (blood-red).
WEBBS' Primrose Dame (primrose).
WEBBS' Belvoir Castle (yellow).
Each, 6d. per packet, post free.

WEBB & SONS, The King's Seedsmen, WORDSLEY, STOURBRIDGE.

THE Popularity of "XL ALL" Specialities increases every year. All gardeners proclaim that nothing equals these celebrated preparations. "XL ALL" NICOTINE VAPORISING COMPOUND, the gardeners' favourite Fumigant, both Liquid and Cake. "XL ALL" NICOTINE INSECTICIDE WASH for Syringing, Dipping and Dressing Fruit Trees and Plants; Mealy Bug, Scale, etc., cannot exist where this is used. "XL ALL" INSECTICIDE WASH B (*sine* Nicotine), best non-poisonous Wash on the Market. No licence required to sell this. Other preparations of great renown are:—"XL ALL" WEED KILLER, "XL ALL" FERTILISER, "XL ALL" ROSE MANURE. Richards' GREEN SUNSHADE, finest powder shading on the market, 1s. packet, does 100 feet of glass. Don't forget to ask your Nurseryman or Seedsman for my small pink list.—G. H. RICHARDS, Manufacturer, 234, Borough High Street, London, S.E.

DICKSONS Horticultural Manure & other high-class Fertilizers; also Dicksons Improved Mushroom Spawn. Priced Circulars free on application to DICKSONS, Royal Seed Warehouses & Nurseries, Chester

OSMUNDA for Orchids.—Consignments arrive fortnightly. 2s. 6d. per bushel; per bag, 8s. 6d. SANDER & SONS, St. Albans.

LISSADELL ALPINE & HERBACEOUS PLANTS.—Write for our new illustrated and enlarged List, containing many beautiful novelties at moderate prices. Also List of Seeds collected from above in 1911.
J. A. COOPER, Lissadell (No. 2), Sligo, Ireland.

IRON & WIRE FENCING for GARDENS, Tree Guards, Gates, Arches, Espaliers, Rose Stakes, and Ornamental Garden Iron and Wire Work of every description. Send for Illustrated Catalogue, free.
BOULTON & PAUL, Ltd., Manufacturers, Norwich.

FRUITING VINES IN POTS.—Muscat of Alexandria, and leading Market varieties. We make Vines a speciality.
G. COLEMAN, The Vineries, Burgess Hill, Sussex.

WALTERS & CO., Morland Rd., Croydon, Makers of Lath Roller Greenhouse Blinds; also Pinoleum, Screins and Tiffany Blinds. Prices and samples free. Established 20 years.

SUTTON'S WALLFLOWERS.
Sutton's Fire King, per packet, 1s. 6d.
Sutton's Giant Blood Red ,, 1s. 6d.
Cloth of Gold ,, 6d. & 1s.

SUTTON'S GIANT DOUBLE DAISY.
Giant White, Giant Pink and Giant Mixed, each per packet, 1s. 6d.

SUTTON'S ROYAL BLUE MYOSOTIS, per packet, 1s. 6d. Post free.

SUTTON & SONS, The King's Seedsmen, READING.

DOUGLAS'S CARNATIONS & PINKS, border and perpetual, are noted all over the world. 5 Gold Medals, R.H.S., 450 Medals and Cups. Newest and best varieties at most reasonable prices, all ready for planting or potting on. Finest hand fertilized seed only sold. Carnation and Picotee seed, all types, 1s. 6d. to 2s. 6d. packet. Auricula, Pink, Polyanthus, finest strain in existence, all 1911 fine crop, now ready for sowing. Send for catalogue, Edenside, Gt. Bookham.

AUTO SHREDS FUMIGANT kills Leaf-mining maggot, insects in greenhouses, frames. For 1,000 cubic feet, 6d.; 10,000, 3s. 6d. No apparatus.
WM. DARLINGTON & SONS, Patentees, Hackney, N.E.

New Phloxes.

GUNN & SONS were Awarded a Silver Cup at the Great Show at Olympia. New Lists now ready. Address: Olton, Warwickshire.

SELECT YOUR ALPINES IN FLOWER.—A large collection, in pots, also Aquatics for present planting. Visitors cordially welcomed.—THE GUILDFORD HARDY PLANT NURSERY, Guildford.

WM. DUNCAN TUCKER & SONS, Ltd., 27, Cannon Street, London, E.C.; Works, Tottenham. Conservatories, Winter Gardens, Vineries, Peach-houses, Portable Buildings, etc. Catalogue gratis.

BUNYARD'S CATALOGUES, free on application.
BORDER CARNATIONS, 50 varieties.
ROSES AND OTHER CLIMBERS, in Pots.
HERBACEOUS AND AQUATIC PLANTS for present planting.

GEORGE BUNYARD & CO., LTD., Royal Nurseries, Maidstone. Established 1796.

HARRISON'S "RELIABLE" WEED KILLER.—Best and cheapest. See p. xi. this issue.

BARR'S SEEDS FOR MAY AND JUNE SOWING.—Finest strains of Antirrhinums, Aquilegias, Campanulas, Canterbury Bells, Calceolarias, Cinerarias, Delphiniums, Hollyhocks, Lupins, Pansies, Primulas, Stocks, Wallflowers, etc. Special list post free.
BARR & SONS, 11, 12 & 13, King St., Covent Garden, London.

GARDEN PESTS.—Cross's "Clubicide" is the Gardeners' Insurance against damage by Eelworm, Wireworm, Slugs, Maggot, and all Disease Germs and Insect Pests. Kills all harmful Bacteria, reinvigorates the soil, stimulates plant life. In 1s. flasks and ½-gall. and 1 gall. drums. From all Seedsmen.
Sole Manufrs.: A. CROSS & SONS, Ltd., Glasgow.

Sow Now.

BATH'S EMPRESS PANSIES, as grown for the Royal Gardens at Frogmore. The richest and largest-flowered strain of Pansies extant. Per packet, 2s. 6d. and 1s. 6d., post free for cash.
(Dept. A), R. H. BATH, Ltd., The Floral Farms, Wisbech.

For Advertisement Charges see page xii.

KELWAY'S "Manual of Horticulture" is the best of all Garden Books, 2s., post free. From ——, Esq., Northwood, Middlesex, September 28th, 1911: "I find that I have never forwarded 2s. for your lovely Catalogue you sent me some weeks since. It would be cheap at five times the price, and I sincerely regret the oversight."—KELWAY & SON, Langport, Somerset.

THE MODERN HERBACEOUS BORDER.—Full particulars and prices of Kelway Borders packed, arranged for planting, to flower in taste ul schemes of colour, from—KELWAY & SON, The Royal Horticulturists, Langport, Somerset. From Mrs. ——, Balls Bridge, Dublin. "Your plants have all done so wonderfully well in my small and smutty garden that I am anxious for your advice as to which of the following climbers will be suitable for the front wall of my house."

Now is the time to plant.

KELWAY GAILLARDIAS—the Gold of the Garden—will give abundant blossom in the same year that they are planted. Choice named collections, 12s. and 18s. a dozen. From pots. Carriage and packing free for remittance with order.—KELWAY & SON, The Royal Horticulturists, Langport, Somerset.

Now is the time to plant.

KELWAY'S NEWEST GLADIOLI. These new Gladioli are a revelation. They should be planted by all who want glowing effect of colour in their beds and borders, and flowers for the house in July, August and September. We recommend trial of a selection of our "Cream of the World" collection of named varieties, flowering bulbs, for instance, one dozen for 9s.; per 100, £3 10s. Other choice collections, 30s. and 45s. per 100. Full descriptive list on application. Postage free for remittance with order.—KELWAY & SON, The Royal Horticulturists, Langport, Somerset.

GREENHOUSE PAINTING & GLAZING "Vitrolite" superior to White Lead Paint, 9/- per gall. "Plastine" supersedes Putty, 16/- per cwt. Full particulars from W. CARSON & SONS, Grove Works, Battersea.
Agents throughout the country.

COOPS, COOPS, for the season. The Keeper's Coop. Best on the market, 5s. 6d. each; 60s. per dozen, carriage paid. Runs, 2s. 6d. each extra. Send for list, showing numerous other designs.
BOULTON & PAUL, Ltd., Rose Lane Works, Norwich.

Roses and Herbaceous Plants.

GUNN & SONS were awarded the 25 Guinea Challenge Cup in each collection at the Leamington Show. Up-to-date List for each now ready.
Address: Olton, Warwickshire.

ALPINES & HERBACEOUS PLANTS, —Himalayan and other rare Rhododendrons, rare Shrubs, Construction of Rockeries. Catalogues ready.
G. REUTHE, Keston, Kent.

LAXTON'S STRAWBERRIES. — New Catalogue now ready, with particulars of three fine improvements for 1912, including the new "Queen," a gem of the first water, a glorified British Queen. Full particulars on application.
LAXTON BROTHERS, Bedford.

GISHURST COMPOUND is harmless in use; its soluble Sulphur, &c., has for 40 years cured Blights and Fungus on Plants, and is good for washing unhealthy dogs. Gishurstine keeps boots dry in all weathers; they will polish. Good for Harness.
Wholesale from—
PRICE'S PATENT CANDLE CO. LTD., London.

FERNS! FERNS!!—Tree, Climbing, Basket, Stove, Greenhouse, and Garden Ferns; catalogues free.—SMITH, London Fern Nurseries, Loughboro' Junction, London, S.W.

INTERNATIONAL HORTICU

SPECIAL SALES

to be held by Messrs. PROTHEROE & MORRIS, Horticultural

The "Westfield" Collection of Orchids.

ABSOLUTELY UNRESERVED SALE OF

Rare & Valuable Duplicate Plants

FROM THIS WELL-KNOWN COLLECTION.

Messrs. Protheroe & Morris

are favoured with instructions from FRANCIS WELLESLEY, Esq., of WESTFIELD, WOKING, to SELL BY AUCTION at their CENTRAL SALE ROOMS,

67 & 68, CHEAPSIDE, LONDON, E.C.,

ON FRIDAY, MAY 24th, 1912, AT ONE O'CLOCK—

A number of Choice and Rare Cypripediums, comprising :—

Cypripedium Royal George, F.C.C., R.H.S.
" San-Actæus, Westfield variety, A.M., R.H.S.
" Waterloo, A.M., R.H.S.
" Duchess of Argyll
" Wellesleyæ
" Memoria Mostynii Superbum
" Thalia The Baron
Cypripedium Victor Hugo, F.C.C., Paris
" Charlesworthii Memoria Douglassii
" Germain Opoix Imperialis
" Lady Gainsborough
" Elatior Rex, A.M., R.H.S.
" Little Gem, Westfield variety
" The Premier

together with the finest Cattleya species in cultivation, viz. :—

Cattleya Mendelii His Majesty The King, F.C.C., Temple Show, 1909
" " Majestica
" " Golden Queen
" " Lord Justice
" " Thalia
" " Miss Bradshaw
" " King Emperor
" Mossiæ Alba Rosalind
" " Alba Peter
" " Alba Bansha
" " Bronze Queen
" " King Edward VII.
" " Michael
" " Duchess of Norfolk
" " Lady Northcliffe
" Labiata Alba Miss E. Harting
" " Alba The Empress
" " Alba Lady Leese
" " Her Majesty The Queen
" Freya Mrs. F. Sassoon, A.M., R.H.S.
" Gaskelliana Alba Queen of the Earth
" " Armstrongiæ
" " Delight
" Trianæ The Premier, F.C.C., R.H.S.
Cattleya Trianæ F. W. MacBean
" " Alba Purity
" " Alba, Gauds variety
" " Marie Feodorovna
" Fabia White Queen
" Schroderæ Alba Mrs. Francis Wellesley
" " W. J. Mills
Lælia Purpurata Alba The Empress
Lælio-Cattleya Morningtoniæ, F.C.C., Temple Show, 1911
" " Mrs. W. Hopkins, A.M., R.H.S.
" " Epicasta The Premier, A.M., R.H.S.
" " Mrs. Henriquez
" " Aphrodite White Queen
" " Denganii, A.M., R.H.S.
" " Ophir, Westfield variety
" " King Manuel, A.M., R.H.S.
Brasso-Cattleya Mrs. J. Leemann, Westfield variety
" " Wellesleyæ, A.M., R.H.S.
Brasso-Lælio-Cattleya Veitchii, F.C.C., R.H.S.
" " " King Emperor
Odontoglossum Armstrongiæ
" Crispum Mrs. Francis Wellesley
" " Mrs. W. Mostyn
" " Dicksonianum
" Adrianæ Mrs. Francis Wellesley

In the case of certificated or A.M. Varieties the Vendor guarantees that these are the originals or parts of the originals. Paintings will be produced of every plant in the sale, and these will be on view at the Sale Rooms on the morning of sale. Catalogues free on application.

All the above Sales will COMMENCE AT ONE O'CLOCK. Catalogues may be

Telegrams : "Promptuary, London."

THE
Gardeners' Chronicle

No. 1,324.—SATURDAY, May 11, 1912.

CONTENTS.

Apples, late dessert ... 323
Archer, Mr. W. E., retirement of 319
Benevolent Institution, Gardeners' Royal ... 319
Books, notices of—
Botanical Magazine ... 319
Publications received 320
Celsia cretica 322
Clarkia elegans 323
"Farrer" cup, the ... 318
Florists' flowers ... 315
Flower pot, a new ... 320
Forest trees, exotic ... 323
Frost and the fruit crops 322
Frost, damage by, in S. Devon and Cornwall 320
Fruit crops in Ireland ... 322
Fruit prospects in North Wales 323
Gardener's golden wedding, a 319
Gazaland, economic flora of 321
Hales, Mr. William ... 318
Hints on exhibiting ... 311
Hippeastrums, white ... 322
Hooker, Sir Joseph, the library of 319
International Horticultural Exhibition 318, 320
Ireland, Government sale of trees in ... 322
Italian garden, an ... 315
Jones, the late Mr. Thomas... 322
Kew Gardens, theft from 319
Moraine gardening ... 323
Obituary—
Box, James 325
M'Lean, Alexander ... 325
Morrison, William ... 325
Newrock, Charles ... 325
Orchid notes and gleanings—
Disas 312
Odontoglossum hybrids 313
Orchids from Evershot, Dorset ... 319
Primula rosea 323
Primula vincæflora and P. pinnatifida in China 320
Rhododendron Vaseyi... 313
R.H.S. and the inspection of Fellows' gardens 322
Rosa gigantea flowering at Kew 314
Scotland, notes from ... 322
Societies—
Biochemical Club ... 319
Horticultural Club 318, 324
Lincolnshire Daffodil 325
Linnean 325
Manchester & North of England Orchid 325
National Auricula and Primula 324
Royal Horticultural... 318
(Scientific Committee) 323
Town gardening ... 318
Vine culture in the colonies 319
Weather in N. Devon 323
Week's work, the 316, 317

ILLUSTRATIONS.

Cups offered at the International Horticultural Exhibition 320, 321
Disa sagittalis 312
Primula vincæflora and P. pinnatifida growing wild in China (Supplementary Illustration).
Rhododendron Vaseyi 313
Rosa gigantea, a flowering spray of 314

HINTS ON EXHIBITING.

THERE are many excellent cultivators who can raise most creditable produce, but who are unable, through lack of skill in exhibiting, to make a good show of their material. Such failures could be avoided in large measure by a little forethought and attention to detail. As an old exhibitor myself, I have frequently noticed, with regret, the spoiling of what should have been a thoroughly creditable exhibit, by slovenly and careless staging.

One very small point is frequently neglected—the *early* painting of all boxes which are to be used. Over and over again I have met with cases in which this work has been left until a day or two before the exhibition, with the result that the paint, still damp and sticky, spreads itself lavishly during transit over neighbouring objects, and during the staging process over the hands and clothes of the gardener. Flower pots, too, are often overlooked. It seems scarcely necessary to say that they should all be thoroughly cleaned before being sent to a show; and yet, only last summer I was acting as judge at a show where some large Palms were arranged all down the central stage in an elevated position, the pots naturally most conspicuous—unfortunately so, since they were all covered with dirt.

Another small, but important, point is the condition of the leaves of fine-foliaged plants, such as Codiæums (Crotons), Dracænas, Alocasias, and Pandanas. These and all other such plants, whether variegated or not, thoroughly repay a careful sponging with a weak solution of pure, soft soap. Other washes may be used—I have tried several—but I prefer the soft soap, as leaving no deposit.

Only those plants which are thoroughly healthy and in the pink of condition should be exhibited. Many a time a whole exhibit has been marred by the inclusion of one plant which was out of character, or in a sickly condition. All plants should be prepared for some time before a show, by judicious ventilation and moderate exposure, to become accustomed to the changes of temperature which are involved by removal from their own quarters to the show. Stove plants should never be taken straight out of plunging material; they should be lifted a short time beforehand, and inured to exposure. In the case of flowering plants of any kind, all faded blossoms should be removed. They serve no useful purpose on the plants. All plants should be staked sufficiently to ensure safe transit; by this I mean what might be called "permanent" staking. All fine-foliaged plants should be tied up and very carefully packed to prevent any injury. Ferns, too, should receive the same care. It is a great mistake to try to trim up, with a pair of scissors or a knife, the leaves of plants which have a natural tendency to turn brown at the extremities. I have sometimes seen this done, with the result that the appearance of the plant is completely spoiled—especially I remember a Dasylirion acrotrichum which had been thus treated—the effect was most unnatural and unpleasing.

If the pot of any plant for exhibition seems too small, the plant should be repotted in one of a larger size. In the case of Hyacinths, the pot is often rather larger than necessary, as exhibitors like to make the specimens appear dwarfed.

All plants should be watered before being placed in the van, excepting Orchids. With regard to the packing of the latter, it is well to use quantities of soft tissue paper, which is better than any other packing material. Plenty of time should be allowed for packing, so as to insure its being properly done. Unless the plants are tightly packed they may shift, and the pots will probably be broken.

In the case of cut flowers, the blooms should be prepared the day before the exhibition, and should be placed in water, in a cool place, for a few hours before packing. All market growers know this, and are careful to act upon it—they find that by this means the flowers are kept in the best condition, and show to advantage on the morning of the exhibition. The flowers should be packed firmly, so as to prevent them from rubbing against one another. In selecting flowers for cutting, those which are half-opened should be taken rather than such as are fully developed. In the case of Nymphæas, for example, the best blossoms for the purpose will be those which have opened that day—they will be at their best the next day, when they arrive. It is not necessary to remove the pollen masses from liliaceous plants—it is sometimes done, but it is a mere fad.

Cut Roses are usually taken to an exhibition with their stems in water, but this is not essential, except, perhaps, in very hot weather, when they are apt to open too fast if shut up in boxes. The experienced market grower cuts *young* Roses only, and on the *morning* of the day before the exhibition. Morning-cut Roses have the early dew on them, and this stands them in good stead. Indeed, it is not advisable to cut any flowers for show purposes late in the day—they do not keep nearly so fresh as those cut soon after sunrise.

In the matter of fruit-exhibiting, I must say that there is considerable room for improvement in nearly every case. There are, however, let me hasten to add, some very notable exceptions. In selecting fruits for showing, only those which are perfectly fresh should be chosen, if anything rather under than over-ripe. The individual fruits should all be carefully selected; judges often look at single examples, and examine them thoroughly. Colour should usually take precedence over size; flavour and quality also are more important than Brobdingnagian proportions. An instance of this may be found in comparing different varieties of Nectarines—a Pineapple Nectarine is preferable to a Lord Napier, and a Royal George Peach to a Sea Eagle. In Grapes, colour is the most important point, so long as the bunches are up to exhibition standard; in dessert Plums, again, colour always counts, especially when coupled with a high standard of quality. Again, a well-netted Melon will take a higher place than a larger one without this characteristic.

In every case, the greatest care should be exercised when packing for transit. Personally, I find it the best way to pack in such a manner as to avoid the necessity of unpacking again at the exhibition. This can nearly always be done in the case of Cherries, Strawberries, Peaches and Nectarines, especially the two first. They should be packed in shallow boxes, or round shallow baskets; and they can then be placed as they are on the stand, thus saving much time and trouble.

More care is needed in packing dessert fruits than in the case of any other exhibit. They are in the highest degree perishable and fragile, and are frequently completely spoilt by want of careful handling.

Many of the remarks I have made upon the packing of fruit apply also in the case of vegetables. I consider that there is scope for far more effective arrangement of vegetables than is usually seen, and, given a fair amount of space, they are better worth arranging than fruits. Here, again, quality and freshness should be sought for, rather than mere size. Beans, especially, are frequently much too large; Cauliflowers also, and nearly every kind of root vegetable, are chosen too often for this characteristic. Any vegetables which are marked or marred in any way should be rejected, and colour should be made a point of in every case. Root vegetables should be cleaned before the show with a brush—not a stiff scrubbing-brush, which will leave marks behind. The best kind, in my opinion, is a "spoke" brush, such as is used for cleaning carriages. Vegetables should be packed with quite as much care as fruits, especially Cauliflowers, Cucumbers, and Vegetable Marrows. Shallow baskets are much better for exhibition than the ordinary garden hamper, for in these the vegetables are less prone to injury in handling.

How to Stage Exhibits.

We now come to a matter of the very greatest importance in exhibiting, which can best be studied by close observation, coupled with practical experience. It is a good thing to note the methods of a successful exhibitor, and adopt them where possible. There are many exhibitors who bring their produce safely to the show, but fail to stage their material to the best advantage. It is a good plan to settle beforehand the approximate arrangement of plants, fruits and vegetables; by this means an

imposing effect is more likely to be obtained than by a haphazard, unpremeditated procedure. It is also a good thing, if the show is to be held at a short distance, to go to the site some days beforehand, and obtain a general idea of the space to be occupied. If the exact position of the exhibit is known, it is quite possible to arrange beforehand how to stage, so that the best effect may be obtained.

According to my observations, groups of plants are nearly always overcrowded. Distinctive features should be aimed at—every plant of importance should be allowed to show itself. Colour is another very important point—too many colours should be avoided, and especially those which are likely to clash with one another. Single-stemmed Codiæums, for instance, although most effective when well coloured, should not otherwise be used. If they are allowed in a group, they look best with different shades of orange and scarlet, such as those found in the Ixoras. A softer blend of colour is obtained from the grouping of Cattleyas, such as C. Mossiæ and C. labiata, with a touch of white. When showing for effect, the use of stakes for supports should be avoided. I have seen fearful anomalies in this way—white sticks, for example—which are unpardonable, especially in the case of an experienced exhibitor.

The staging of specimen plants is not made much of an art nowadays, but careful attention to detail will be well repaid. A good general effect is often the only difference between two collections, and it is well worth while to make a study of the art of arrangement. The exhibitor should always make a point of having a particularly good specimen at the extreme left-hand front corner of his group. This applies not only to collections of specimens, but to exhibits of all kinds, and the reason lies in the fact that the object in this position always first attracts the eye. I remember seeing at one show an exhibit of Grapes—excellently-cultivated specimens; but, unfortunately, the weakest bunch was at the extreme left of the exhibit, which happened to be at the end of the tabling. The judges all saw the weak bunch, and the result was disappointment to the exhibitor.

Specimen plants which are bush-trained need tipping, but this can be done so as not to create an unsightly appearance. Broken flower pots, when employed for this purpose, are *most* unsightly, and should not be tolerated for an instant. Colour-effect will again weigh with the careful exhibitor—he will, for instance, separate a Bougainvillea from an Ixora. A Statice should be placed between, if available, or a Stephanotis.

Allamandas always look well in a collection, especially when placed with Statices. Ferns are comparatively easy to stage as specimens, though in a large collection of diversified Ferns, taste and discrimination are needed. Small specimens should be kept well to the front. Golden and Silver Gymnogrammas should be mingled—they look far better together than apart.

We now come to the subject of cut flowers—and here again the remark must be made that overcrowding is far too common at the present day. One often sees an exhibit of cut flowers which is a perfect jumble of ill-assorted colours—this is especially the case in a mixed collection of herbaceous and other plants. Late-flowering Tulips, also, are often so crowded that their beauty and effectiveness are completely lost; and with Roses and Sweet Peas the same mistake is frequently made. It would seem that exhibitors cannot resist the temptation of showing enormous quantities of blooms when making up groups; but, apart from any other consideration, it should be borne in mind that overcrowding in vases is a frequent cause of early fading.

Wherever possible, the foliage of the flowers themselves should be used. Rambler Roses, for instance, look very well in long sprays with the addition of a few slender growths. The practice of "dressing" the flowers should never be resorted to—it is unnecessary and absurd. It is, of course, extensively done by street vendors of "buttonholes" (from whom, perhaps, some of our exhibitors have learned it!), but I always wonder how the lover of flowers can bear to mutilate the petals of Roses. Carnations are, happily, not so much dressed as formerly, and it is indeed fortunate that many flowers do not lend themselves to this kind of "improvement."

Fig. 154.—Disa sagittalis: flowers pale lilac.

In arranging cut flowers in vases two or three rows deep, the vases must be carefully graded, so that the back row is not hidden. Some cut flowers (Lilac, for example) have a good deal of foliage attached to the wood. Some of this should be removed, otherwise the flowers will soon fade. The foliage may be used, but separately, that is not attached to the blossom.

The staging of fruits is done nowadays much better than formerly, owing to the incentive offered by the fact of extra marks being given for artistic effect. It is sometimes even a little overdone—decorative dessert tables, especially, being often far too ornate to find favour in any dining room. In the case of Grapes, it is a common custom to use white paper for black, and pink for white Grapes. Why not use a pale, neutral green for both? The effect would be far better, in my opinion. Each individual fruit should have its own place in the scheme—this will not be the case if overcrowding is permitted. For decoration, trailing, slender growths may be used—such as Smilax, early in the season; and later on, the well-coloured sprays of Ampelopsis Veitchii. The name of this creeper reminds me of an example of effective staging which I once saw. It was, I believe, the first occasion on which Messrs. Veitch & Son showed this plant, at South Kensington. The exhibit was composed of dense growths which had attached themselves to a length of scrim canvas. A more effective method of staging could hardly be conceived.

With reference to vegetables, I do not think there is much to be said. Those who have seen Mr. Edwin Beckett's method of staging will have received sufficient hints how to stage to the best possible effect; he never overcrowds his exhibits, and every dish is conspicuous. Parsley is essential as a ground-work; there is nothing better, in my opinion—but it takes a large quantity if it is to look well. The method of staging in shallow baskets has much to recommend it, as by this means all the subjects are kept quite separate from one another.

I should like to remind exhibitors always to carry with them a syringe or a sprayer, wherewith to diffuse a gentle moisture upon Ferns, cut flowers and vegetables. Fruit, of course, must never on any account be moistened. *J. H.*

(To be continued.)

ORCHID NOTES AND GLEANINGS.

DISAS.

The Disas are amongst the most charming of cool-house Orchids, and if afforded suitable treatment the plants will flower well during the spring and summer months. On March 5 Messrs. J. Veitch & Sons, Ltd., Chelsea, exhibited a pan of the pretty Disa sagittalis (see fig. 154) under the name of D. caulescens, the two species being closely allied. D. sagittalis succeeds under the same treatment as D. grandiflora, although it belongs to a distinct section. In addition to the two mentioned, D. racemosa, D. tripetaloides, and the hybrids D. Veitchii (racemosa × grandiflora), which resembles the former parent in shape and colour, D. kewensis (grandiflora × tripetaloides), D. langleyensis (racemosa × tripetaloides), D. Premier (tripetaloides × Veitchii), and D. Luna (racemosa × Veitchii) are all excellent garden plants. A few other hybrids have been raised, but it is questionable whether they are now in commerce. No doubt many have failed with Disas through growing the plants in a too high temperature. Some growers utilise a cold frame for the plants, but the cooler end of the Odontoglossum house is more suitable. When the plants pass out of flower and the new growth is apparent, any necessary repotting can be done, using ordinary flower pots or fairly deep pans, which should be one-third filled with material for drainage purposes. As a rooting medium employ a mixture of good, fibrous loam one-half, peat one-fourth, and the remainder fresh Sphagnum-moss, with silver-sand and a few crushed

crocks incorporated. Care should be taken not to injure the tubers during the process of potting. The crowns should not be entirely covered with the compost, but it should be brought up to where roots are produced. Little direct watering is necessary for the first few weeks, but, as root action increases, more moisture may be applied; at no time should the base of the plant be allowed to become dry, for Disas are never completely at rest.

During the summer months slight sprayings overhead are beneficial whenever the weather is favourable, and air may be admitted by both the top and bottom ventilators; even in winter the top ventilator may be open for a space of an inch or so throughout the day and night, excepting when frost or high winds prevail. It is necessary to shade the plants from the direct rays of the sun, but shading should not be overdone or the foliage will become weak and susceptible to spot disease. Thrips sometimes infest the plants, but the pest may be held in check either by lightly vaporising the house at intervals or dipping the plants in a weak solution of XL-All insecticide. *W.*

ORCHIDS FROM EVERSHOT, DORSET.

Mr. Eustace F. Clark sends a very fine flower of Odontoglossum Rossii majus taken from a plant purchased in 1893; a flower of Cattleya Gaskelliana × Lælia Iona; a very distinct and brightly-coloured form of Lælio-Cattleya highburiensis, with yellow sepals tinged with rose and deep rose-veined petals. The front of the lip is ruby-red, and the disc yellow. Also a flower of a cross between Lælia purpurata and L.-C. highburiensis of a clear rose colour with purple front to the lip. These narrow-petalled hybrids exhibit bright colours and they are very floriferous.

ODONTOGLOSSUM HYBRIDS.

William Thompson, Esq., Walton Grange, Stone, Stafford (gr. Mr. Stevens), reports that the small seedling Orchids noted previously in his gardens have made rapid progress, and a goodly number of them are in flower, blooms of 36 forms having been received. Mr. Thompson states that the parentages in many cases are only open to conjecture, for the records are uncertain. It is admitted by experienced raisers that the record generally is only an important guide in regard to parentage, to be checked by the probabilities as shown in the flowers. Where any doubt exists, it is far better to declare the parentage as unknown or doubtful, as in the case of complex crosses even an expert, in defining parentage, may easily be wrong in his conclusions. The flowers from Walton Grange include three which are probably seedlings of blotched O. crispum, several of the O. ardentissimum type, a clear canary-yellow flower like an unblotched O. waltoniense, a very pretty O. Adrianæ cross, O. Hallio-crispum, and some pretty flowers, probably secondary crosses, of O. Rolfeæ. One very remarkable hybrid has the flower almost entirely of a bright claret colour, with spiny yellow crest, the front of the lip being white.

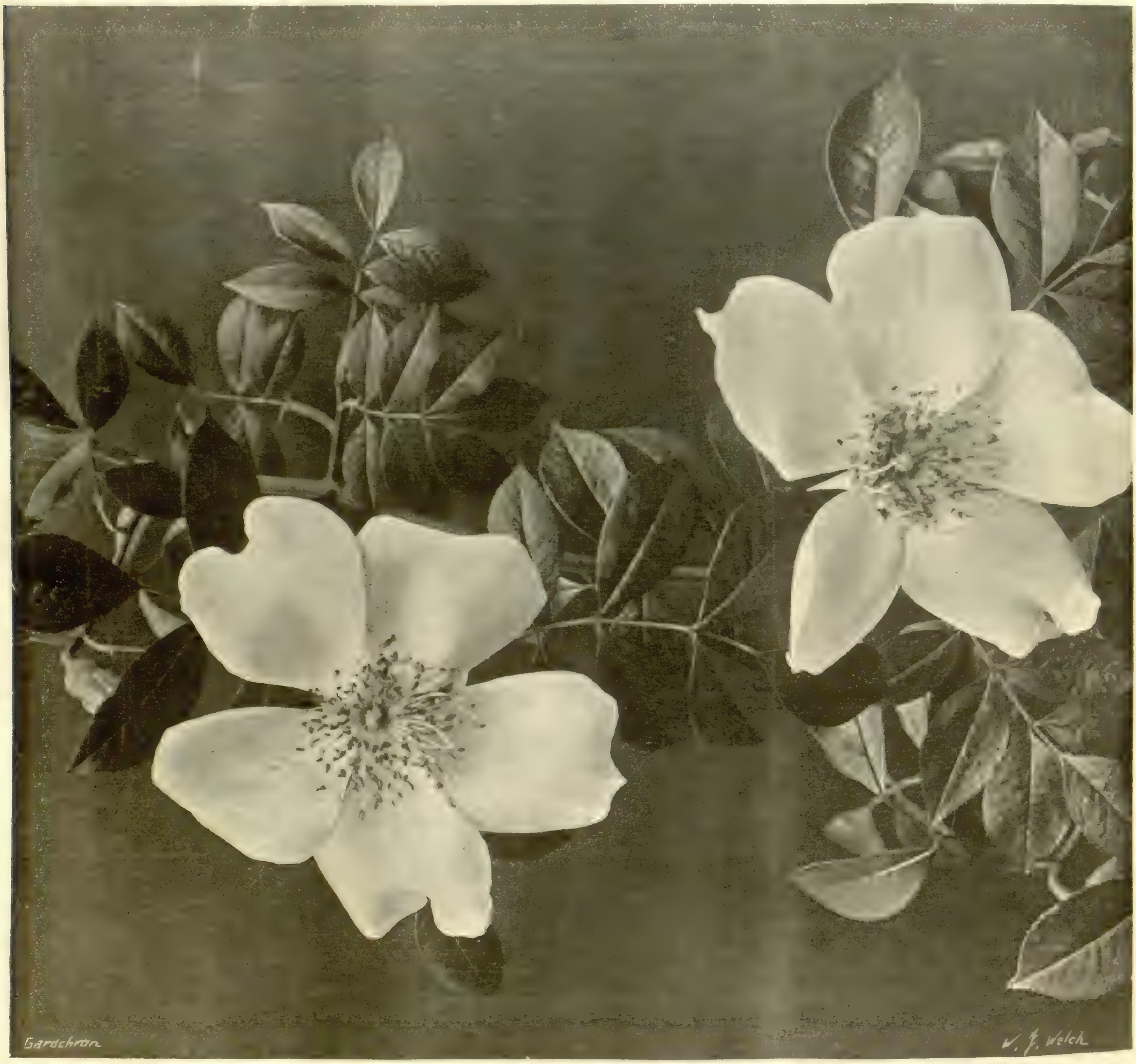
RHODODENDRON VASEYI.

From a garden standpoint this species is included amongst the Azaleas, for it is deciduous and closely related to the various North American species, from which, with one or two other species, the race of shrubs known collectively as Ghent Azaleas has originated. It occupies positions on the mountain sides of North and South Carolina, and has been known for a considerable period, though it has never been grown largely in this country. Attention was directed to its merits in the *Garden and Forest* for 1888, p. 376, where an illustration also appeared, and from time to time since it has been noted in the pages of English horticultural journals. But it is not yet so well known as its usefulness warrants, therefore it may not be out of place to direct attention to it again. Flowering in advance of the other North American Rhododendrons, it may be found in blossom towards the end of April or during the early part of May. The somewhat rounded flowers are from ¾ to 1 inch across, and vary considerably in colour on various plants, for, while the blooms on one plant may be white, or white slightly flushed with rose, those on other examples are deep rose. In the hands of the hybridist it ought to prove productive of useful hybrids which would flower early and so prolong the season, though for some parts of the country it is doubtful whether Azaleas which bloom before the beginning of May are to be encouraged on the score of April frosts. *W. W.*

Fig. 155.—RHODODENDRON VASEYI: FLOWERS WHITE, FLUSHED WITH ROSE, TO DEEP ROSE.

ROSA GIGANTEA.

The flowering of this remarkable Rose at Kew in the spring of 1910 (see *Gardeners' Chronicle* June 4, 1910, p. 370) was an event which had been looked forward to ever since its introduction into cultivation by General Sir Henry Collett, in 1889. At the present time it is again in flower in the Himalayan wing of the Temperate House, where it is planted out in a border amongst Himalayan and other tender Rhododendrons, and has climbed high up amongst the rafters and iron girders of the roof to a height of about 40 feet. At such a distance from the ground the beauty of its flowers cannot be perceived, but a spray is reproduced in fig. 156 showing the flowers, which are from 4 to 5 inches in diameter, smaller than natural size. In the bud stage the colour is a rich copper, similar to W. Allen Richardson; this shade, however, fades rapidly as the bloom expands until, when it has been open a day or two, the colour becomes ivory-white. The stamens are a bright yellow. The calyx lobes measure an inch in length, but there are specimens in the Kew Herbarium in which the lobes are even longer than this. A remarkable feature of the plant is its extraordinary vigour and the enormous amount of growth which it has made in former years. Some of the original seedlings raised from seed collected by General Collett in the Shan States were planted in several of the large houses at Kew in borders of prepared soil, and quickly made large specimens. Some of the shoots grew as much as 30 feet long. A large specimen was grown for 10 years or so in the Succulent House, where it grew rampantly. During the summer and autumn the lights on the roof were let down and the plant exposed to all the sun and light possible, being afterwards tied down close to the glass and subjected to the dry conditions of the other inmates of this house during the winter. Other specimens were grown in the main building of the Temperate House, as well as in the Mexican and Himalayan wings. The temperature of each of the houses except that of the Himalayan wing, was sufficiently high to cause the plants to continue in growth all the year round, but in the Himalayan wing the plant obtained a rest of a few months during winter. The temperature of this house is never allowed to fall more than a few degrees below freezing point. When originally planted in this house in 1899 the plant grew rapidly in the rather stiff loamy soil of the border. The soil, however, did not suit many of the other occupants of the house, and in 1906 it was replaced with a sandy peat. This has had a marked effect upon the rate of growth of the Rose, the stems being much more slender and the growth more twiggy generally. It is to the change of soil that I attribute the flowering of the Rose, and not the the hot summer of last year, for it produced flowers last year after the wet and cold summer of 1910. Cultivators would do well to try the effect of planting this Rose in a poor soil or where the roots may be restricted. They should also try the effect of a low temperature during the winter.



[Photograph by C. P. Raffill.

FIG. 156.—ROSA GIGANTEA, FROM A PLANT IN FLOWER IN KEW GARDENS: FLOWERS COPPERY-RED, PASSING TO WHITE.

A full account of the discovery and history of Rosa gigantea is given in the *Gardeners' Chronicle*, March 4, 1905, p. 136. The figure in the *Botanical Magazine*, tab. 7972, does not convey any adequate idea of the beauty of the flowers, which are depicted as being of a dirty, greenish white.

The plant was originally discovered by Dr. Watt in 1882 during the Government demarcation survey in Manipur at altitudes of 5-6,000 feet. It was later discovered by General Sir Henry Collett in the Shan Hills, Upper Burmah. It has since been collected by Dr. Henry, Mr. W. Hancock, and recently by Mr. George Forrest in North-West Yunnan, China. Mr. Forrest has discovered specimens with rose-coloured flowers, which have been described as variety erubescens by Focke in *Notes of the Royal Botanic Gardens, Edinburgh*, v., p. 68. The variety was found in shady situations in the Lang-kong, Hocking, and Lichiang valleys, and is described by Mr. Forrest as "a semi-scandent scrub of 10-20 feet, with rose-pink, fragrant flowers." Whilst this plant closely resembles Rosa gigantea in many respects, notably in its calyx lobes and in several minor details, I am of the opinion that it is distinct. The fruit and seed, which are important characters in determining Roses, are wanting in the herbarium material of Focke's plant, and I have little doubt but that, when these are obtained, the plant will prove to be distinct.

An interesting account is given in the *Journal* of the Linnean Society, xxviii., p. 6, by General Collett, of the conditions under which he found R. gigantea. Dealing with the flora of the district where it grows, he says that it "was found on a plateau, at altitudes of 4-5,000 feet, where the traveller was at once struck with the temperate character of the flora. The trees were mostly Oaks and Pines, whilst the herbaceous plants were represented by species of Ranunculus, Viola, Hypericum, Clematis, &c." Dealing with the giant Rose, he says:—"Only two species of Rosa were seen, and both were new. The beautiful R. gigantea is particularly conspicuous, climbing over the tall forest trees, from the tops of which the long, pendulous branches, covered with very large, white flowers, hang down in rich profusion. This Rose, which has larger flowers probably than any other wild species, is seen from a considerable distance in the jungle, reminding one more of a large Clematis than of a Rose. . . . It is only locally abundant, chiefly in dark, shady valleys." The other Rose referred to was R. Collettiana, which, I believe, is not yet in cultivation. *C. P. Raffill.*

AN ITALIAN GARDEN.

On a projecting spur of the lower Fiesole Hills, some two miles east of Florence, stands the old Castello di Poggio Gherardo, once a mediæval fortress, now a modern residence—so far as its interior is concerned—and surrounded by a very charming garden. The estate was purchased in 1889 by the late H. J. Ross, Esq., an enthusiastic horticulturist, who had spent many of his early days in the East, and who made it the home of one of the finest collections of Orchids that has ever been brought together in Italy. This collection is in part maintained by his widow, Mrs. H. J. Ross. The place was graphically described a few years ago by a niece of Mr. Ross. "Animals and plants all thrive at Poggio Gherardo in a remarkable way, because much love is lavished on everything within its walls. The Wistaria grows at such a pace that it threatens to pull down the terrace staircase; the Camphor tree and Eucalyptus battle valiantly through severe winters, and rare southern plants are enticed to show their bloom. As for Roses, they tumble in great cascades over the walls above the carriage drive, mixing their pink and white blossoms with the yellow Banksia and pale or dark-blue Irises. Away from the wall the monthly Roses form thick hedges winding up the hill towards the house, near where they merge into a spinney of Pines, Chestnuts, Cypresses, Bays, Laurels, Vines, and Arbutus. Above it all arises the square crenelated fortress villa, which withstood the arms of Hawkwood and his Pisan soldiers, survived even earthquakes, and after more than 500 years still stands proudly on a spur of the Fiesole hills full in sight of the Arno Valley."

The house is approached through a grove of Vines and Olives by a long, steep, winding drive, bordered with hedges of Roses, which, in the first fortnight of May, when the writer had the pleasure of staying there for some days, on the occasion of the International Horticultural Exhibition at Florence, were covered with thousands of pink blossoms. Roses luxuriate everywhere; yellow, white and red, single and double, on pergolas and arches, fences, tree trunks, and walls, forming a wealth of floral tracery, and the double white and yellow Banksians recalled our own Crimson Ramblers in their wealth of flowers. One must visit the sunny South to see the Banksian Roses in perfection. Lizards abound; one sees them everywhere in the sunshine, where the Caper plant luxuriates in the fissures of the old walls, on stony banks and amongst the Roses, whence they emerge to stalk the flies when one remains quiet for a few moments.

Among many familiar scenes there is much that is novel. Large blue bees flit about amongst the flowers; blue, red, and yellow dragon-flies, and many kinds of butterflies—white, brimstone, deep yellow, blue, and red—impart a gaiety to the scene, while the beautiful swallow-tail butterfly floating gracefully in the sunshine furnished a sight to be remembered. And in the evening, when the garden is cool and delightful after the burning sunshine, the place was harmonious with nightingales—indeed, one may both hear and see them in the day-time in the adjoining woods. The fire-flies, again, afforded a surprise. On a May evening, a soft flash was noticed that for a moment recalled the flash of an electric wire. But there were no wires, and quickly came a second flash, which left no doubt of the cause. Soon there were dozens, and during the next few nights, after which the writer bade them a regretful farewell, the groves were lighted as by myriads of fairy lamps, not stationary, as our own glow-worms, but flashing everywhere, and affording a sight never to be forgotten.

The situation slopes to the south, in full exposure to the sunshine, and many plants thrive in the open which in this country require to be grown indoors. One of the first things noticed was the Lemon trees, planted in large tubs, and bearing fruits in various stages, as well as flowers. They are, however, brought inside for protection during the winter, as is usually practised in this part of Italy, for the proximity of the Apennines renders the climate cold in winter. Near by were two Kaki trees in bud; the larger is an immense tree which bore 450 fruits the previous year. The fruits are gathered and put in a fairly warm place to ripen, when they are delicious, as I have since had the opportunity of proving. There is also a large tree of Eucalyptus globulus in perfect health, and an immense Camphor tree (Cinnamomum Camphora), which is one of the economic trees of Southern Italy. Melia Azedarach is another large tree, bearing panicles of purple flowers and numbers of old fruits. The specimen is only 16 years old, and was 5 feet high when planted, so rapidly does everything grow in this genial climate. Paulonia imperialis is a large tree, and purple with its beautiful blossoms. Nerium Oleander forms an immense old bush, and the Japanese Loquat fruits every year. There are many fine old specimens of Chamærops Fortunei, both male and female, producing large panicles of flowers.

Magnolias thrive, and a number of Azaleas of various kinds and colours were covered with flowers, while a few Rhododendrons were also in bloom. Numerous plants of Pæonia Moutan are grown. The Wistarias, both blue and white, flower in the greatest profusion, and with them on the house is a fine plant of Trachelospermum jasminoides, already in bud, and promising a fine display of deliciously fragrant white flowers. Solanum jasminoides covered an old arbour with a profusion of flowers. Sweet Peas were flowering in abundance, and many other plants, more or less familiar at home, are grown very successfully. I have already referred to the Roses: there is a fine plant of Marechal Niel, which, from the size of the stem, must be many years old; it flowers profusely. The Austrian Briar looked a picture, with its peculiar coppery red and yellow flowers on the same bush, and the Persian double-yellow Rose was a mass of blossoms. There is also a large single red Rose which blooms most profusely; its name is not known, but it is said to be used as a stock in Lombardy.

The Orchids are contained in five large houses, with various stove plants, and consist almost entirely of warm-growing kinds, for cool Orchids cannot be grown successfully in such a climate. Cypripediums, Vandas, and others of the Aërides group, Dendrobiums, Cattleyas and allies, Cœlogyne cristata, Stauropsis Batemaniana, Sobralia macrantha, and numerous others are grown successfully. Plants of Cœlogyne Dayana were wreathed in flowers. Many hybrid Cypripediums have been raised. A detailed account of the collection of Orchids was given in *Orchid Review*, 1911, pp. 202-205. In a wood behind the house numerous handsome plants of Orchis purpurea were in bloom; they are indigenous, and have probably grown there from time immemorial. The place must have been in the possession of the Gherardo family for hundreds of years, for there is an old monument erected to the memory of Bartolommeo di Gherardo Gherardi, magistrate of the Republic of Florence from 1390 to 1409.

The Olive is grown largely on the hill-sides; there are trees in the district which are hundreds of years old, and in some cases the trunks divide by the decay of the centre, forming what at first looks like a group of separate trees. They are pruned to what may be termed cup shape, the centres being left hollow, so as to admit all the sun, light, and air possible. The Olive is harvested in November and December, and the Olive oil produced by Mrs. Ross has become celebrated for its quality and purity. The vines are trained on the Maple, because this tree will submit to the severest pruning, and thus admit the maximum of light and air which are so essential to the proper ripening of the Grapes. In Lombardy the Elm is largely used for this purpose. It may be added that the prunings from the Vine, Olive, and Maple furnish the firewood of the peasantry in winter.

By the side of the drive is a row of the purple-leaved Prunus Pissardii, which forms a handsome tree and fruits freely, and the fruit is excellent for stewing, so that the tree is interesting both from an ornamental and a utilitarian standpoint. *R. A. R.*

FLORISTS' FLOWERS.

SWEET PEA NOVELTIES AT THE R.H.S. SHOW.

At the meeting of the Royal Horticultural Society, on April 30 last, two fine collections of Sweet Peas were staged, both showing skilful culture under glass. Mr. C. W. Breadmore, Winchester, had, in Princess Mary, a novelty with rather a sensational combination of colouring, mauve and blue, reminding one somewhat of Afterglow, without that variety's tendency to doubling. Aggie Elder is a distinct new shade of Rose, a flower of good form and substance. Messrs. Dobbie & Co., Edinburgh, seem to have adopted a new method of naming, as three fine novelties on their stand were named respectively Scarlet (very brilliant), Cream, and Lavender (a true, pure lavender, without any mauve shading). A bunch which attracted much notice was labelled Lavender George Herbert—Fixed Stock. This will, if the best type of it is really fixed, be a great favourite with exhibitors, who know its value. *Visitor.*

The Week's Work.

THE ORCHID HOUSES.

By J. Collier, Gardener to Sir Jeremiah Colman, Bart., Gatton Park, Surrey.

Stanhopea.—Plants of Stanhopea tigrina and its variety superba, S. Wardii, S. nigro-violacea, S. Amesiana, and others that require fresh rooting materials should receive attention in this respect. The plants do best in shallow teak-wood baskets, as their pendulous inflorescences push downwards through the bottom of the receptacles. For this reason a layer of Fern rhizomes should be placed at the bottom of the basket for drainage in preference to crocks. Any plants that require increased rooting space should be afforded larger receptacles, such as will accommodate them for at least two seasons, as these plants resent root disturbance. Remove as much as is necessary of the old materials from about the roots with a pointed stick. Use a compost composed of equal parts Osmunda fibre or A1 fibre and Sphagnum-moss, cutting both materials rather roughly and well mixing them together; work the compost well between the roots and press it moderately firm. Plants that have sufficient rooting space and with compost in a good condition should have a portion of the soil picked from the surface and be top-dressed with fresh materials. The plants should be suspended from the roof-rafters in a moist, shady position in the Cattleya or intermediate house. They should be watered sparingly during their earliest stages of growth, but when the new pseudo-bulbs begin to form they should be afforded liberal supplies of moisture and sprayed frequently, wetting the undersides as well as the upper surfaces of the leaves to combat red spider.

Acineta.—Plants of Acineta Humboldtii, A. Barkeri, A. H. rubyana, and A. chrysantha are developing their inflorescences, and care should be taken that the soil is not overwatered or the flower-buds may drop. Any necessary attention at the roots should be done after the plants have passed out of flower when new growth will have commenced. At that stage they should be treated in a similar manner to that advised for Stanhopeas.

Vanda Kimballiana.—If plants of Vanda Kimballiana require attention at the roots the work should be done now, but the soil should not be disturbed unless it is absolutely necessary. The plant does best grown in teak-wood baskets, using clean crocks for drainage purposes and clean-picked Sphagnum-moss as a rooting medium. If the old compost is sour and decayed it should all be removed and replaced by fresh. Plants that have lost many of their bottom leaves, and have thereby become leggy and unsightly, may be made into shapely specimens. They should be taken out of their receptacles to allow portions of the stems to be cut away below some of the aerial roots, so that they may be placed lower down in the baskets. Plants treated in this manner should be afforded a shady position in the house for a few weeks afterwards and frequent syringings. This Vanda grows best when suspended from the roof-rafters, and during the season of active growth in a night temperature ranging from 60° to 65° with a rise of 5° or 10° by day.

Chysis.—Plants of Chysis bractescens, C. aurea, C. Limminghii, C. Sedenii, and others having passed out of flower may be repotted. The plants are best grown in pans without side holes or in pots that may be suspended. Plants that have sufficient pot room and compost in a good condition may have some of the soil removed from the surface and be afterwards top-dressed with fresh materials. Any specimens that are growing in sour soil or require more root space should have the old compost removed from the roots and be potted up afresh. The pots should have plenty of materials for drainage purposes. Use as a rooting medium a mixture consisting of equal parts Osmunda fibre and A1 fibre cut up moderately fine with a liberal addition of crushed crocks, mixing the materials well together. Pot firmly, and keep the base of the plant a little below the rim of the receptacles. They should afterwards be suspended in the lightest position in the intermediate house, which should be frequently fumigated to destroy yellow thrips. When well established in their pots the plants should receive copious supplies of water at the roots during their season of active growth.

PLANTS UNDER GLASS.

By Thomas Stevenson, Gardener to E. Mocatta, Esq., Woburn Place, Addlestone, Surrey.

Trachelium cœruleum.—This cool-greenhouse plant is very useful during the summer months for various forms of decoration, the light panicles of blue flowers being very easy of manipulation in groups and vases. A stock may be raised easily from seed sown either in the spring or autumn, those raised at the latter season giving the best results. Young plants should be in a suitable condition for transferring to 4½-inch pots, which is the most convenient size to use for decorative purposes, the receptacles being sufficient for the plants' requirements. If the plants are kept growing actively in a moist house, specimens may be had up to 4 feet in height, but in a cooler structure they grow dwarfer, whilst the inflorescence is much more branched. If large specimens are required, from five to seven plants growing in 60's may be placed in a 9-inch or 12-inch pot.

Richardia africana.—Arum Lilies may be removed from the houses to a sheltered position out-of-doors, where they should, for some little time to come, receive a fair amount of water, decreasing the supply as the foliage shows signs of decaying. It is the practice with some growers to plant these in the ground during the summer months, and, where large plants are required, this may be the best method, but for growing in 6-inch or 8½-inch pots I prefer to keep them in pots all the year round. They may be rested for a time after the foliage has died down, and be potted up again just as fresh roots are forming during August or early in September. The yellow-flowered Callas are growing freely, and should be assisted by liberally watering and feeding.

Stove and Greenhouse Climbers.—The training and tying of climbers in plant-houses should be done regularly, as they grow quickly, and the shoots soon become a tangled mass, causing much trouble to place them where they are required. Allamandas, Stephanotis, and other plants on the point of blooming must be regularly fed with artificial manure; Clay's fertiliser may be recommended for the purpose, as it strengthens the flowers and causes the foliage to grow strong and develop a good colour. Cleanliness in climbers is a point that must be rigidly observed; they are usually trained over other plants, and once the climbers become infested with insect pests the latter will soon spread to the other plants. Mealy bug, thrip, red spider, and aphis must be eradicated as quickly as possible. Fumigations will quickly destroy thrip, red spider, and aphis, but mealy bug is more troublesome to destroy. A slight infestation of mealy bug may be combated without much trouble, but where the pest is very numerous thorough spraying or syringing with a strong insecticide must be resorted to. There is no better specific for mealy bug than paraffin emulsion, and this should be employed in all cases where the plants will not be harmed by it. Greenhouse climbers such as Heliotrope, Streptosolen, Fuchsia, and Swainsonia, are growing freely, and, as in the case of stove climbers, require plenty of water at the roots to ensure a long season of flowering.

Ventilation.—Though the sunshine has been helpful in forwarding the growth of many plants, the cold winds have necessitated very careful ventilation, and where this has been neglected red spider and aphides may give trouble. In many of the cool-houses fire heat may now be dispensed with, closing the houses before all the sun's heat has departed where it is necessary to maintain a moderately-warm temperature during the night. In the stove and intermediate houses the valves of the hot-water system may be turned off on all bright days, thus insuring the plants a greater immunity from insect pests. Where no valves are provided, the dampers regulating the fires should be almost closed and the fires banked down early in the morning, so that the pipes may be as cool as possible by the time the sun attains sufficient power to maintain the houses at or about the desired temperatures.

THE FLOWER GARDEN.

By J. G. Weston, Gardener to Lady Northcote, Eastwell Park, Kent.

The Bamboo Garden.—Though it is possible to plant Bamboos at almost any time of the year, the present month is especially suitable, as the plants are active, and the roots should soon become re-established. Care must be taken to damp the plants overhead regularly, and the roots must be afforded water during periods when drying winds prevail. The nature of the soil presents very little difficulty; if the ground is not suitable, holes 5 feet or 6 feet across and 2 feet deep should be prepared, and afterwards filled with a specially prepared compost, in which the plants will thrive for years, with little attention beyond an annual top-dressing of leaf-mould and manure to keep the roots covered. Bamboos delight in a light, rich loam, and, when the stations are prepared for them, rotted dung and leaf-soil should be added in equal proportions to the loam. When planting, do not ram the soil so tightly as is done in the case of shrubs; merely press it well together. Water the roots well and apply a mulch of light material to conserve the moisture about the roots. Although Bamboos luxuriate in moist conditions, they should not be planted in cold or badly-drained soils, or the roots will probably die during the winter. Shelter from north and east winds is of the utmost importance; Bamboos should never be planted in exposed positions, or failure is sure to result. In these gardens we grow between 20 and 30 varieties of Bamboos, including species of Phyllostachys, Arundinaria and Bambusa, and, with a few exceptions, they are perfectly hardy. Those named below have been planted here at intervals within the past seven years, and in most cases have formed well-established clumps. Phyllostachys viridi-glaucescens is one of the very best garden plants of this fascinating family. The plant makes a grand specimen, and is not so untidy in appearance in the winter as some other kinds. The handsome foliage is very persistent. P. aurea is a strong grower, compact in habit, and very hardy, P. Castillonis is a very distinct Bamboo with golden stripes running down the canes, and P. nigra may be recognised easily by the pronounced colour of its canes. The plant takes rather longer to become established than most kinds. P. violascens and P. Henonis are both highly decorative subjects. Our plant of P. Henonis flowered during 1910, but seedlings will probably now be available. P. mitis and P. Quilioi are two fine species, the latter being especially good. Of Arundinarias, A. japonica, though common in gardens, is one of the best Bamboos when grown as a specimen plant. A. anceps is a fine plant, which quickly spreads and forms an imposing clump. A nitida has finer leaves than the preceding: it is a grand subject for planting in the rock-garden. A. spathiflora resembles A. nitida, but has pinky-coloured stems and a more drooping habit. Other hardy Arundinarias are A. Fortunei, A. Hindsii, A. H. graminea, A. Simoni, and A. aristata, which is like a small form of A. anceps. A. Falconeri, A. insignis, A. falcata, and A. nobilis are all choice species, but are not suitable for planting out-of-doors except in the most favoured districts. They provide splendid subjects for planting in winter gardens. Bambusa fastuosa is the best of its section. The plant is of rapid growth, very hardy and distinct in appearance. B. palmata has the largest foliage of any Bamboo; this plant does not usually grow very tall, but it spreads rapidly, and should be planted in the wild garden or woodland, where there is ample room for its extension. If grown in a soft, rich soil, it will soon cover a large area.

Weed Destroyers.—The majority of weed destroyers are recommended to be used when the paths are moist after rain, but when fine weather may be expected afterwards I favour an application early in the spring. Where new gravel has been put down recently, and is not yet settled, the application of weed killer should be delayed till sufficient rain has fallen to allow of the walks to be well rolled first. Weed-killer prevents the germination of weed-seeds, and destroys moss in damp places or under trees. All utensils used for poisonous preparations should be kept specially for the purpose or scalded out with boiling water, to which has been added a quantity of common soda.

THE HARDY FRUIT GARDEN.

By F. JORDAN, Gardener to Lady NUNBURNHOLME, Warter Priory, Yorkshire.

STRAWBERRIES. — Owing to the exceptional weather, the plants will soon be showing their flower trusses, therefore no time should be lost in placing straw or other litter along the rows. If stable litter is used, the straw will be washed almost clean by rains, but in any case fresh straw must be placed beneath the trusses of fruit. Stir the soil of the beds when it is dry, and apply a dressing of soot, which will not only assist the plants but act as a deterrent to slugs, red spider and other pests. Thoroughly cover the ground between the rows with the litter and allow some of the longest straw to lie loosely around the plants, as this will afford protection to the blossoms from frosts, and do no harm otherwise. It is a great advantage to litter Strawberries early in the season, as it prevents evaporation of moisture from the soil, a necessary precaution during periods of dry weather. Extra fine fruits may be obtained from young Strawberries planted out last August if the weakest flower trusses are removed before the blossoms open, and the fruits thinned after they are set. It will be necessary to afford the plants stimulants when they are swelling their fruits.

APPLES.—The cold nights of April with north-east winds, have been unfavourable to the growth of the trees, but insect pests and diseases have found the conditions suitable. The Apple sucker, the Apple blossom weevil and the brown rot disease must be especially guarded against at this season. Winter spraying is the most effective remedy, and should be resorted to whenever the pests are in evidence, but winter washings must be supplemented by summer sprayings. Caterpillars may be exterminated on small trees by hand picking, but this is not practicable with large trees. There are several excellent washes on the market for use at this season, but whichever one is used the spraying needs to be done thoroughly.

DISBUDDING. – Continue to disbud and thin out superfluous shoots and fruits as recommended in a previous calendar, but avoid thinning the fruits too severely. It is an easy matter to determine which shoots to remove at the first thinning, but knowing the exact number to retain requires considerable experience. As a rule too many shoots are left; they should not be closer than 5 inches apart, allowing room for the proper extension without crossing or shading each other. Pinch or remove entirely any gross-growing shoots, but do not stop any of the leading branches unless they are excessively strong, in which case their points should be pinched out. Remove any curled or blistered leaves as soon as they are detected, for this complaint spreads quickly during cold, windy weather. Examine the trees frequently and syringe them with Quassia extract, or dust the infested parts with tobacco powder if aphides are present; the powder may easily be washed off the trees and fruits later by water applied by the spraying engine.

FRUITS UNDER GLASS.

By E. HARRISS, Fruit Foreman, The Royal Gardens, Windsor.

EARLY PERMANENT VINES.—Owing to the unusually fine weather of April early Grapes have ripened sooner than usual. Although bunches of Black Hamburgh will not remain long in the best condition after they are ripe, their season may be prolonged if the glass is covered with a light shading. Two or three thicknesses of fish-netting or weak lime wash syringed over the glass will break the rays of the sun sufficiently. Endeavour to keep the atmosphere of the vinery as cool and dry as possible. Should the roots of the vines require moisture afford them a moderate supply of clear, tepid water. Fire heat should be dispensed with as much as possible, but artificial warmth must be provided during cold or wet weather to dispel moisture.

MID-SEASON VINES.—The final thinning of the bunches of mid-season vines should be done before the berries become too crowded, or the Grapes may become disfigured through rubbing. When the trellis is furnished with growth all subsequent laterals should be removed regularly. Guard against red spider, which may be destroyed easily if the leaves are sponged early with a weak mixture of soft-soap and sulphur. After the berries have been thinned finally the border should receive a good dressing of rich farm-yard manure, and the manurial properties washed thoroughly into the border with tepid water.

MADRESFIELD COURT.—This fine Grape is generally regarded as a mid-season variety, but, as it is an excellent sort for early forcing, a few vines may be included in the earliest vinery. The bunches require to be thinned very carefully, and generally more freely than for most varieties. The berries often crack, but this is usually the result of cultural errors. One of the chief essentials to success is a well-made border, with the soil rammed hard. The border should contain plenty of suitable ingredients to ensure porosity, and the drainage must be efficient as the vines require plenty of moisture at the roots. The lateral growths should be removed constantly till the berries commence to colour; after that stage it will be an advantage to allow the laterals a little more freedom of growth. If the weather is fine and warm when the berries are ripening an abundance of air should be admitted through both the top and bottom ventilators: a little fresh air should also be admitted during the night. Keep the atmosphere dry, and, when applying water to the roots, choose a warm morning, when the ventilators may be opened wide. It is a good plan to place a covering of clean straw over the surface of the border after watering to prevent moisture from rising and settling on the berries.

INARCHING VINES.—Many inferior varieties of Grapes may be found in cultivation, and, where such exist, they should be replaced by better sorts. There is no easier method of doing this than by inarching, and the present is a suitable time to undertake the work. A convenient shoot, situated as near to the base of the vine as possible, should be selected on which to inarch the scion. Young vines struck from eyes or cuttings last year and cut back in the winter make the most suitable scions; such vines are now making strong growth. To perform the operation of inarching, place the young vine which is to form the scion quite near to the shoot on which it is to be inarched. Make cuts about 2 inches long and $\frac{1}{8}$ inch deep on each shoot, passing through a joint. Bind the shoots tightly together with raffia and cover the unions with moss, which must be kept damp. The vine forming the scion should be kept well supplied with moisture at the roots.

THE KITCHEN GARDEN.

By EDWIN BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

DANDELION.—Where a supply of salads is required in winter, Dandelion leaves, blanched, are of great value. Seed of the Improved Broad-leaved variety may be sown now in shallow drills in ground that has been deeply dug, but not manured recently. A stony, well-drained, garden soil is suitable. When large enough, the seedlings will need thinning to 1 foot apart, and, beyond keeping the crop free from weeds, little other attention will be needed.

THINNING SEEDLINGS.—This work requires to be commenced as soon as the plants attain sufficient size to admit of a partial thinning. Carrots and Parsnips in rows, for instance, should, when large enough to admit of the operation, be partially thinned, and the soil stirred afterwards with the Dutch hoe. I do not advise a rigorous thinning of main-crop varieties of Onions grown in the open: a good crop of medium-sized, well-ripened bulbs is the most profitable. Those sown where holes were specially prepared and filled with good soil, should be thinned, leaving only the strongest plant, situated as near to the centre of the station as possible.

BRUSSELS SPROUTS.—Some time during the present month the plants from the sowing made in March should be planted out in their permanent quarters for furnishing an early supply of sprouts. The ground should first be made firm and level, and afterwards marked out in rows at 3 feet apart. Lift the plants with a good ball of soil attached to the roots, and plant carefully with a garden trowel, making the soil firm. Allow a distance of 2 feet 6 inches between each plant, and plant alternately in succeeding rows in order that each plant may have the maximum amount of space. After the planting, afford the roots a thorough watering.

VEGETABLE MARROW.—Early Marrows grown in pots and trained to vacant trellis space in houses are fruiting freely. Continue to pollinate the flowers as necessary, and keep the plants growing freely by supplying copious waterings when necessary, and syringing the foliage twice daily. Early plants that were raised from seed sown in March are growing freely in the frames, and will need attention. The growths should be pegged down as required. Afford ventilation with caution, and syringe the plants early in the afternoons, closing the ventilators when the house is warm with sun heat. Place some protection over the glass in the event of late frosts, and, if necessary, add more fermenting materials to the sides of the frame. As the weather becomes warmer, increase the amount of air until finally the lights and frames are removed entirely, when the plants will grow and fruit abundantly until autumn frosts occur. Marrows intended for planting in the open on heaps of manure, leaves, or refuse should be hardened thoroughly before they are planted out at the end of the present month.

RADISHES.—To obtain supplies of tender Radishes, make small sowings frequently in a shaded border, sowing the seeds broadcast. In dry weather the seed-bed should be damped over once daily to encourage a quick germination and growth. Protect the seeds from birds, removing the nets as soon as growth appears.

MUSTARD AND CRESS.—To maintain a constant supply of this salad during the summer months, select the shadiest portion of the garden, such as under fruit trees, and sow in ground made as fine and level as possible. Make a fresh sowing every 10 days, pressing the seeds in the soil with a flat board, and sow thickly. Cover the soil with a mat, removing it as soon as the seeds have germinated satisfactorily. Afford water in dry weather. Mustard germinates quicker than Cress, therefore, to maintain a regular supply of each plant, sow Mustard the more frequently. If required for exhibition, the seeds may be sown in small punnets filled with fine soil.

THE APIARY.

By CHLORIS.

DYSENTERY.—At this season of the year this disease is very common, especially when bees have been confined to their hives by stormy or cold weather for a prolonged period, or where they were sent into winter quarters in ill-ventilated and damp hives. Beet or impure sugar, moist sugar, or molasses, instead of sealed honey or good syrup made from white cane sugar, also favours the disease. The reason is that the former produce such a quantity of waste matter, the intestines become overloaded with the products of digestion, which, under ordinary circumstances, would be frequently voided on the wing, so under abnormal conditions the bees are forced to void the excrement in the hives and on combs. Where dysentery is present in a colony, the alighting boards and hives are soiled on fine days with faeces of a dark brown and muddy appearance. On opening the hive and raising the quilt there is a very offensive smell, whilst the bees move slowly and have a weak appearance. If the bees are not attended to at once when these conditions are discovered, the colony will soon die. If the weather be too wet and stormy for outside manipulation, then the hive should be removed indoors or into a shed. Give the bees a well-ventilated, clean hive and floor board and, if possible, some good sealed honey, crowding the bees on as few combs as possible to afford greater warmth, shutting off the remainder of the hive with the division board. Where no sealed honey can be given, then supply some thick, warm syrup for present consumption and a cake of soft candy, after providing drawn-out comb or frames fitted with full sheets of wired foundation. The bees must not be fed after this date with syrup, as this is stimulating to the queen and will cause an excessive amount of brood to be raised at this season of the year. All these troubles could be avoided if bee-keepers would refrain from using the foods named, and feed the colonies on less watery food early in autumn, because when honey or watery food is unsealed it ferments during the winter, and this is one of the most fruitful causes of dysentery.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, *as well as specimens of plants for naming, should be addressed to the* **EDITORS, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Special Notice to Correspondents.—*The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.*

Local News.—*Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Illustrations.—*The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c., but they cannot be responsible for loss or injury.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.*

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, MAY 13—
United Hort. Benefit and Prov. Com. meet.

TUESDAY, MAY 14—
Royal Hort. Soc. Coms. meet and Tulip Sh. (Masters' Memorial Lecture by Prof. I. Bayley Balfour on "Gardening and Drought.") Devon County Sh. at Plymouth (3 days). Horticultural Club meet.

WEDNESDAY, MAY 15—
Royal Meteorological Soc. meet. North of England Hort. Soc. meet at Leeds. (Lecture by Mr. J. H. Priestley on "Electricity in Relation to Horticulture.") Paris Spring Sh. 15–22.

THURSDAY, MAY 16—
Manchester and North of England Orchid Soc. meet.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—52·2°.

ACTUAL TEMPERATURES:—
LONDON.—*Wednesday, May 8* (6 P.M.): Max. 71°; Min. 58°.
Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—*Thursday, May 9* (10 A.M.): Bar. 30·1°; Temp. 67°; *Weather*—Sunshine.
PROVINCES.—*Wednesday, May 8:* Max. 56° Yarmouth; Min. 52° Preston.

SALES FOR THE ENSUING WEEK.

WEDNESDAY—
Herbaceous Plants, Lilies and Hardy Bulbs, at 12; Trade Sale of Miscellaneous Bulbs, at 3.30; Palms and Plants, at 5; at 67 & 68, Cheapside, E.C., by Protheroe and Morris.
Clearance Sale of 60,000 Bedding Plants, at 158, Ravenscroft Road, Beckenham, Kent; by Protheroe & Morris at 1.

Town Gardening. It is pleasant to reflect upon the popularity of open spaces, decorated squares, and gardens in our provincial towns; and particularly so, when we compare present activity with the lethargy of the past. A quarter of a century ago but few of the larger centres paid attention to the beautifying of their open spaces with flowers, trees, or shrubs, and the smaller towns were too much engrossed in the question of low rates to give even a passing thought to what was regarded as sheer extravagance. Happily, public opinion is now all in favour of making towns and cities, and even villages, bright at the public expense. Beside the Metropolis, where the various public bodies are keenly alive to the importance of gardening (though the value of the gardener himself is not always recognised so signally), we cannot but feel gratified to find seaside and inland towns all over Great Britain awakened or awakening to the desirability for, not only open spaces and playing fields, but for artistic displays of summer bedding subjects, herbaceous borders, flowering shrubs, and the fullest equipment of ornamental gardens. Readers will readily call to mind many remote seaside resorts, country towns, and manufacturing centres where the gardening spirit is in evidence. More, however, remains to be done, and in many cases where good work has been carried out, expert advice would yet secure better results. The gardener can hardly be said to have come into his own in connection with town gardening. The amateur enthusiast on the Council is apt to lead his committee, and, with the best intentions possible, he determines a policy, and commands its execution, with an assurance that is seldom affected by those who have made it their business to study the principles of ornamental gardening. It is of the utmost importance, where public authorities decide upon gardening developments, that they secure the services of a well-qualified and adequately-remunerated professional gardener who has acquired, as the result of experience, the skill and judgment essential to success in garden planning. The vicarious inspiration of the amateur is a dangerous alternative to professional skill, no less in gardening than in other walks of life. The choice of areas, the positions for special features, the selection of plants suitable for the particular locality, and kindred considerations demand the knowledge of the expert; and perhaps in no other calling or profession would an amateur who rides a hobby be prepared to perform the functions of one who has devoted all his time and energies to acquire the experience necessary to fit him for his work. We advise gardeners to qualify themselves by every means in their power for the increasingly important duties connected with town gardening.

The Garden City movement has had a stimulating effect, and will excite urban districts to further gardening efforts. There are some towns of considerable importance where very little attempt has yet been made to acquire or develop land for pleasure grounds and recreation, and such towns will inevitably lose what importance and prestige they may enjoy, unless in this particular they amend their ways. The authorities of a fashionable coast town in Wales are to-day lamenting their failure to act on the advice given them 25 years ago to plant the mountain background to their pretty town. Twenty-five years' growth of Pinewood would have been an asset to-day that the town badly needs. Fortunately, both in this case and many others, the public will not tolerate a like procrastination in the future.

Coloured Supplementary Illustrations.—Starting from the present month, we propose to publish at regular intervals coloured plates of subjects of permanent horticultural value. Not a few illustrations are—in spite of recent developments in colour-process work—more faithfully rendered in black and white. Such subjects we shall continue to reproduce by these means. But in all cases where colour is calculated to lend an additional value to the illustration we propose to use that means of adding to the usefulness and attractiveness of our Supplementary Illustrations.

Our Exhibition Supplements.—All horticulturists—both those whose good fortune it will be to attend the International Exhibition and those who may be unable to do so—will wish to have a permanent record of that great event. Moreover, the duty of placing on record a full and impartial report of the exhibition is one which is owing not only to contemporary horticulturists, but also to their successors. We shall therefore issue a full and illustrated report in the form of a supplement to the *Gardeners' Chronicle*. The supplement, which will be presented to all our subscribers, will consist of three parts. The first part will be combined in our issue of May 25, and will be devoted to a general report of the exhibition and of the Awards. The second part will appear in the issue of the following week (June 1), and will contain a further instalment of the general report, together with an account of the congresses and social functions held in connection with the exhibition. The third and concluding part of the Exhibition Supplement, which will be published on June 8, will deal with the "Sundries," which have become such an important and striking feature of recent horticultural exhibitions.

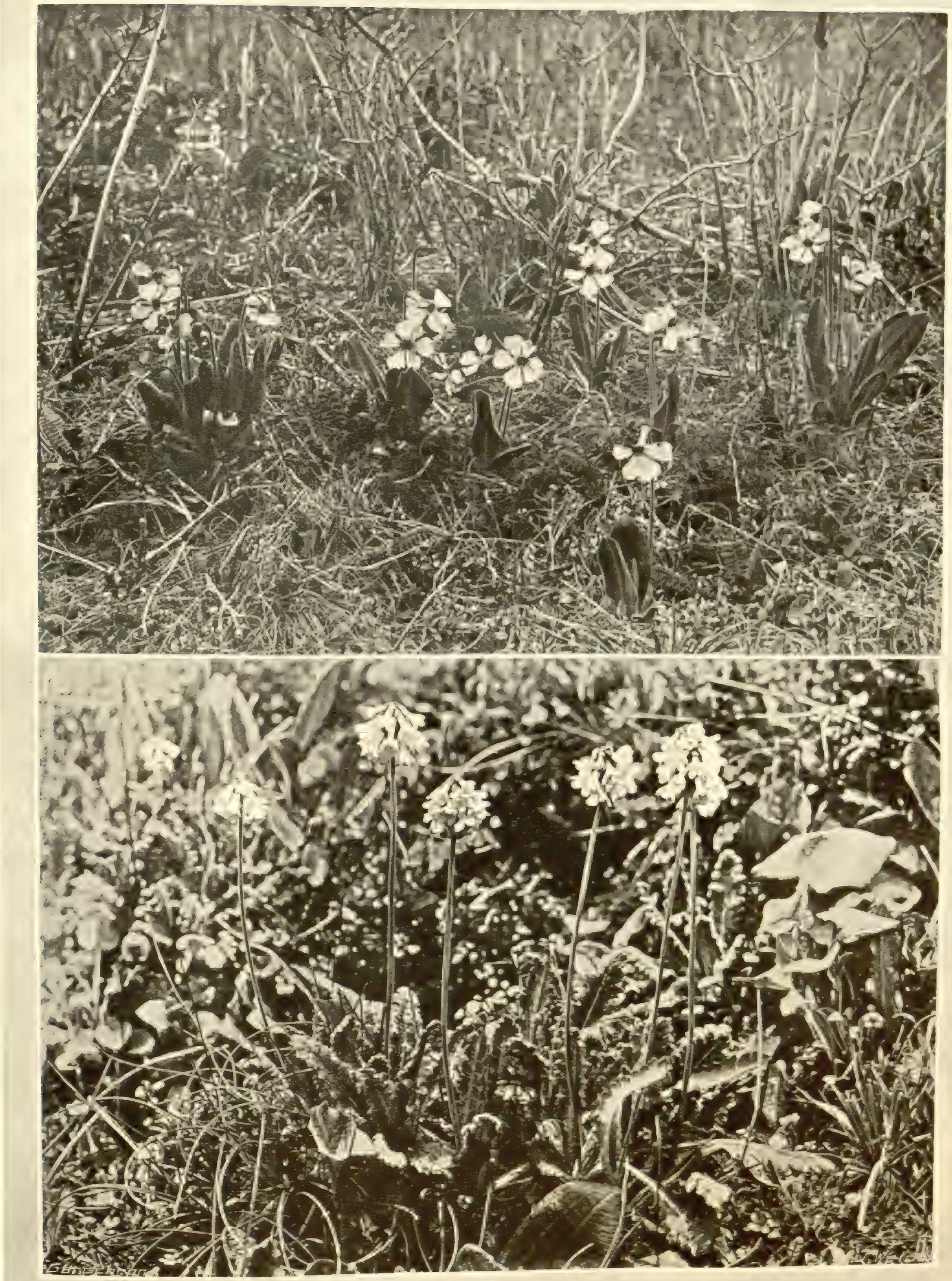
CERTIFICATES AT THE INTERNATIONAL SHOW—IMPORTANT NOTICE.—Certificates and Awards of Merit will be awarded at the Royal International Horticultural Exhibition just as is usual at the shows of the Royal Horticultural Society. By an arrangement the Directors have made with the Council of the Royal Horticultural Society, this Society has agreed to regard the Certificates and Awards given at the International Show as R.H.S. Awards. All entries of plants, flowers, fruits or vegetables for certificates must be sent to Mr. A. J. GASKELL, R.H.S. Hall, Vincent Square, Westminster, not later than May 18.

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the Royal Horticultural Society will be held in the Society's Hall, Vincent Square, Westminster, on the 14th inst. At the three o'clock meeting in the lecture room the "7th Masters Memorial Lecture" will be delivered by Prof. J. B. BALFOUR, the subject being "Gardening and Drought."

THE "FARRER" CUP.—Mr. FARRER writes to remind us that the Royal Horticultural Society reserves its right to give medals or other awards to the next best exhibits in the competition for this cup, or to withhold the cup altogether if no exhibit is held by the judges, whose discretion is absolute, to attain the required standard. The plants shown must not exceed 9 inches in height.

HORTICULTURAL CLUB.—A special house dinner of the club will be held on Tuesday next, the 14th inst., at the Hotel Windsor. After the dinner a lecture and exhibition will be given by Mrs. HENSHAW (of Vancouver, B.C.), hon. secretary of the Alpine Club of Canada, on "Trails in the Canadian Rockies." Coloured lantern slides will be shown, representing some of the more interesting features of the Canadian Alpine flora. The chair will be occupied by the President, Sir FRANK CRISP. Ladies are especially invited on this occasion.

MR. WILLIAM HALES, A.L.S.—At a recent meeting of the Linnean Society, Mr. WILLIAM HALES, Curator of the Physic Garden, Chelsea, was elected an Associate of that Society. Mr. HALES is a graduate of the Botanical Gardens, Birmingham, and the Royal Gardens, Kew. He has entirely remodelled the Physic Garden, and revived all the interest that formerly belonged to it. We congratulate Mr. HALES on his well-deserved honour.



Photographs by George Forrest.

CHINESE PRIMULAS.

ABOVE: P. VINCÆFLORA. BELOW: P. PINNATIFIDA.

Printed by Temple Press Ltd., London, E.C.

ROYAL GARDENERS' ORPHAN FUND.—The 24th annual Festival dinner of the Royal Gardeners' Orphan Fund took place on Wednesday last at the Hotel Cecil. Sir EDWIN DURNING-LAWRENCE, Bart., presided, and the company numbered 124. During the proceedings, the Secretary, Mr. BRIAN WYNNE, announced that the total amount of the donations was £1,056, including 100 guineas contributed by the chairman. We shall publish further details in our next issue.

SURVEYORS' INSTITUTION.—The next ordinary general meeting of this society will be held at the Institution on Monday, the 13th inst., when the adjourned discussion on Mr. G. TAYLOR LOBAN's paper on "Some Principles in the Valuation of Land and Buildings" will be continued.

MADRESFIELD COURT AND THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—For many years the Earl of BEAUCHAMP has permitted his gardens and pleasure grounds to be annually thrown open to the public. On account of the forthcoming Royal International Horticultural Exhibition, in connection with which Mr. CRUMP, the gardener at Madresfield, is hon. secretary for the county of Worcester, this year the grounds were on view at an earlier date than usual. Unfortunately, the morning was wet, but the weather cleared in time to permit a goodly number of persons to visit the domain, and the funds of the Gardeners' Royal Benevolent Institution will substantially benefit by the proceeds of the charge which is made for admission.

BIOCHEMICAL CLUB.—A meeting of the Biochemical Club was held at University College, Reading, on Saturday, May 4. Among the papers which were read was one by Dr. ARMSTRONG and Professor KEEBLE on the process of pigment-formation in the flowers of plants. The communication of the results of experiments made by the authors aroused considerable interest. They demonstrated that the formation of flower-pigment is due to the action of oxydase on a colourless substance (chromogen), and that in many flowers two oxydases are present—one in the epidermal cells and the other in the cells which run in relation with the vascular bundles. Another communication by Mr. GOLDING dealt with the cause of the yellow discoloration in Stilton cheese. This subject is of considerable economic importance, for cheeses discoloured in this way sell for a considerably lower sum than that obtained for non-discoloured Stiltons. The author brought forward evidence to show the nature of the discolourising process, and has thus made the first essential step toward the discovery of the means of preventing it.

THEFT FROM KEW GARDENS.—A visitor to the Royal Botanic Gardens, Kew, has been convicted and fined for stealing plants from the glasshouses. Circumstances proved that this was not a case of a person yielding to sudden temptation, for, on being searched, it was discovered that the man had fastened inside his waistcoat tins of water for the purpose of keeping the slips of plants fresh. A detective visited the man's home, and, it is said, found over 1,000 different kinds of plants packed in a greenhouse, many of them being of rare species, which were identified as having been taken from Kew.

SIR JOSEPH HOOKER'S LIBRARY.—The late Sir JOSEPH HOOKER's extensive botanical library, of science voyages and works on general science, will be sold by Messrs. SOTHEBY, WILKINSON & HODGE, at 13, Wellington Street, Strand, on the 17th inst. Several of the volumes are presentation copies, many having valuable and interesting manuscript notes by the late owner and others; in some instances autograph letters of the various authors are inserted, which will add considerably to their commercial value. It is essentially a working library, a collection of literary "tools." There are very few rarities in the sense of first editions. In only a few instances has Sir JOSEPH allowed himself to stray far from the paths of science, and it is very curious to notice here a few exceptions, such as a copy of the 1542 edition of the *Workes* of Chaucer in black-letter type, and still more so to come across a copy—wanting the title to the first volume—of JOHN FOXE's *Actes and Monuments of Matters*, 1853, better known as the *Book of Martyrs*. SAMUEL PURCHAC's *Pilgrimage*, 1613, is also a curious book to find in a purely scientific library. The books are for the most part English, but a good many valuable works of reference in German and French occur in the collection.

RETIREMENT OF MR. W. E. ARCHER.—Mr. WALTER E. ARCHER, C.B., who, as assistant secretary, has been in charge of the Fisheries Division of the Board of Agriculture and Fisheries since its establishment in October, 1903, has been compelled to retire from the public service owing to ill-health. His retirement took effect on the 1st inst.

GARDENER'S GOLDEN WEDDING.—Mr. and Mrs. THOS. HUGHES, of Llanforda Gardens, Shropshire, have just celebrated their golden wedding. Mr. HUGHES, who has been gardener at Llanforda for nearly 39 years, was previously engaged in gardens at Bournemouth, Cheshire, North Wales and Anglesey.

COLONIAL VINE CULTURE.—A paper on this subject was read before the Royal Society of Arts on May 7 last by Mr. ALAN H. BURGOYNE, M.P. After dealing at length with the antiquity of the Vine, and the traditional origin of wine-making, the lecturer remarked on the interesting fact that in Cyprus the process of wine-making is just the same as it was many centuries ago—the berries are still trodden out with the feet in any convenient spot, and the resultant "must" is fermented in porous earthenware jars which are coated inside and out with tar. The lecturer gave interesting particulars concerning the output of the various brands of wine from the Levant. From Cyprus the audience were taken to Canada, and high testimony was given to the fitness of certain districts for wine-growing, instancing the Niagara section of Ontario, and the peninsula between Lakes Erie and St. Clair, where the Vine flourishes amazingly. In 1896 it was estimated that there were 2,000,000 vines growing in the provinces of Ontario. Cape Colony was next dealt with; the success which attended the efforts of the Dutch settlers, who introduced the Vine in 1653, led to the further importation of fresh cuttings. For a time the Vine culture of South Africa was of a very elementary nature, but with the coming of the energetic Huguenots, in 1688, a sudden development upon practical lines was made, and many new varieties of Grape were brought from the South of France, including the small Muscat type of Frontignan. In 1880 there were 20,000 acres under Vines, which were planted closely together, usually between 2 and 3 feet apart. Owing to the exceptional climatic conditions the culture was, and still is, confined to the western provinces. The pest known as Phylloxera was discovered in Cape Colony in 1886, and much loss ensued, but replanting is now taking place with Vines grafted on American Phylloxera-resistant roots. So little care was formerly bestowed upon the Vine that in 1886 an experienced grower, advocating the use of scissors or a sharp knife for pruning Vines, wrote: "It is marvellous how Vines can at all sustain the rough treatment of a club-stick or a hatchet, with which the young branches are too frequently broken off!" It is interesting to learn that there are still growing near Cape Town Vines which were planted towards the end of the seventeenth century. The introduction of the Vine into Australia reads like a romance. In the years 1815-16, at the close of the Napoleonic campaign, a captain, JOHN MACARTHUR, with his two sons, journeyed on foot through those parts of Europe where Vine growing was a feature of the countryside. The result of this tramp was bundles of Vine cuttings representative of each district visited. These were jubilantly taken back to the Antipodes, where attempts were made to propagate them. To the dismay of the growers the varieties were found to be nearly all worthless. In 1825, however, a few Vines were imported from the R.H.S. Gardens at Chiswick, and six years later JAMES BUSBY brought the first Australian wine to England. This was submitted to London wine merchants as a new kind of Burgundy. The following year Mr. BUSBY imported at his own expense 570 varieties of the Vine from the collection formed at the instigation of NAPOLEON at the Luxembourg Gardens in Paris, and from Montpelier. This was before the days of the Suez Canal, and after many months on the sea no fewer than 362 varieties were successfully rooted; in fact, a few actually rooted *en voyage*, and were placed on deck in open boxes and duly watered. After various vicissitudes—in 1852 gold was discovered and labour was next to unobtainable—Vine culture extended; in 1872 there were nearly 16,000 acres devoted to Vine culture in the states of New South Wales, S. Australia, and Victoria, and the production of Australian Vines is now a staple industry.

"THE BOTANICAL MAGAZINE."—The issue for May contains illustrations and descriptions of the following plants:—

DAVIDIA INVOLUCRATA VAR. VILMORINIANA, tab. 8432.—This plant was illustrated in *Gardeners' Chronicle*, June 2, 1906, p. 346, fig. 138, from a photograph of Mr. VILMORIN's specimen at Les Barres. The plant was raised from seeds sent by PÈRE FARGES from China in 1897; subsequently Mr. WILSON sent seeds to Messrs. JAMES VEITCH & SONS, and an illustration of a flowering spray from a plant raised in the Coombe Wood Nurseries was published in *Gardeners' Chronicle*, May 27, 1911, p. 329, fig. 149.

IRIS CHRYSOGRAPHES, tab. 8433.—This species was described by Mr. DYKES in *Gardeners' Chronicle*, June 10, 1911, p. 362. The plant was discovered by Mr. WILSON in Kuan Hsien, China, at elevations of from 7,000 to 11,000 feet above sea-level. The flowers are an intense purple colour, sometimes marked with lines of yellow and bands of brown.

SAXIFRAGA LINGULATA, tab. 8434.—Saxifraga lingulata is a beautiful white-flowered species, a native of the Italian Maritime Alps. S. lantoscana and S. australis are included by Mr. SPRAGUE as varieties of S. lingulata, the one being found on the French side of the Alps and the other in Central and Southern Italy. Saxifraga lingulata is an old garden plant and forms a fine subject for planting in the rock garden. It produces its beautiful inflorescences in May.

HYPOCALYMMA ROBUSTUM, tab. 8435.—When New Holland plants were popular about half a century ago, Hypocalymma robustum was commonly grown in conservatories, but it has now almost dropped out of cultivation. The plant is half hardy and specimens have flowered in the open in the late Mr. GUMBLETON's garden at Queenstown, Ireland. The flowers are pink; they are produced in the axils of the narrow leaves. In West Australia the plant is known as the Swan River Peach Myrtle.

CALCEOLARIA FORGETII, tab. 8436.—This plant was first identified as Calceolaria virgata, and was illustrated under this name in *Gardeners' Chronicle*, January 27 last, p. 50, fig. 27, the accompanying description being by Mr. W. IRVING.

INTERNATIONAL HORTICULTURAL EXHIBITION.—The cup given by H.M. The KING (see fig. 157) will be awarded to the most meritorious exhibit in the show. Mr. W. DUNCAN TUCKER has presented the cup, illustrated in fig. 158, which will be awarded as the 2nd prize in the class for the best and most varied group of Orchids arranged in a space not exceeding 500 square feet. The cup shown in fig. 159, presented by Mrs. H. D. GREENE, has been selected as the 2nd prize in the class for a group of Alpines arranged in a space of 100 square feet. The cup presented by East Suffolk (see fig. 160) will, like all the "County" cups, be awarded at the discretion of the Council.

A NEW FLOWER POT.—Under the heading of "New Invention," on p. 265, we referred to a flower-pot in which the base of the pot was dome-shaped, and the lower half of the dome contained a number of holes for drainage. It appears that a similar pot has been manufactured by Messrs. RICHARD SANKEY & SON, LTD., Royal Potteries, Bulwell, Nottingham, for a great number of years. Therefore it may be assumed that the device has proved useful.

PUBLICATIONS RECEIVED.—***A Critical Revision of the Genus Eucalyptus,*** by J. H. Maiden. Vol. ii., Part 4. (Sydney: William A. Gullick.) Price 2s. 6d.

PRIMULA VINCÆFLORA AND P. PINNATIFIDA.

(See Supplementary Illustration.)

Of the many fine species of Primula claiming the Alps of N.-W. Yunnan as their home, Primula vincæflora possesses exceptional beauty and interest.

The flowers are solitary, of good size and substance, and are borne on long, stout scapes, 9 to 15 inches in height. P. vincæflora is by far the finest of the three species which, found in those regions, are included in the peculiar section Omphalogramma, the two others being Primula Delavayi and P. Franchetii. Some time in the early 'eighties P. vincæflora was discovered by Père Delavay, growing on the dividing range between the Langkong and Hoching Valleys, at an altitude of 9,000 to 10,000 feet, but is much more abundant on parts of the eastern flank of the Lichiang Range, and at much higher altitudes, where the photograph was secured. There it forms fair-sized colonies in sheltered, grassy openings in Pine forests, the favourite situations generally having a northern exposure. The plants are most often massed in clumps of 20 to 30 specimens, a feature which I have never noted in Primula Delavayi or P. Franchetii.

The flowers are a rich indigo-purple, the tube narrowly cylindrical and yellowish at the base. The corolla is normally six-lobed, and invariably the two, or, occasionally, the three upper segments are reflexed on the tube. This peculiarity is not mentioned by Franchet in his original description, and excusably so, as it is not so noticeable in dried specimens; nevertheless, it is constant. Few members of the genus surpass in beauty this magnificent species as seen in its favourite habitat, with a background of vivid green.

Towards the end of the season, the plants form extremely large, underground, resting buds, some which I measured being fully 1¼ inch in diameter. They are formed of thick, fleshy, scale-like leaves, of a light creamy-yellow colour, in substance and shape strongly resembling a small, loosely-formed Lilium bulb. There can be little doubt as to the hardiness of the species.

PRIMULA PINNATIFIDIA was also first discovered by Père Delavay, some time in the 'eighties, on the eastern flank of the Lichiang Range, at an altitude of 11,000 to 12,000 feet, just along the base of the great glacier. It appears to be quite local; for, though I found it on many parts of the range, I never saw it elsewhere. It is a charming, hardy little Alpine, appearing almost immediately on the melting of the snows, and, in conjunction with Primula secundiflora, and a beautiful dwarf form of P. sikkimensis,

FIG. 157.—ROYAL INTERNATIONAL HORTICULTURAL EXHIBITION.
(Cup presented by H.M. The King.)

carpeting large tracts of the Alpine meadows. The species has a much greater range of altitude than was at first supposed. On the lower slopes, at about 11,000 to 12,000 feet, where it first appears, the plants average 7 to 9 inches in height, with the flowers in large heads, and of a pale purplish-blue. As the season advances, a succession of specimens appear ranging up to 15,000 feet altitude. There the plants averaged

FIG. 158.—ROYAL INTERNATIONAL HORTICULTURAL EXHIBITION.
(Cup presented by Mr. W. Duncan Tucker.)

no more than 2 inches in height, with the foliage much dwarfed. The blooms, however, though fewer in number in the head, were individually much larger, and exceedingly rich in colour, of a deep Tyrian purple, and exceptionally fragrant. At that altitude, one of its early companions (Primula sikkimensis) had been outstripped, the other, P. secundiflora, almost so; but, in place of those, it had two others, namely, P. dryadifolia Fr., and the dwarf but exquisite little Alpine, P. bella Fr., all three growing on strong, peaty pasture, and on huge limestone screes almost at the limit of vegetation.

Like most of the Alpine Primulas from the same region, P. pinnatifida should prove a free grower in this country, once it becomes properly acclimatised; but it must always be borne in mind that there is one of the annual conditions of those plants we cannot supply—the long resting period, from October to May, when, in their natural habitats, they are buried under many feet of protecting snow. *G. Forrest, Rangoon, Burma, India.*

DAMAGE BY FROST IN SOUTH DEVON AND CORNWALL.

THE frost in the early days of February was the most severe ever experienced in the south-west within the memory of man. Here, at Kingswear, at the mouth of the River Dart, 12° was registered, the greatest amount I have known for 30 years. Probably what did most harm was the fact that the day after this hard frost was very sunny, the sun shone uninterruptedly from its rising until its setting. The frozen foliage was thus exposed to the sun's rays with disastrous results. I have lost a large number of tender plants, hardly any of which were protected. A fine bush of the South African Diosma ericoides, 2 feet high and over 3 feet through, was killed, as was the Australian Candollea tetrandra, a pretty little bush with yellow flowers. A shrub of the South African Euryops virgineus, 6 feet in height, was killed, as was Hermannia candicans, which was bearing its yellow blossom until October. Grevillea alpina was also destroyed, and is evidently far more tender than G. sulphurea, which, though growing hard by, was not injured. They doubtless inhabit different districts and sites in Australia, but the horticultural dictionaries give no information as to their habitat. Tacsonia quitensis, which had made enormous growth, flowered profusely all last summer and well into the late autumn, and bore numbers of fruits, was also slain, and shows no sign of breaking from the base. Psoralea pinnata, a very tender plant from the Cape, was killed, although protected, and will evidently not stand any more than a very few degrees of frost. The Australian Chorizema flava was destroyed, although it was planted against a wall and a light placed above it.

Brachysema acuminata, also a native of Australia, was killed, as was the South African Leonotis Leonurus, popularly known as the Lion's Ear, this being a fine specimen 7 feet in height and 8 feet across, which was a glorious sight last September, when crowded with countless great orange-scarlet whorls of flowers. Years ago it was grown as a bush in the open and during one severe season was nearly killed. For the last two years it has been grown against a wall. The beautiful Solanum aviculare is much more tender than most New Zealand plants. It was grown in a corner between two walls, lights were placed around it, and it was covered by an Archangel mat, but in spite of this it seems to be dead. Mutisia Clematis, from New Granada is dead, but M. decurrens, though not looking strong, is yet alive. Eriostemon buxifolius was killed. It appears far more tender than E. myoporoides, which was unharmed in some Cornish gardens, though quite unprotected. Clethra arborea was very badly damaged, but still has a few leaves left, and is giving signs of breaking along the branches, so that it may eventually recover. The rare Philadelphus mexicanus was badly served and lost every leaf,

though covered by a mat, but it has broken well all along the shoots, and is evidently not permanently harmed. Hardenbergia monophylla alba was very badly cut and lost almost all its leaves, but is now giving signs of breaking again along the lower branches, though all the small wood is dead.

It is curious how differently plants that are natives of the same country behave. As has been mentioned, the New Zealand Solanum aviculare, though well protected, was killed. Edwardsia (Sophora) Macnabiana, of which there is a fine specimen 7 feet in height, is also a native of New Zealand, but, though unprotected, it was unharmed by the frost, not a leaf being injured. It is a bush growing in the open, and in March it bore a profusion of its bright yellow flowers. Another New Zealand tree, Plagianthus Lyallii, 12 feet high, is uninjured and gives promise of bearing a plentiful crop of flowers. Olcaria insignis, also a native of New Zealand, is unharmed, and is bearing seven flower-buds. The rare New Zealand climber, Convolvulus tuguriorum, which suffered severely in the drought last summer, is doing marvellously well, and has completely covered the wall to a height of 10 feet, and a greater breadth with its pretty, small, heart-shaped foliage. This shows that while some New Zealand plants are practically hardy, there are others that are very tender, and will hardly bear any frost. The rare South African shrub Bowkeria Gerardiana, of which there is a specimen about 8 feet in height and as much through is quite unhurt. Acacia armata and A. cordifolia were badly cut, but were not quite killed.

Early in April I spent a short time in southern Cornwall, and visited several gardens, all of which had serious losses to deplore. At Mr. Howard Fox's garden, Rosehill, Falmouth, 10½° were registered, and among the losses were Acacia verticillata, A. lophantha, Solanum aviculare, the Cape Silver Tree (Leucadendron argenteum), Sparmannia africana, Melaleuca hypericifolia, Agapetes buxifolia, Calceolaria Burbidgei, Grevillea robusta, Cantua buxifolia and Eriocephalus africanus. The great plants of Datura sanguinea and D. flava, which were in flower at Christmas, were cut to the ground, but are breaking again from the base. Brachyglottis repanda was badly cut and lost every leaf, but is now breaking strongly again on almost every branch. Tacsonia quitensis, which covered the house, was cut to the ground, but upon examination a tiny shoot was found starting from the base. At Trebah, where 12° were registered, almost all of the large and valuable collection of Acacias were lost, the only ones saved being A. dealbata, A. Baileyana and A. Riceana. A great tree of A. longifolia, over 40 feet in height, which had been growing about 40 years, was killed, this showing that such a frost has not been experienced for a very long time. All the Echiums, of which there were a quantity, were killed except one, which was protected. Brachyglottis repanda was killed, as was Psoralea pinnata. A fine specimen of the Silver Tree was also destroyed and Bougainvillea glabra that had lived foryears against a wall perished. All the rare climbers on the house walls were cut to the ground. The splendid specimen of Acacia dealbata 50 feet in height, which was the finest in Cornwall, was blown down in a gale during the winter. At Tregothnan, where 14° of frost were registered, two small plants of Olearia insignis growing in the open border were killed, and a fine plant of Bowkeria Gerardiana, 10 feet high, a present from my garden, was cut to the base and is apparently dead. Acacia diffusa, A. pycnantha and several other rare species were destroyed, as were Melanoxylon, Banksia and Casuarina. At Enys there were 16° of frost, and a very fine specimen of Alectryon excelsum, 14 feet in height, which was said to be the largest example in the south-west, was killed, and among other plants that succumbed were Brachyglottis repanda, Acacia armata, Olearia ramulosa, O. argophylla, and Grevillea alpina. Some of the more tender Rhododendrons were also badly injured. At Cann House, near Plymouth, a fine plant of Lagunaria Patersonii, about 7 feet high, growing against a

FIG. 159.—ROYAL INTERNATIONAL HORTICULTURAL EXHIBITION.
(Cup presented by Mrs. H. D. Greene.)

wall, was killed, as was Lonicera Hildebrantiana. Here there were 22° of frost. At Elfordleigh, about two miles from Plympton and at the fringe of the moor, 27° were registered. Two great plants of Clethra arborea, growing in the corners of the house wall, and covered by Archangel mats, were practically killed, as was Clianthus

FIG. 160.—ROYAL INTERNATIONAL HORTICULTURAL EXHIBITION.
(Cup presented by East Suffolk.)

puniceus. Several shrubby Veronicas were destroyed, and both Solanum crispum, generally considered fairly hardy, and S. aviculare perished. Calceolaria violaceæ was killed to the ground, Arbutus canariensis died, and many Helianthemums perished, as did Goodia lotifolia. The frost was so severe that many plants even in frames, which were covered with straw mats and tarpaulins, were destroyed. One plant of Olearia insignis was killed, and among other losses were Polygonum capitatum, Gilia coronopifolia, Schizanthus, Cinerarias and Sobralia macrantha. A curious thing was that, in spite of the severity of the frost, Calceolaria integrifolia, which is stated by some writers to be too tender for open-air culture, remained alive. Every leaf was blackened, but all the plants are now bursting strongly all along their shoots. Tree Ferns were very badly injured everywhere, every frond being absolutely killed and brown, but they are now throwing up fresh fronds from amid the withered ones; but in the majority of cases these are fewer in number than the old ones. Even at Elfordleigh, with 27° of frost, the Tree Ferns are alive. At the Rev. A. T. Boscawen's garden, at Ludgvan Rectory, 18° of frost were registered, and his wonderful collection of rare and tender plants, an article on which has appeared in these columns, suffered serious losses. At Trewidden, Mr. T. B. Bolitho's garden, to the west of Penzance, 18° was also recorded. As a rule, the further west one goes the less severe is the frost, but in this instance this has been reversed, and the hardest frosts have occurred in the westernmost districts. At Trewidden splendid specimens of Clethra arborea were killed, among which was one magnificent example over 20 feet in height, which was growing beneath a tall Fir, which might have been expected to save it. Great hedges of Chorizema were killed, as was Lasiandra macrantha and Lonicera Hildebrantiana, and on a wall numbers of tender plants were ruined. At Carclew, Clianthus puniceus was killed, but a fine bush of Tricuspidaria dependens, about 17 feet in height, was absolutely unharmed. I omitted to state that in my garden Witsenia corymbosa was killed and Cantua buxifolia, growing against a wall with a glass light over it, lost every leaf, but is breaking strongly again all over its branchlets.

Wyndham Fitzherbert.

NOTES ON THE ECONOMIC FLORA OF GAZALAND.

(Continued from p. 297.)

In the order Sapotaceæ, as might be expected, the chief character of the plant products is the presence of a milky latex, though Mr. Swynnerton does not state that any of them are capable of furnishing rubber. Chrysophyllum natalense is a milk-giving species, as well as C. fulvum, which is a new species, described as being one of the largest trees of the Chirinda forests, reaching a height of 120 feet. The milky latex is also stated to be abundant in the fruits, and the trunk is buttressed, projecting to a considerable distance on all sides. C. argyrophyllum is usually a small tree, producing fruits that are said by the natives to be excellent eating. The wood of this species is hard, and is used for making bows. A new species of Mimusops, M. sylvestris, produces an edible fruit containing a milky juice.

Though the principal economic character of the Ebenaceæ is the intense hardness of its woods, as evidenced by the ebony of commerce, only one plant is referred to on account of this quality, namely, Maba Mualala, and of this it is curious to note, that though Mr. Swynnerton describes it as so "hard that even young wood will turn any nail," he further says that "the yellowish-white wood has been found useful." Such borers as do attack it leave it after a short time, but young poles with the bark on are apt to become speedily riddled and useless, the borers commencing under the bark, and then proceeding to the sapwood and finally to the heart; when barked, however, they are said to remain comparatively sound. In the order Apocyneæ, one new species of Landolphia is described, namely L. Swynnertonii, a large woody climber yielding a milky latex, and excellent rubber though

scantier than in L. Kirkii. The stems are deeply fluted, the young shoots are pink, the flowers white and strongly Jessamine scented. The fruit is large, spherical, edible, and makes an excellent preserve. Landolphia Kirkii was also found in the forests, as well as L. lucida and L. florida. The former of these two is described as a very large woody climber, reaching the tops of the trees, the milky latex apparently destitute of rubber. The fruit, which is smooth, sweetish and of a bright orange colour, is eaten by the natives. L. florida is described as a very large woody climber, one that was measured being 5 feet 6 inches in circumference at 3 feet from the base. A milky juice with a reddish tinge flows freely from wounds in the bark, but does not coagulate well, the product even after careful washing and preparation completely lacking in toughness and resiliency. The rubber obtained by Mr. Swynnerton from the latex of the fruits, he says, was of better quality, elastic, but not tough, and of a purer white colour than that from the bark. The pulp of the fruit is edible with a strong sweetish-acid flavour, and is much appreciated by the natives.

The milky juice of Diplorhynchus mossambicensis, a tree averaging 30 feet in height, is put to a singular use in a rough kind of surgery. The latex is obtained from the bark, younger branches, and leaves. In the case of broken fingers and such-like injuries, rough splints made from the bark are first applied, and these are painted over thickly with the latex and finally with white ashes, the combination forming a thick splint. The latex is also used as glue for fastening arrow heads to the shafts, and further it enters into the composition of "bird-lime." Rauwolfia inebrians is described as a handsome tree, 80 feet high, with an ochreous-yellow, somewhat roughish bark, which in the younger branches yield a milky latex. The timber is yellowish-white and very easily worked, and has been tried recently by one of two settlers in house building, and found useful for windows and doors. Termites and Bostrychideæ do not touch it. Thousands of seedlings spring up with the late rains, but those exposed to the sun on the outskirts of the forest usually die off during the ensuing dry season. Owing to its rapid and symmetrical growth and the beauty of its foliage, it is being planted by settlers as a shade tree. In the genus Conopharyngia, two species, namely C. elegans and C. usambarensis, yield a milky fluid, from the first, a shrub of some 20 feet high, it exudes abundantly, and is regarded as a powerful remedy for the vomiting of milk by infants, being placed in a hollow reed and hung round the neck as a charm. The second species is a shrubby tree, growing up to 25 feet high. This also yields an abundance of latex, but, Mr. Swynnerton says, with no resultant rubber. Another small tree, Voacanga lutescens, also yields a scanty supply of latex, but apparently no rubber. Oncinotis chirindica, a new species, is described as a large, woody climber, with a stem sometimes measuring near the base 15 or 18 inches in diameter, and covered with a very rough, thick yellow bark, from which a fairly abundant supply of milky latex is obtained. *J. R. Jackson, Claremont, Lympstone, Devon.*

(To be continued.)

SCOTLAND.

GARDEN ALLOTMENTS AT SCOTTISH PRISONS.

A new departure is provided for in rules just issued by H.M. Prison Commissioners for Scotland, which deal with prisoners undergoing preventive detention in the prisons. Under the rules those who obtain two certificates for exemplary conduct will be promoted to a special grade, the members of which may have garden allotments. The produce of these may be purchased at the ordinary market value for such produce, and the money credited to the prisoner or used by him for purposes permitted by the commissioners.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

Royal Horticultural Society—Inspection of Fellows' Gardens.—The work of inspecting Fellows' gardens and advising thereupon has increased so much of recent years, and has necessitated Mr. Wright's absence from the Wisley garden so often, that the Council of the Society have long felt the desirability of appointing an inspector of Fellows' gardens who should be entirely independent of the Wisley staff, thus leaving Mr. Wright free to devote his whole time to the Society's garden and to the Society's shows. The very great difficulty of finding an inspector who should not only be as efficient and capable as Mr. Wright, and one who is also in constant touch with a fine garden and all the newest additions to horticulture, has at last been overcome by the kindness of Miss Willmott, of Warley, who has consented to her head gardener, Mr. C. R. Fielder, V.M.H., being appointed inspector to the Society and at the same time allowing him to remain in constant daily touch with her celebrated garden at Warley Place. Therefore, Mr. C. R. Fielder, V.M.H., so well and honourably known in gardening circles, will be the Royal Horticultural Society's inspector to visit Fellows' gardens and to advise thereupon, on the terms mentioned on page 8 of the Book of Arrangements, 1912. All requests for the inspector's services should be made to the Secretary, R.H.S. Office, Vincent Square, Westminster, S.W. *W. Wilks, Secretary.*

The late Mr. Thomas Jones.—I attended Mr. Jones's funeral at the pretty village churchyard of Pattingham on the 2nd inst., far away from the scene of his triumphs. He was a delightful "raconteur," and, looking into the open grave, I recalled hours of pleasant intercourse during his later years, which were spent among his flowers, horse and dogs. He was gifted with a sense of humour, and how well he would entertain his friends by his stories is only known to those who had his confidence. How he loved to relate reminiscences of his beloved Queen-mistress, in her dealings with him and those about her during the time he held his responsible position! At such times he seemed to live again in personal contact with her and other members of the Royal house. Surrounded in his country home by pictures, portraits, souvenirs in gold and silver, bric-à-brac, each piece telling its own story, he was able to demonstrate how greatly his services were valued, personality honoured, and character respected by his Sovereign, her family and friends. *R. H. R.*

White Hippeastrums.—The plant described in the note on page 292 in last week's issue of the *Gardeners' Chronicle* cannot be a Hippeastrum, no known species or form of that genus bearing anything approaching 17 flowers in one truss. There are, however, the best of reasons for believing that it is the white-flowered variety of Amaryllis Belladonna, which we know to be in Australian gardens, for I saw only recently in Messrs. Sander's nursery at St. Albans a batch of recently-imported bulbs of the white Belladonna, which I was told had been obtained from Sydney. The name for this variety is A. Belladonna alba, and from what I know of it, thanks to Mr. Worsley and Messrs. Sander, both of whom showed flowers of it at a meeting of the R.H.S. last year, it is likely to become a most useful garden plant. *W. W.*

The Fruit Crops in Ireland.—The prospects of fruit crops in Ireland are very good. Apples and Pears are setting well; in fact, all wall trees are even more plentifully cropped than last year. Peaches out-of-doors are showing an excellent crop. Black and Red Currants are better than for some years past, and Gooseberries are exceptionally plentiful. I have reports from all parts that fruit crops in general will be heavy this season, and learn from Sligo, one of the coldest parts on the west coast, that Peaches on outside walls are a heavy crop, notwithstanding the cold winds from the Atlantic, which sweep the west coast of Ireland at this season. *W. A. M., Coolfin, Banagher.*

Sale of Trees in Ireland by the Department of Agriculture.—I have been abroad several weeks, and, consequently, have only just seen *W. W.'s* remarks on this subject in your issue of April 13 (page 246). In spite of the interval which has elapsed, I feel constrained to offer a short reply, as his letter ignores the real ground of the complaint made by the Irish nursery trade, which is not touched upon at all in the lines which he devotes to applauding the action of the authorities. The Irish Nursery Association and our own have no desire whatever to check the good work which is being done in Ireland in teaching cottagers and small farmers to make a better use of their land by planting fruit trees. What is complained of is that the county council instructors are not confining their energies to this work, but are pushing the sale of fruit, forest, and even purely ornamental trees among the large landowners and other wealthy people, who can perfectly well afford to pay a fair price for their trees. The items of "Cupressus, 4 to 5 feet, Clematis, etc.," were not dragged in from "paucity of argument," but to show that a class of trees was being offered for which the cottager and small proprietor would (especially in Ireland) have no use whatever. I may add that the 600,000 trees sold in one year were largely *forest*—not fruit—trees, and largely sold among well-to-do landowners. We have overwhelming proof of this from all quarters of the country, and it will, I think, be conceded by all who know anything of the facts that it is most unjust that public funds and official machinery should be used in this way to ruin one of the few industries which has succeeded so far in holding its own in Ireland. I pass over *W. W.'s* allusion to "official manners," though a good deal might be said on the subject, as I think attention should be concentrated on the main point, which is the justice or expediency of the ruin by Government competition of a trade which employs a fairly large amount of labour, and has in itself a strong educational influence. *Chas. E. Pearson, Hon. Sec., Horticultural Trades Association of Great Britain and Ireland.*

Celsia cretica.—Seeing a few fine sprays of this decorative plant at the last R.H.S. meeting reminded me of a magnificent batch of plants I saw at Blenheim Palace a week earlier. At the present time, I believe, this plant is freely used in the floral decoration of the palace. Mr. Hunter, the enthusiastic gardener, is to be congratulated on his success in producing results which show this plant to be in the front rank of decorative subjects for furnishing purposes. The batch consisted of about 100 plants in 6½-inch pots, the leathery and long foliage recurving and falling over the pots, the plants ranging from 5 feet to 7 feet in height. The flowers, too, were like those seen at the R.H.S. hall—very fine— 2 to 2½ inches across. In a mass this subject is exceedingly effective, whilst the Oncidium-like flowers individually are interesting and beautiful objects. *L. S.*

Frost and the Fruit Crops.—The frost of last month has not caused much injury to the fruit crops in these gardens. The lowest reading was 24° F., or 8 degrees of frost, on the 12th ult., Early flowers of Royal Sovereign Strawberry were spoiled, although the trusses were under the leaves. Pears have all set well, except on cordon trees of Williams's Bon Chrêtien, Charles Ernest, Marie Louise, Louise Bonne of Jersey, Doyenné du Comice, and Glou Morceau have all set well on cordon trees, some of which have only been planted two years. Peaches and Nectarines have been protected, and these promise a good set, whilst the trees are free from blister and blight. Cherries and Plums, including Gages, have set well, and the trees are free from blight, although north-east winds prevailed all last month. The Apple crop is promising, but the fruits are not yet set, and there is still danger from frost. Old trees of Apricots have set a fair crop. Bush fruits have good crops, but rain is needed to keep the fruits from dropping. Many of our fruit trees—Pears, for instance—have not been sprayed, as in other winters, and yet there is an absence of Pear midge and blight. *A. B. Wadds, Englefield Gardens, Reading.*

Weather in North Devon.—Up to the time of writing (the 3rd inst.), only one shower has fallen here since the beginning of April, this lasting for about three hours, on the morning of May 1. A more abnormal April has not been recorded in Devon, and farmers and gardeners alike are anxiously awaiting rain. Here in these gardens we are very fortunate; a stream at the bottom of the vegetable garden gives us a constant supply, and it did not fail even during the unusual summer of last year. The maximum temperature recorded in April was 72°, the minimum 27°, and although fruit trees were very far advanced, very little damage has been done by frost. Vegetables and fruit are in an exceedingly advanced stage, and the latter give promise of fine crops all round. Apricots on south walls are already as large as Walnuts. Flowering shrubs and trees are correspondingly advanced. *S. Gilthorpe, Yeo Vale, Fairy Cross, Bideford, North Devon.*

Fruit Prospects in North Wales.—The fruit crops in this locality promise, so far, to be plentiful. Bush fruits are very numerous. Pears, Plums and Cherries have set well, whilst Apples trees are a wealth of blossom. Trees that were covered with lichens and were sprayed in January are making strong, clean growth. V.I. fluid is one of the very best winter washes. The alkali wash certainly acts quicker, but V.I. is easier applied, safer to use, and economical and effective. During April only .16 inch of rain fell, but March was very wet, and the effects of such a dry April are not so serious in consequence. Small vegetable seeds germinated slowly, but since rain has fallen everything is growing apace. *J. S. Higgins, Glynllivon Gardens, Carnarvon.*

Late Dessert Apples.—Much has been written on the best late dessert Apples, and many varieties have been given by various writers. All appear to regard Cox's Orange Pippin as the ideal variety. Considering that fruits of this variety may be had in a good condition in the first week in May, I am at a loss to understand why more trees of this variety are not planted. Presumably many gardeners do not think this Apple will keep perfectly for so long a time, and they seem to regard mere variety as of such consequence that quality is sacrificed. This season I had plentiful crops of Adams's Pearmain, Brownlee's Russet, Cockle Pippin, Fearn's Pippin, Mabbott's Pearmain, Sturmer Pippin, Bess Pool, and Wyken Pippin, but how unfavourably does the fruit of any of these compare with Cox's Orange Pippin. Some will perhaps say Cox's Orange Pippin does not succeed in all soils: my answer is, provide suitable soil. *E. M.*

Moraine Gardening (see p. 251).—Mr. Farrer's remarks are somewhat inconclusive when he says that my "cement arrangements and other formidable deterrents are in themselves not only entirely unnecessary, but even harmful," for many of my plants in those identical conditions thrive amazingly. To take a few examples. In April, 1910, I planted in my moraine a specimen of Silene acaulis, 2 inches in diameter. It blossomed well last year, and is now a circular patch 10 inches across, and spangled with flowers. Campanula Allionii, planted at the same time, and consisting of three rosettes, has increased to 70 rosettes, and is already showing 30 flower-buds; whilst three seedlings of Edraianthus, pricked out into the moraine last summer from seed sown in February, 1911, have made a tuft 6 inches to 7 inches in diameter, and promise to develop not fewer than 30 flowers. Hitherto I had imagined that such satisfactory results as these (especially with somewhat difficult plants, and in the disadvantageous conditions which prevail here at Woodford, within eight miles of the City of London), were due to my moraine conditions being suitable to the plants' requirements. When I first started moraine gardening I was under the impression that it was advisable to imitate as far as practicable the conditions prevailing in a natural moraine, especially the ample supply of water during the growing season and comparative dryness during the resting season. I find it difficult to understand how, if the gritty soil retains sufficient water during the summer (practically without artificial watering), the plants get the comparatively dry resting conditions during the winter, while, if the soil is free enough to secure this winter dryness, how it is that the same material continues wet enough for them to thrive in during their growing period, which coincides with our driest time of the year? If Mr. Farrer's remarks—about the cement bottom resulting in an absence of drainage—applies to the winter conditions in my moraine, I fear he has not troubled to acquaint himself with my original notes—while the term well-drained applies in this connection—not to a place devoid of moisture, but one through which fresh water, more or less in quantity, is constantly passing—and is thus the reverse of stagnant—or as Mr. Farrer terms it a "slough." I am surprised to learn that my moraine notes have caused such wide-spread uneasiness. Hitherto I had considered gardeners most enthusiastic, and not likely to be terrorised by the problem of a little cement—when the photographs which accompanied my notes illustrated more emphatically than mere words could do, that the conditions thus described produced such excellent results. *Reginald A. Malby.*

Primula rosea (see pp. 246, 265).—I can endorse fully the statement of *A. J. A. B.* that the flowers of this Primula do not require to be artificially pollinated in order to set seed. I find that the plant succeeds best in a partially-shaded bog, where it soon develops into large masses producing flower-spikes from 12 to 18 inches in height. I have gathered seed from plants grown under these conditions, which germinated freely when sown, and, so far as I can determine, the flowers were all naturally fertilised. I have seen the plant growing under more exposed and drier conditions, where it was of a stunted appearance and failed to develop seeds. *T. Sharpe.*

Clarkia elegans 9 feet High.—I should be interested to learn if any of your readers have known Clarkia elegans to grow so strongly as mine have this year. Seeds were sown in September, and the seedlings were grown in cool conditions during the winter and potted on as required. At the present time the plants are in 12-inch pots and in flower. Some of the shoots are 9 feet high, and at 4 feet 6 inches the growths are 1¼ inches in circumference. The plants are carrying hundreds of flowers, which are fully 2 inches across. This Clarkia is not only useful for conservatory decoration, but also for furnishing cut blooms. The flowers remain fresh a long time in water. *J. H. Herdman, Under Fell Gardens, Burton, Westmorland.*

Exotic Forest Trees.—If *G. W.'s* principle of planting (see p. 277) nothing but trees indigenous to Britain had been observed by our forefathers, we should have been without some of our most valuable timber at the present time. Larch, Silver Fir, Norway Spruce, Corsican Pine among conifers—Spanish Chestnut, English Elm, Sycamore, Black Italian Poplar, and Walnut, among broad-leaved trees—are exotic, and our woodlands would be commercially poorer without them. Five-and-twenty years ago the late Mr. Peter Lawson told me that he considered Thuja gigantea (plicata) was the forest tree of the future. *G. W.* pronounces it impossible to expect it to do any good in Europe, which shows that he has not perambulated the 2,000 acres of forest at Benmore in Argyllshire, consisting chiefly of this tree and Douglas Fir planted 30 to 35 years ago. The timber of Thuja is of great value, and, like the wood of nearly all the Cypress tribe, of extraordinary durability. *G. W.* disparages the Japanese Larch, which, by its remarkable vigour, is able to set Dasyscypha (the canker fungus), Chermes and the large Larch saw-fly at defiance, harbouring all three in moderation, but overcoming them all by its robust constitution. If he will visit Blair Drummond, in Perthshire, he will see a wood of five acres planted about 40 years ago with equal numbers of European and Japanese Larch. The Europeans have succumbed to disease, and, almost without exception, have been removed: the Japanese Larches are growing clean and vigorous. *G. W.* condemns the timber of Douglas Fir as being coarse and knotty. Naturally it is so under the conditions in which it has been usually planted in this country—isolated or scattered among a mixture of other trees. Being a shade-bearer, it requires close company of its own species to produce clean bolls. Robinia Pseudacacia, which he commends, is of little use except in the south of England, and is extremely brittle under wind exposure. There is no question about the durability of its timber, where it can make any, but in that respect Thuja gigantea and the Lawson Cypress are its superior. Certain exotic trees make finer growth in these islands than in their native country. The largest Quercus Ilex in the world stands at Rosannah, in County Wicklow, and there are no Horse-Chestnuts in Macedonia or Asia Minor to compare with those at Hampton Court and a hundred other English parks. *Herbert Maxwell, Monreith.*

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

April 30.—*Present:* Mr. E. A. Bowles, M.A., F.E.S. (in the Chair); Messrs. J. T. Bennett-Poë, W. Hales, A. Worsley, J. Fraser, J. O'Brien, J. W. Odell, G. Wilson, C. E. Shea, E. M. Holmes, and F. J. Chittenden (hon. secretary).

Hybrid Saxifrages.—Mr. J. Fraser reported on the Saxifrages from Dr. Blaxall, of Edgware, shown at the last meeting, as follows:—The two Saxifrages were hybrids between S. granulata and either one of the group of S. muscoides Rhei or S. decipiens. All the characters of the hybrids were different from those of either parent. No. 1 had the stamens more or less imperfect, the petals shortened, the flower flattened, and the disc greatly enlarged. The stem was shortened, forming a compound corymbose cyme. The leaves were deeply lobed on the tripartite plan, much divided and with more acute lobes, not rounded as in S. granulata. The basal leaves formed a rosette, with short, broad, flattened petioles, these characters being derived from the dactyloid parent. The bulbils at the root and in the axils of the basal leaves were in a more or less leafy condition, and some of them had developed into leafy branches, especially in No. 2. The styles of both were divaricate in fruit, as in the dactyloid parent, not erecto-patent as in S. granulata.

Albino form of Orchis mascula.—Mr. Gurney Wilson showed an albino form of Orchis mascula collected by him in a field in mid-Sussex.

Jack fruit.—Mr. O'Brien showed on behalf of J. S. Bergheim, Esq., of Belsize Court, Hampstead, a Jack fruit (Artocarpus) brought from Brazil.

Arsenic in drainage water.—Dr. Voelcker remarked on some water he had recently received for analysis which had come from a stable and had been reputed to injure plants. He had found it to contain an appreciable quantity of arsenic, which was, no doubt, the cause of the injury. He had found that many plants would absorb a certain amount of arsenic from the soil without any appreciable injury, but in this case the quantity had been too great. Mr. O'Brien made the following remarks, which suggest a probable source of the arsenic:—"I remember to have often heard of those in charge of horses giving them small doses of arsenic to improve their condition, and many a good horse has died suddenly from 'heart trouble' in consequence. Of course, it is done secretly. But if done at all it would account for the presence of arsenic in the stable. If pure arsenic cannot be had, on account of the restrictions, might not the knowledge that it is present in weed-killer cause small doses of that to be mixed with the food, and surplus thrown on the floor. The arsenic must have got in somehow, and this is as likely a way as any."

Orange with yellow stripe.—Mr. Holmes reported that he had examined the Orange shown at the last meeting, which had a narrow yellow stripe down one side passing from base to apex, and could find nothing inside the fruit in connection with it. He suggested that it was probably a hybrid between the Orange and the Grape fruit.

Scilla hispanica with long bracts.—Mr. Worsley showed from his garden an inflorescence of Scilla hispanica analagous to the variety bractiata of Scilla nutans. The bracts were many times longer than the pedicels.

Tulip with displaced perianth piece.—Mr. Shea showed a Tulip with a displaced perianth

lobe a few inches below the flower, which had but five perianth pieces.

Parrot Tulip.—Messrs. Barr, of Taplow, showed a new break, "Sensation." The colour in the specimen was not fully developed. So far as can be determined from investigations made in Holland, this break suddenly appeared in a bed of the Dutch Breeder Tulip known as Reine d'Espagne (of which a specimen flower was exhibited) in the nursery of a small Dutch grower. It is much dwarfer than its Breeder parent, and also propagates more slowly. A Botanical Certificate was recommended to this plant on the suggestion of the Narcissus Committee. The variety had none of the horn-like excrescences usual in Parrot Tulips and had a stem like that of a Darwin Tulip.

Double Primrose.—A double Primrose found growing wild was exhibited from an unknown source.

Irises.—Mr. W. Rickatson Dykes, of Farncombe, sent Irises, with notes as follow, making clear the origin of I. florentina and I. albicans:—*I. germanica* "*L. var.*"—This variety is one that is largely grown for producing Orris Root in the neighbourhood of Florence. Its stem is more slender than that of the varieties usually grown in England. It is probably the form of which I. florentina is the albino. *I. florentina.*—This is an albino form of a variety of I. germanica. Compare the spathes and the inflorescence. *I. Madonna*, Sprenger.—A comparatively recent introduction from Arabia. Compare its flowers, spathes and inflorescences with those of I. albicans. There can be little doubt that it is the purple form of which I. albicans is the albino. *I. albicans*, Lange.—Contrast the flower, spathes, and inflorescence with those of I. florentina, and compare them with those of I. Madonna, of which it is the albino form. I. albicans and I. Madonna both come from the Yemen in Arabia, and the former, used as a graveyard ornament, has spread wherever the Mohammedans have penetrated. *I. Reichenbachii*, Heuffel.—This Iris, of which both purple and yellow-flowered forms can be raised from the same capsule of seed, is the common dwarf Iris of the Balkans, corresponding to I. chamæiris in Southern France and Northern Italy. N.B.—The sharply-keeled spathes, as contrasted with those of I. chamæiris, I. balkana (Jka), I. serbica (Pane), I. bosniaca (Beck), I. Skorpilii (Velen) are some of the many synonyms of this Iris. *I. chamæiris*, Bertolini.—This is the common dwarf Iris of the South of France and of Northern Italy. It is easily distinguished from I. pumila by its visible stem and short tube and from I. Reichenbachii by the spathes, which are not acutely keeled. The flowers are very variable in colour, and this variability has given rise to numerous synonyms, e.g., I. italica (Parl.), I. lutescens (Lom.), I. olbiensis (Hénon) and I. virescens (Delarb).

HORTICULTURAL CLUB.

April 30.—A meeting of the members of the Horticultural Club took place on this date, when Mr. H. R. Darlington gave a lecture on "The Rose as a Flowering Shrub, with Special Reference to the Foliage." The chair was taken by Mr. Stuart J. Hogg, and there was a good attendance. We print below extracts from Mr. Darlington's lecture.

The number of species with which the genus Rose is subdivided is considerable. Of these, 16 were known to Linnæus, and to these De Candolle added the Systylæ. In 1820, Dr. Lindley, in his famous *Monograph*, recognised 76 species, which he divided into 11 groups. In 1877, Dr. Regel, in his *Tentamen*, admitted 52 species, divided into 11 groups. In 1889, in his paper read at the National Rose Conference, Professor Crépin admitted 60 species, divided into 16 groups, while, in 1905, J. G. Baker, in his paper read before the Linnæan Society, recognised 69 species, divided into 11 groups. Nevertheless, the Roses commonly found in our gardens are divided from comparatively few of these species.

Our climbers have come from the great group of the Systylæ, while the garden Roses proper have practically all come from various modifications of R. indica.

The character of perpetual-flowering, or, to speak more accurately, of producing successional crops of flowers throughout the season of growth, which it has been able to transmit to its offspring, has naturally made the indica hybrids general favourites in the garden. Beside R. indica, so far as I am aware, this character is shared with but two or possibly three other species; one is the hardy Japanese Rose R. rugosa, which is now becoming popular; another, a Rose seldom seen in gardens, R. humilis or R. parviflora, which comes from the Eastern States of North America, has always flowered a second time in my garden; and possibly I ought also to admit R. Pissardii, an excellent pillar Rose, which certainly flowers again in the autumn, but I have some doubt whether it is not of hybrid origin. Nevertheless, there are many of the species well worth growing in the garden as flowering shrubs, which are capable of producing beautiful effects, not only when in flower, but, from the charm of their foliage, in spring or autumn, and there are some which remain objects of interest even in winter, after both flowers and leaves have gone, from the high colouring of their stems.

R. simplicifolia is the only member of the first group, and as I am to speak of Rose foliage, I must mention this as a curiosity, for it is the only Rose with undivided leaves. It is much branched, and the stems are slender and spreading, covered with numerous prickles. The flowers are yellow, with a chocolate blotch at the base of the petal. It appears to grow plentifully in the salt marshes of Northern Persia, but never to have been successfully acclimatised in Western Europe, where it was introduced in 1790. Dr. Lindley comes to a most melancholy conclusion with regard to this Rose, and Redouté's account of it is little better.

In the great group of the Systylæ, no doubt the Wichuraiana will first occur to us. The foliage of R. Wichuraiana (type) is bright and glossy, and looks well in the spring. It is nearly evergreen, the old leaves often remaining till pushed off by the young growths; but it is surpassed by some of its offspring in the matter of foliage. The spring foliage of the Wichuraiana hybrids with Tea blood often retain more or less the beautiful red tints derived from their indica parentage. As instances, Albéric Barbier and Léontine Gervais may be mentioned. While sometimes we get a pure and shining green, as in Joseph Billard, the foliage of which shows little indication of its connection with the China Rose, which is said to have been its parent, save at the tips of the shoots.

A Rose of this class specially worth mention is Shower of Gold; it has very striking and thick foliage, which is very persistent.

The Multifloras, as a class, are not specially noticeable for their foliage, but an exception must be made in the case of American Pillar, with its large leaflets of a deep, shining green, and Tea Rambler, for in the foliage of the latter the influence of R. indica is very noticeable, as it is in Ariel, which may almost be regarded as a single-flowered variation of this Rose.

In R. moschata, the foliage usually falls rather early, and is not specially striking. There are, however, some hybrids of R. moschata with particularly fine foliage. The cross with R. indica gave us the Noisettes, and one of these, our old favourite climbing Aimée Vibert, is not only an autumnal flowering, but it possesses most beautiful, glossy, deep-green foliage, which it keeps long into winter, making it a most attractive garden plant.

I have already referred to R. Pissardii, of which we have two forms, one with pink and the other with white flowers; both make excellent pillar Roses, the pink variety having better foliage and more rampant growth. They both have an autumnal as well as a summer flowering. Mr. G. L. Paul once pointed out to me the similarity between Belle Vichysoise and the pink Pissardii, though there is a difference in the foliage. Now, Belle Vichysoise is undoubtedly a hybrid, and is often classed with the Noisettes, and the resemblance, so far as it goes, tends to confirm my opinion of its hybrid origin, though I must admit I am without positive evidence of the hybridity of R. Pissardii.

Another hybrid of R. moschata with R. gallica, known as R. nivea, makes a useful flowering shrub, with strong, substantial foliage, which persists long into winter, but it only flowers once in the year.

(To be continued.)

NATIONAL AURICULA & PRIMULA.

(MIDLAND SECTION.)

May 1, 2.—The effects of the long-continued drought and unusually early season were apparent in the size, quality, and substance of the flowers exhibited at the 13th annual show, held in the Botanical Gardens, Birmingham, on the above dates. The attendance of visitors was satisfactory. A promenade concert was held in the evening of the first day of the show.

Show Auriculas.

Twelve classes were reserved for Show Auriculas, and there was competition in all of them. In the principal class, which was for eight varieties, there were three exhibits, and the 1st prize was won by Mr. W. M. Shipman, Altrincham, with beautifully-flowered specimens of Orient, George Lightbody, Henry Wilson, Rev. F. D. Horner, Molly Shipman, Harrison Weir, Acme, and an unnamed seedling. 2nd, C. Winn, Esq., Selly Hill, Birmingham (gr. Mr. T. T. Sheppard), who had fairly good plants of Henry Wilson, Rifleman, Richard Headley, and Mrs. Henwood.

The same two exhibitors were placed 1st and 2nd respectively in a class for six varieties. Mr. Shipman showed well-grown and nicely-flowered examples of A. Barker, Letitia, Miss Willmott, Ruby, Shirley Hibberd, and Acme.

The best of five exhibits in a class for four varieties was shown by Mr. G. J. Savory, Birmingham, who had handsome plants of Mrs. Henwood, Richard Headley, Henry Wilson, and Shirley Hibberd. 2nd, Mr. J. D. Williams, Smethwick, with very fine specimens of Mrs. Henwood, Shirley Hibberd, Richard Headley, and Ruby.

Mr. Richard Holding, Bournville, excelled in a class for two varieties, with superb plants of Harrison Weir and Richard Headley. 2nd, Mr. G. J. Savory, with Shirley Hibberd and George Lightbody.

Show Auriculas (Single Plants).

Green-edged variety: 1st, Mr. E. Danks, with Henry Wilson. Grey-edged variety: 1st, Mr. W. M. Shipman, with George Lightbody. White-edged variety: 1st, Mr. W. M. Shipman, with Acme. Self: 1st, Mr. G. J. Savory, with Mikado. Yellow, primrose, orange, or buff: 1st, Mr. F. Grazebrook, Dudley, with Daffodil.

The 1st prize in a class for two varieties, reserved for growers who have never won a 1st prize at any of the society's shows, was won by Mr. J. D. Williams, Smethwick, with excellent specimens of Mrs. Henwood and Shirley Hibberd. 2nd, Mr. T. Hughes, Handsworth, with Ruby and Cleopatra.

Mr. G. J. Savory led in a class for three varieties, open to local growers only. His plants of Mrs. Henwood, Shirley Hibberd, and Olympus were beautifully flowered. 2nd, Mr. H. J. Spencer, Four Oaks, with vigorous specimens of Olympus, Shirley Hibberd, and Mrs. Potts.

The most successful exhibitor in a class for three varieties, open to young amateur growers, was Mr. J. D. Williams, whose plants of Mrs. Henwood, Harrison Weir, and Shirley Hibberd were remarkable for their strong, leathery leaves and bold trusses of flowers. 2nd, Mr. J. S. Yeomans, Hollywood.

Alpine Auriculas.

There was fairly strong competition in the classes for Alpine Auriculas. The 1st prize in a class for eight varieties was awarded to Mr. W. M. Shipman, who showed well-flowered plants of Argus, Charmer, Commander, Ilene, Majestic, Lucrece, Sunrise, and Janet. 2nd, Mr. C. Winn, whose best examples were Thetis, Unexpected, Jack Parton, and Prime Minister. The leading exhibit in a class for six varieties also came from Mr. W. M. Shipman, who had Majestic, R. C. Cartwright, Mars, Exquisite, Phyllis Douglas, and an unnamed seedling, all in excellent condition. 2nd, Mr. T. M. Eglinton, Birchfields. The winning exhibit of four varieties was shown by Mr. C. Reeves, Handsworth, whose well-developed flowers of J. F. Kew, Miss Baker, Exquisite, and Majestic were much admired. 2nd, Mr. H. W. Miller, Handsworth. The last-named exhibitor beat 11 contestants in a class for two varieties. He showed Majestic and Unexpected in superb condition. 2nd, Mr. E. Danks.

The best gold-centred variety was Duke of York, shown by Mr. T. M. EGLINTON. 2nd, Prime Minister, shown by Mr. E. SAUNDERS, Sparkhill. There were 20 exhibitors in this class.

The best light-centred variety was Phyllis Douglas, shown by Mr. W. M. SHIPMAN. 2nd, Phyllis Douglas, shown by Mr. E. SAUNDERS.

The best laced variety was a beautiful unnamed variety, shown by Mr. T. M. EGLINTON.

Mr. J. D. WILLIAMS excelled in a class for two varieties, and in another class for three varieties, open only to young amateur growers. Mr. T. M. EGLINTON beat 12 competitors in the class for three varieties reserved for local growers.

SEEDLING SHOW AURICULAS.

Mr. RICHARD HOLDING was awarded the 1st prize in a class for two varieties, with Golden Wedding and Robin Hood. Green-edged variety: 1st, Mr. W. M. SHIPMAN, with Cleveley Gem. White-edged variety: 1st, Mr. H. W. MILLER, with Queen of the Snows. Grey-edged variety: 1st, Mr. E. DANKS, with Mrs. A. A. Johnston. Self: 1st, Mr. E. DANKS, with Raven's Plume. The last-named exhibitor also led in a class for four Alpine Auriculas.

PREMIER BLOOMS.

Show Auricula Shirley Hibberd (green-edged), shown by Mr. W. H. PARTON.

Alpine Auricula Charmer (gold centre), shown by Mr. W. M. SHIPMAN.

Seedling Auricula Cleveley Gem (green-edged), shown by Mr. W. M. SHIPMAN.

Seedling Alpine Auricula, Mrs. Neville Chamberlain (gold centre), shown by Mr. RICHARD HOLDING.

FIRST-CLASS CERTIFICATE.

Alpine Auricula Mrs. Neville Chamberlain (gold centre), from Mr. RICHARD HOLDING.

SPECIAL MEDAL AWARDS.

The Birmingham Botanical and Horticultural Society's Medals, offered to the two most successful exhibitors, were awarded as follow:—Silver Medal to Mr. W. M. SHIPMAN; Bronze Medal to Mr. C. WINN.

The National Auricula Society's (Midland Section) Silver Medal, offered to the most successful local exhibitor, was won by Mr. C. WINN.

The Brookes Silver Medal, offered to the most successful exhibitor in the Alpine and seedling classes, was won by Mr. T. M. EGLINTON.

HONORARY EXHIBITS.

Messrs. YOUNG & Co., Cheltenham, had a prettily-arranged group of perpetual-flowering Carnations. (Silver-gilt Medal.)

Messrs. A. R. BROWN, LTD., King's Norton, contributed a collection of pot Roses. (Silver-gilt Medal.)

W. BYNG KENRICK, Esq., Metchley House, Harborne (gr. Mr. J. Webb), exhibited a fine strain of compact, profusely-flowered plants of Calceolarias. (Silver-gilt Medal.)

C. WINN, Esq., Selly Hill, Birmingham (gr. Mr. T. T. Sheppard), showed a group of Schizanthus. (Silver Medal.)

Mr. H. N. ELLISON, West Bromwich, exhibited Ferns and Gerberas. (Silver-gilt Medal.)

MANCHESTER AND NORTH OF ENGLAND ORCHID.

APRIL 18.—*Committee present:* Z. A. Ward, Esq. (in the Chair); Messrs. R. Ashworth, J. Bamber, C. Parker, H. Thorp, A. Warburton, J. C. Cowan, J. Cypher, J. Evans, W. Holmes, A. J. Keeling, D. McLeod, F. K. Sander, and H. Arthur (secretary).

Silver Medals were awarded to Messrs. J. CYPHER & SONS, Cheltenham, for a miscellaneous group, and to THE LIVERPOOL ORCHID CO.

Silver-gilt Medals to Z. A. WARD, Esq., Northenden (gr. Mr. Weatherby), for a fine group of miscellaneous Orchids; R. ASHWORTH, Esq., Newchurch (gr. Mr. Gilden), who staged an excellent group; Col. J. RUTHERFORD, M.P., Blackburn (gr. Mr. Lupton), for a mixed group of Cattleyas; and J. MCCARTNEY, Esq., Bolton (gr. Mr. Holmes), for a group consisting principally of Cattleyas.

Bronze Medal to A. WARBURTON, Esq., Haslingden (gr. Mr. Dalgleish), who had a fine display of Odontoglossums.

Other exhibitors were O. O. WRIGLEY, Esq., Bury (gr. Mr. Rogers); J. J. HOLDEN, Esq., Southport (gr. Mr. Johnson); J. LEEMAN, Esq., Heaton Mersey (gr. Mr. Smith); Messrs. A. J. KEELING & SONS, Bradford; Messrs. STUART LOW & Co., Enfield; Messrs. HASSALL & Co., Southgate; Mr. W. SHACKLETON, Bradford; and Mr. J. EVANS, Congleton.

AWARDS.

FIRST-CLASS CERTIFICATES.

Odontoglossum crispum xanthotes "Lady of the Snow," a well-grown plant, from R. ASHWORTH, Esq.; *Odontoglossum eximium* variety "xanthotes," from A. WARBURTON, Esq.

AWARDS OF MERIT.

Odontioda Hyeanum variety "Willie," *Odontoglossum crispum* variety "George," *Odontoglossum "The Moor"* (luteo-purpureum × Harryanum), from Z. A. WARD, Esq.; *Odontoglossum crispum Leeana* "Ashlands" variety, *Odontioda Diana* "Ashworth's" variety (O. amabile × C. Noezliana), from R. ASHWORTH, Esq.; *Odontoglossum eximium* variety "The Premier," from J. J. HOLDEN, Esq.; *Sophro-Cattleya-Lælia "Sandhage"* (C. Enid × S.-L. heatonensis), and *Brasso-Cattleya Cliftonii* "Leeman's" variety (B.-C. Veitchii × C. Trianæ "Uplands" variety), from J. LEEMAN, Esq.

LINCOLNSHIRE DAFFODIL.

APRIL 18.—The eleventh annual exhibition of this society was held on this date at the Drill Hall, Spilsby. The number of entries was larger than on any previous occasion, whilst the quality of the exhibits was generally excellent. The challenge cup, given by the late Mrs. Thompson, of East Keal, competition for which is limited to the Horncastle Parliamentary division, for 20 distinct varieties of Daffodils, not including Polyanthus Narcissus, was won by Mr. C. MILLER, Spilsby. The silver vase offered in the class for a collection of 30 varieties of Narcissi was secured by Mr. H. SHARPE, of Spilsby. Silver medals were won by Mrs. A. M. ROBINSON, Hundleby, for a Magni-coronati variety, with Lord Roberts by Mr. T. SIMPSON, Spilsby, for a Parvi-coronati variety, with Moscar; and by Mr. C. MILLER for the best Medio-coronati Narcissi, with Homespun. A pleasing feature was the class which was open to children under the age of 15 years, who had grown the bloom in their own gardens, there being 14 entries. In the class for table decoration Mrs. F. J. WALKER, of Spilsby, was successful, Mr. T. SIMPSON, of Spilsby, being placed 2nd.

Messrs. CARTWRIGHT & GOODWIN, Kidderminster, showed some novelties in Daffodils, including the varieties Nemesis, Inga, Rudyard Kipling, and Matthew Arnold, the two last-named of the Poeticus type. Mr. FRED. CROSS, Nottingham, exhibited table decorations.

LINNEAN SOCIETY.

MAY 2.—A meeting of the above society was held on this date. The first paper was by Miss T. L. Prankerd, B.Sc., "On the Structure of the Palæzoic Seed Lagenostoma ovoides, Will," and communicated by Prof. F. W. Oliver, F.R.S. The second paper, by Dr. Karel Domin, communicated and read by Dr. Otto Stapf, Sec.,L.S., was entitled: "Additions to the Flora of Western and North-Western Australia." The account was drawn up from undescribed material in the Herbarium of the Royal Botanic Gardens, Kew, consisting chiefly of collections by Dr. E. Clement and Capt. A. A. Dorrien-Smith. Beside many new varieties the author characterises 14 new plants, one being Casuarina Dorrienii, eight grasses, three being species of Panicum, and five other Monocotyledons.

The Rev. R. Ashington Bullen sent a box containing cochineal insects for exhibition; he expressed a fear that they would be dead before they could be shown, which was the case.

The General Secretary referred to the unfortunate experience of Carl von Linné, who had laboured hard to procure living insects. When at last they reached Upsala they were cleaned off by the gardener, without the Professor's knowledge, to his deep chagrin. The anniversary meeting will be held on the 24th inst.

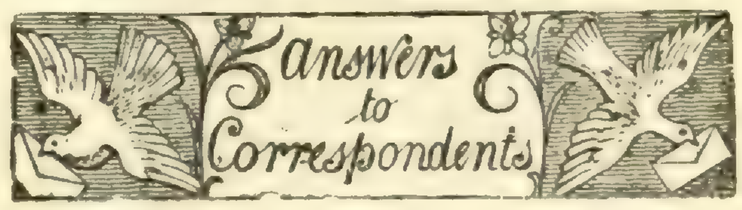
Obituary.

JAMES BOX.—We regret to learn of the death of this well-known nurseryman at the age of 72. Early in life Mr. Box established himself at Lindfield, and soon became known throughout Mid-Sussex. Deceased excelled in the cultivation of Begonias, and he was a large grower of herbaceous plants, as well as a leading Sweet Pea specialist. He exhibited hardy plants at the meetings of the Royal Horticultural Society, and at the principal flower shows in the South of England, where he was generally represented by his son, Mr. Gibbs Box.

WILLIAM MORRISON.—The death is announced, after a very brief illness, of Mr. William Morrison, who was for more than 30 years gardener at Huntly Lodge, Huntly, Aberdeenshire. Deceased was a native of Old Deer, Aberdeenshire. He was appointed gardener at Huntly Lodge, in 1876, by the late Duke of Richmond and Gordon, by whom his services were highly appreciated. Mr. Morrison took a warm interest in the affairs of the Strathbogie United Free Church, where he was senior elder for many years. The funeral was at Allenvale Cemetery, Aberdeen.

ALEXANDER M'LEAN.—The death took place on May 2, at his residence, Bothwell Cottage, Dumfries, of Mr. Alexander M'Lean, manager to Messrs. Thomas Kennedy & Co., Nurserymen, Dumfries. Mr. M'Lean, who was 50 years of age, was engaged for a considerable time with Messrs. Imrie & Son, Ayr, and was afterwards forest tree manager to Messrs. Dicksons, Ltd., Chester, whence he was appointed nursery manager to Messrs. T. Kennedy & Co. about two years ago.

CHARLES NEWROCK.—We learn from the American papers of the death of Mr. Chas. Newrock, florist, of New York. He was born in England, and migrated to the United States when 15 years of age.



*** *The Editors will be glad to receive, for consideration, large photographs of horticultural subjects, suitable for reproduction in this Journal.*

APPLES DISEASED: *E. F. H.* The Apple shoots are affected with Apple mildew (Sphærotheca mali). Cut off all the diseased shoots and spray the trees in the vicinity with the Bordeaux-mixture.

BOOKS: *F. D.* We append a list of the books you would find valuable for your studies in preparation for the R.H.S. examination:—*Elementary Botany*, by J. W. Oliver; *Primer of Botany*, by Sir J. D. Hooker, K.C.S.I.; *The Chemistry of the Garden*, by H. H. Cousins; *Profitable Fruit Growing*, by J. Wright, V.M.H.; *Thompson's Gardeners' Assistant*, new edition, by W. Watson; *Paxton's Calendar of Garden Operations*; *Primer of Horticulture*, by J. Wright, V.M.H.; *The Horticultural Note Book*, by J. C. Newsham; *Farm and Garden Insects*, by W. Somerville, D.Sc.; and *Vegetable Culture*, by A. Dean. You will also obtain much valuable knowledge from the Board of Agriculture leaflets, which are sent free on application to the Secretary, Board of Agriculture and Fisheries, 4, Whitehall Place, London, S.W. You may purchase the works mentioned from our publishing department.

FASCIATED TULIPS: *H. W.* This is a not uncommon occurrence with Darwin Tulips; our attention is frequently drawn to flowers bearing two or three blooms on the same stem. We do not think you will be able to fix the abnormality.

FIG TREES IN POTS: *B. D. K.* The pruning and training of Fig trees in pots, as well as specimens trained against walls and wooden fences, should be deferred until the trees begin to push into leaf, which in the southern counties is the first week in May in ordinary seasons, and a week or two later in colder districts. By

pruning the trees then the cut surfaces bleed very little. Moreover, it can then be easily ascertained which of the shoots are best furnished with fruits. These, as a matter of course, should be retained, cutting out the old and less fruitful branches which are not required in the development of good, well-balanced pot-trees. When the young growths have attained a length of 12 or 15 inches, pinch the points out in order to promote uniform growth in the trees and the formation of fruit-buds. If the trees have not been repotted earlier in the season, as they should have been, the surface soil should be removed from each pot and replaced by a mixture of good loamy soil and horse-droppings in about equal parts, this being pressed firmly together and well watered. Later in the season rims formed of zinc, hoop-iron or pieces of turf should be placed inside the rims of the pots, and extending a couple of inches above it so as to afford additional space for applying top-dressings of sheep-droppings and cow-manure with a little soil added thereto. Or, failing the animal manures, a good plant food and loam in the proportion of six parts of the former to one of the latter may be employed. Fig trees in pots, like all kinds of fruit trees grown similarly, should be kept uniformly moist at the roots during the entire period of active growth. The foliage must be kept free from red spider by judicious syringings with clean water both mornings and afternoons during bright, sunny weather, until the fruits begin to ripen, when a drier atmosphere and plenty of ventilation should be afforded.

Hollies not Fruiting: *A. B.* The flowers of the Holly may be either monœcious, diœcious, or hermaphrodite. Those you send are all staminate only, therefore your trees cannot be expected to produce berries.

Making and Planting Vine Borders: *C. H.* Unless the subsoil consist of limestone or chalk it will be advisable to place at the bottom of the border a layer, 4 to 6 inches deep, of concrete or chalk well pounded, to prevent the roots of the vines from entering into the subsoil, and at the same time to confine them in the prepared compost. A border about 10 feet wide and 2 feet 3 inches deep immediately inside or outside the front wall, as the case may be, sloping to a depth of 18 inches at the southern limits of the border, defined by a 9-inch retaining wall, is amply sufficient. The depth given above includes 4 inches of brickbats or clinkers for drainage purposes. The bottom of the border should slope to the retaining wall, where a gutter should be formed to carry away superfluous water. The drainage should be covered with thin turves, about 1 foot wide and from 2 to 3 feet long, placed grassy-side downwards, to prevent the soil from getting into and choking the drainage. The cultivator should aim at securing a network of roots in his vine borders early, and then feeding them well by giving frequent liberal surface dressings of some suitable plant food immediately before applying clear water. Should you contemplate planting the vines in inside borders, the bottom of the border should slope from the front to the back wall and a gutter should be fixed at the lowest point. The foregoing remarks apply to low situations where the average water-line is within a few feet of the surface. If the site selected for the vineries is high and well above the highest water-mark, and the soil consists of a good depth of rich loam, resting on a substratum of limestone, chalk or gravel, all that is necessary is to trench the ground 18 inches to 24 inches deep, and apply a liberal quantity of short manure. Where the natural soil is either too light or too heavy in texture for the production of good Grapes, the borders must be made of prepared soil, preferably that obtained from an old pasture. To five cart-loads of loam should be added one cart-load each of old lime rubble, wood ashes and horse-droppings, also one barrowful of soot (if available), and 4 cwt. of crushed bones, the whole being well mixed together. Whether the vines are to be planted in inside or outside borders, it will be advisable to make the borders in sections about 4 feet in width, adding 3 feet-strips to this in each of the two following years. At 3 feet from plant to plant you will require four vines for each vinery, setting the first plants in each house at a little more than 18 inches from the division wall. In the first house (the one nearest to the hot-water system) plant two vines of Muscat of Alexandria at the end where the hot-water pipes enter the house from the boiler; one vine of Madresfield Court and one of Black Hamburgh. In the second house plant one vine of Madresfield Court, one of Gros Colmar, one of Black Alicante, and one of Mrs. Pince.

Names of Plants: *James Groves.* Origanum; the species cannot be determined in the absence of flowers. *W. H.* Saxifraga muscoides var. Rhei.—*A. C.* 1, Amelanchier canadensis; 2, Tulipa sylvestris.—*A. W. H.* 1, Arabis procurrens; 2, Prunus serrulata plena; 3, P. triloba flore-pleno; 4, P. japonica flore-pleno; 5, Cytisus Ardoinii; 6, Asplenium Filix-fœmina var.; 7, Arrhenatherum bulbosum variegatum; 8, Skimmia japonica variegata; 9, Exochorda grandiflora; 10, Carex Morrowii.—*G. H.* Calycanthus floridus.—*A. D. W.* Peziza vesiculosa.—*R. M. Lamb.* Prunus serrulata variety flore luteo pleno, sometimes erroneously called P. Pseudocerasus variety flore luteo pleno.—*G. H. J.* (a) and (b) both forms of the "Bird Cherry," Prunus Padus.—*H. C.* Chionanthus retusa.—*G. F. M.* 1, Lonicera tatarica variety pulcherrima; 2, Juniperus chinensis; 3, Cupressus obtusa; 4, Cupressus umbilicata.—*A. W.* Spiræa arguta.—*Gardener (T. D. S.)* Erinus alpinus.—*Clark Bros.* Akebia quinata.—*W. & S.* Erica propendens.—*Ignoramus.* Clematis montana. *W. B. S.* Ribes aureum.—*C. J.* 1, Prunus Padus; 2, Pyrus aria; 3, Euonymus radicans variegata; 4, Berberis Darwinii; 5, Alnus glutinosus (Alder); 6, Ligustrum sp.; 7, Cassinia fulvida; 8, Garrya elliptica.—*W. A.* Paulownia imperialis.—*F. B.* 1, Odontoglossum triumphans; 2, O. Coradinei; 3, Epidendrum variegatum.—*W. B. S.* Ribes aurea.—*Enquirer, Dublin.* 1, Dendrobium Wardianum; 2, D. crystallinum; 3 and 4, D. nobile; 5, Brunsfelsia (Franciscea) latifolia; 6, Trachylospermum (Rhyncospermum) jasminoides.—*T. D. S.* Pyrus aria.

Orchids from Singapore: *W. C. S.* You are not likely to be successful in importing plants from Singapore and district. Plants travel very badly from that region, and those which reach this country alive usually take a long time to establish. Even if you get plants here in a fair condition, there is little chance of them realising much profit.

Orchis mascula: *F. V.* The specimen you send is not Orchis mascula but Orchis Morio, L., var. alba (the Green-winged Orchis). You will notice that the white is spoilt by the green stripes in the sepals and petals, but O. mascula alba is a gem with really white flowers and rather rare. The acute, sharply-reflexed lateral sepals always distinguish O. mascula.

Peach Shoots: *J. L. W.* The Peach tree is affected with Die-back. All dead shoots should be removed and the tree sprayed early next season, before the leaf-buds expand, with the Bordeaux Mixture.

Peach Trees Casting their Young Fruits: *C. T., Bristol.* If the ventilators were closed at night during frosty weather the frost experienced in your district during the last two weeks in April would not be likely to check the Peach trees to the extent of causing them to cast their fruit. Your trees having set an abundant crop of fruit, sufficient may remain on the trees to form and ripen an ample crop of larger and finer fruit than would otherwise be the case. The trouble may have resulted from an insufficiency of moisture in the soil in which the trees are growing; therefore, lose no time in pricking over the surface of the border with a digging fork preparatory to applying a mulch 3 inches deep of good short manure. Afford liberal waterings at intervals of a week or ten days, according to the nature of the weather and the composition of the border.

Propagating Camellias from Cuttings: *B. D. K.* The cuttings should consist of shoots of half-ripened wood from 3 to 5 inches in length. They should be inserted in 5-inch pots filled to within one inch of the rim with a mixture of fine peat and sand in the proportion of five parts of the former to one of the latter, making the soil moderately firm about the base of the individual cuttings. The pots should be plunged in a bottom heat of 75° to 80°. Water the plants through a fine rose, shade them from sunshine and maintain a moist, warm atmosphere. Thus treated, they should become rooted within six or seven weeks from the time they are inserted. You might also take some cuttings of the current year's growth with a heel of the old wood attached and treating them as recommended above. If a propagating pit is not available a box filled to within 4 or 5 inches of the top with sawdust may be employed, and then stood on the hot-water pipes in a forcing house. Sometimes cuttings are made of the ripe wood, inserted in pots as advised above and then stood in a cold frame or pit for several weeks until they have callused, after which they are transferred to the propagating house. After the little plants have become well-rooted, they should be potted singly into 3-inch pots and kept growing actively in a moist, warm atmosphere, but shaded from strong sunshine.

Strawberries: *C. R.* We have had many similar complaints to yours, and are inclined to attribute the cause of the widespread Strawberry failure to last year's abnormally dry season. It must be borne in mind that if Strawberries in pots—whether intended for forcing purposes or for planting out-of-doors—are at any time allowed to become dry at the root the plants will suffer, and satisfactory crops cannot be produced.

Tomatos and Celsia Diseased: *C. F. C.* The plants are affected by the Tomato leaf-rust. All diseased plants should be removed and destroyed, for they will not bear good fruit. Spray the healthy plants with liver of sulphur, using 1 ounce in 3 gallons of water. If there are no fruits present, Bordeaux Mixture should be used. Send a specimen of the Celsias for examination.

Tropæolum: *W. A. H.* Tropæolum speciosum is a self-clinging scarlet-flower species, and would be suitable for your purpose.

Tulip Bulbs Diseased: *R. S., Ltd.* The bulbs are destroyed by the bulb-mite. Treat the soil in which the plants have been grown with gas-lime.

Tulips: *F. M.* Owing, no doubt, to the exceptionally hot and dry summer of last year, during which your bulbs were left in the ground, many Darwin and other May-flowering Tulips are this season producing two or more flowers on the same stem. Many Hyacinths have also shown the same peculiarity. You will obtain better blooms if you lift the bulbs annually, as you suggest. See also replies to *H. W.* in the present issue, and to *Anxious*, p. 232, in the issue for April 6.

Wahlenbergia lobelioides and W. gracilis: *E. B. Anderson.* W. lobelioides is an annual, and native of the Canary and Cape Verde Islands. It should be treated as a half-hardy annual, and will flourish in any cool situation planted in light, rich soil. W. gracilis is a native of New Zealand, and is also found in Australia and South Africa. It is a very variable plant, both in habit and in the colour and size of its flowers. Some forms are annual, whilst others may also be termed perennial as they persist and come up from the same root-stock year after year for a time. The form in cultivation now is apparently perennial, but except in sheltered places it does not survive our winters very well. It can be propagated by division of the root, but does best when raised from seed and treated as a biennial.

Weed on a Lawn: *Abbey Lodge.* The plant is a species of Cerastium, probably C. arvense. Apply a top-dressing of fine soil, mixed with some nitrogenous manure, such as nitrate of soda or sulphate of ammonia. This will cause the grass to grow luxuriantly, which will in time crowd out the weed.

Communications Received.—W. H.—H. S. T.—H. K.—A. B., Bedford—L. B., New York—F. C. R.—W. H. A.—A. D. W.—R. P. B.—F. B.—J. O'B.—R. F.—F. W. P.—W. B. H.—F. W. C.—H. W. W.—W. J. J.—W. I.—E. M.—W. A. M.—G. P.—H. J. C.—G. A. M.—W. C.—R. M. K.—H. S.—T. S.—J. H.—W. E. H.—A. H. G.—J. C.—F. J.—A. J. L.—Kent—X Y. Z.—J. M. T. H.—Vines—J. W. B.—T. W.—M. E.—E. A. H.—B. & Sons—W. G., Sidmouth—R. G.

Cross's Garden Fertiliser.

The Celebrated Vine, Plant and Vegetable Manure.

The best manure for general garden purposes. Guaranteed analysis higher than any other Horticultural Manure. In tins, **6d.**, **1s.** and **2s. 6d.** each; **18s.** per cwt., carriage paid.

Other Specialities: **Cross's Clubicide, Cross's Ballikinrain Ant Destroyer, Cross's Mildew Destroyer, Cross's Vaporiser, &c.**

FROM ALL SEEDSMEN.

Sole Manufacturers—**ALEXANDER CROSS & SONS, Ltd., 19, Hope St., Glasgow.**

By Special Appointment *To His Majesty The King.*

LAWN MOWERS. GREEN'S AND ROLLERS.

STAND PRE-EMINENT.

Hundreds of Thousands in use.

Highest Awards, Royal Botanic Society, Royal Horticultural Society, and numerous others.

GREEN'S "SILENS MESSOR" LAWN MOWERS

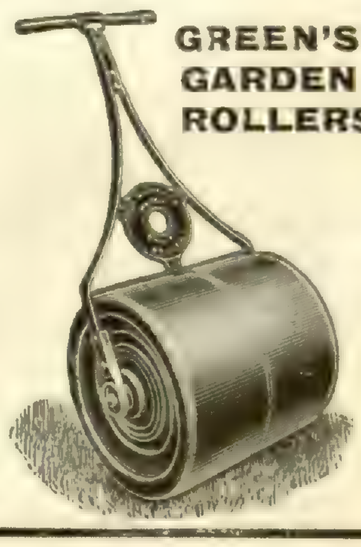
PONY AND HORSE MOWER.
"Silens Messor"
or Wheel-geared Pattern.

Motor Lawn Mowers and Rollers made in various sizes.

May be had from any Ironmonger or Seedsman in the United Kingdom.

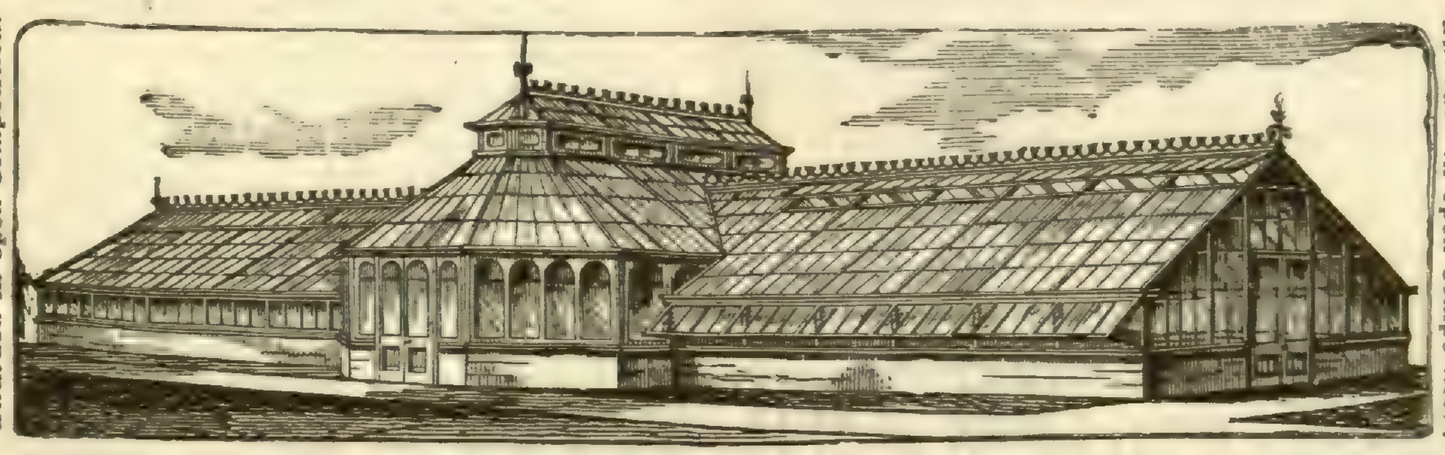
PLEASE WRITE FOR ILLUSTRATED PRICE LIST No. 4 FREE.

GREEN'S GARDEN ROLLERS



THOMAS GREEN & SON, Ltd., Smithfield Ironworks, Leeds, and New Surrey Works, Southwark St., London, S.E.

Five 1st Prize Medals recently awarded in open competition.



Five 1st Prize Medals recently awarded in open competition.

R. HALLIDAY & CO.,

Hot-House Builders and Hot-Water Engineers,

ROYAL HORTICULTURAL WORKS, MIDDLETON, MANCHESTER.

Vineries, Stoves, Greenhouses, Peach Houses. Forcing Houses, &c., constructed on our improved plan, are the perfection of growing houses, and for practical utility, economy and durability cannot be equalled. We only do one class of work, and that THE VERY BEST.

Conservatories, and Winter Gardens designed architecturally correct without the assistance of anyone out of our firm, from the smallest to the largest. **Hot-water Heating Apparatus,** with really reliable Boilers, erected, and success guaranteed in all cases. **Melon Frames, Sashes, Hot-bed Boxes, &c.,** always in stock.

Plans, Estimates, and Catalogues Free. *Customers waited on in any part of the Kingdom.*

Our Maxim is and always has been—

MODERATE CHARGES. FIRST-CLASS WORK. THE BEST MATERIALS.

NICOTICIDE

(FUMIGANT.)

Death to all insects in 20 minutes, without injury to tenderest foliage.

		Cubic ft.	Each.	
No. 1 size Tin—1 pint sufficient for		40,000	15/-	Carriage paid.
No. 2 size Tin—½ pint	,,	20,000	7/6	
No. 3 size Bot.—6 oz.	,,	12,000	4/6	
No. 4 size Bot.—4 oz.	,,	8,000	3/-	
No. 4½ size Bot.—2 oz.	,,	4,000	1/3	
No. 5 size Bot.—1 oz. "sample"		2,000	10d.	

FUMIGATORS, 1/- each for 5,000 cubic feet.

NICOTICIDE PLANT SPRAY.

½ pint, **1/2**; pint, **2/-**; quart, **3/6**; ½ gall., **5/-**; gall., **10/-**. (Use 1 part to 40 parts water for green fly, etc.) Car. paid.

Use Gow's Lawn Sand, Tobacco Powder, Quassia Extract, etc. Ask your Seedsman for these goods.

HUNTER & GOW, LTD., 36/46, Thomas St., LIVERPOOL.

ONCE TRIED, ALWAYS USED.

The 'PATTISSON' HORSE BOOTS

Fig. 1.

SIMPLEST! STRONGEST! MOST ECONOMICAL!

Soles of Best English Sole Leather (**Waterproofed**), with Motor Tyre Rubber Studs or Solid Rubber. Fig. 1 can be **Refitted repeatedly**, equal to New Boots, **Rubber Soles Strongly Recommended.**

USED IN THE ROYAL AND IN THOUSANDS OF THE PRINCIPAL GARDENS.

SILVER MEDAL
Royal Horticultural Society.

HUNDREDS OF TESTIMONIALS.

The "Field" says—"**As good as anything that could be devised.**"

Illustrated Price Lists from—

Fig. 2.

H. PATTISSON & CO., 4, Greyhound Lane, STREATHAM, S.W.

SAVE HALF THE COST. GARSIDE'S BEDFORDSHIRE SILVER SAND (COARSE OR FINE)

Is admitted by the leading Nurserymen to be **the Best Quality** obtainable in the Trade.
Consumers should **Buy Direct** from the Owner of these Celebrated and Extensive Pits, which contain a practically inexhaustible supply of Splendid Sand, and thus *save half the ordinary cost.*

Apply Direct to the Proprietor for Samples and Prices free on Rail or Canal. *All orders executed with the utmost promptness and under personal supervision.* Special Railway Rates in force to all parts. **All kinds of PEAT** supplied at lowest possible prices. Sample Bag sent on application to—

GEORGE GARSIDE, F.R.H.S., Leighton Buzzard, Beds.

MARKETS.

COVENT GARDEN, May 8.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—Eds.]

Cut Flowers, &c.: Average Wholesale Prices.

	s.d.	s.d.
Anemones St. Brigid, dz. bnchs.:		
— all colours ...	2 0	2 6
Arums (Richardias)	2 0	—
Bouvardia, per dz. bunches ...	6 0	7 0
Carnations, p. doz. blooms, best American var.	1 6	1 9
— smaller, per doz. bunches	10 0	15 0
— Carola, crimson, extra large	2 6	3 0
— Malmaisons, p. doz. blooms ...	10 0	15 0
Cornflower, per dz. bunches ...	3 0	—
Eucharis, per doz.	2 0	2 6
Gardenias, per box of 15 and 18 blooms... ...	1 6	3 0
Gladiolus Blushing Bride, per doz. bunches ...	9 0	10 0
— Bride, white ...	12 0	15 0
— Peach Blossom	10 0	12 0
Gypsophila, p. dz. bunches:		
— white	3 0	4 0
— pink	3 0	4 0
Iceland Poppies, p. dz. bunches	4 0	6 0
Iris (Spanish), per doz. bunches:		
— white, mauve, yellow and blue	8 0	12 0
Ixia, scarlet, per dz. bunches ...	1 6	1 9
Lapagerias, white, per dozen ...	2 0	2 6
Lilac, per bunch white	2 6	3 0
— mauve	3 0	3 6
Lilium auratum per bunch ...	4 0	5 0
— longiflorum, per doz., long	1 6	2 0
— — short ...	1 6	2 0
— lancifolium alba, long ...	2 0	2 6
— — short ...	1 6	2 0
— speciosum rubrum, per doz., long	1 9	2 0
— — short ...	0 9	1 0
Lily of the Valley, p. dz. bunches:		
— extra special ...	15 0	18 0
— special... ...	10 0	12 0
Lily of the Valley, p. dz. bunches:		
— ordinary ...	8 0	—
Marguerite, per doz. bunches:		
— Yellow... ...	1 6	2 0
Mignonette, per doz. bunches...	4 0	5 0
Myosotis (Forget-me-not), p. dz. bunches ...	3 0	4 0
Narcissus, per doz. bunches:		
— double, white	3 0	4 0
— Poeticus ...	1 6	2 0
Orchids, Cattleya, per doz. ...	12 0	—
— Odontoglossum crispum ...	3 0	4 0
Pelargoniums, p. dz. bunches	4 0	5 0
— Double Scarlet	4 0	6 0
Roses, 12 blooms,		
— Bridesmaid,	1 0	1 6
— C. Mermet ...	1 0	1 6
— Frau Karl Druschki ...	1 6	2 6
— General Jacqueminot ...	1 0	1 3
— Liberty ...	2 0	3 0
— Madame A. Chateney ...	1 6	3 0
— Niphetos ...	1 0	1 6
— Richmond ...	1 0	2 6
— Sunrise ...	1 0	1 6
— President Carnot	1 6	2 6
— Lady Roberts	1 0	1 6
— Lady Hillingdon	1 0	1 6
— Franz Deegan	1 0	1 6
— Kaiserine ...	1 0	2 0
Spiræa (Astilbe) japonica, per. doz. bunches	4 0	5 0
Statice, mauve, per doz. bunches...	4 0	5 0
Stephanotis (72 pips)	2 0	2 6
Sweet Peas, pr. dz. bunches:		
— coloured ...	4 0	6 0
Tulips, per bunch:		
— Darwin, all shades, per bunch	0 9	1 0
Violets Princess of Wales, per doz. bunches ...	3 0	4 0
— Parma	2 0	2 6

Cut Foliage, &c.: Average Wholesale Prices.

	s.d.	s.d.
Adiantum Fern (Maidenhair), best, dz. bnchs.	6 0	7 0
Agrostis (Fairy Grass), per dz. bunches ...	2 0	4 0
Asparagus plumosus, long trails, pr. ½ doz.	1 6	2 0
— medium, doz. bunches ...	12 0	18 0
— Sprengeri ...	10 0	12 0
Carnation foliage, doz. bunches...	4 0	—
Croton foliage, various, per dozen bunches ...	12 0	15 0
Cycas leaves, artificial, per doz.	3 0	12 0
Eulalia japonica, per bunch ...	1 0	1 6
Moss, per gross ...	6 0	—
Myrtle, dz. bchs. (English), small-leaved ...	6 0	—
— French ...	1 0	—
Smilax, per bunch of 6 trails ...	1 6	—

Plants in Pots, &c.: Average Wholesale Prices.

	s.d.	s.d.
Acacia lineata, 48's, per dozen ...	18 0	21 0
Aralia Sieboldii, p. dozen	6 0	7 0
Araucaria excelsa, per dozen ...	18 0	21 0
Asparagus plumosus nanus, p.dz.	10 0	12 0
— Sprengeri ...	8 0	9 0
Aspidistra, p. dz., green	21 0	30 0
— variegated ...	30 0	60 0
Boronia megastigma, 48's, p. dz.	21 0	24 0
Cinerarias, pr. dz.	8 0	9 0
Cocos Weddeliana, per dozen:		
— 60's	6 0	12 0
— larger, each ...	2 6	10 6
Coleus, per doz. ...	4 0	5 0
Croton, per dozen	18 0	30 0
Cyperus alternifolius, per doz.	5 0	6 0
— laxus, per doz.	4 0	5 0
Dracæna, green, per dozen ...	10 0	12 0
Ericas, per dozen:		
— Willmorei, 48's	15 0	18 0
— persoluta ...	27 0	30 0
Ferns, in thumbs, per 100... ...	8 0	12 0
— in small and large 60's ...	12 0	20 0
— in 48's, doz. ...	6 0	—
— choicer, sorts per doz. ...	8 0	12 0
— in 32's, per dozen	10 0	18 0
Ficus elastica, per dozen	9 0	12 0
Fuchsias, per doz.	8 0	9 0
Genistas, 48's, per doz.	10 0	12 0
Geonoma gracilis, 60's, per dozen	6 0	8 0
— larger, each ...	2 6	7 6
Heliotropes ...	6 0	8 0
Hydrangeas, white, 48's, per dozen	18 0	21 0
— pink	10 0	15 0
— blue, each ...	2 0	5 0
Kentia Belmoreana, per dozen	5 0	42 0
— Fosteriana, 60's, per dozen	4 0	6 0
— larger, per doz.	18 0	60 0
Latania borbonica, per dozen ...	12 0	30 0

Plants in Pots, &c.: Average Wholesale Prices *(Contd.)*.

	s.d.	s.d.
Lilium longiflorum, per dozen	20 0	24 0
— lancifolium rubrum in pts., per dozen ...	15 0	18 0
— lancifolium alba	15 0	18 0
Lily of the Valley	21 0	24 0
Marguerites, white, per dozen ...	8 0	10 0
Mignonette, 48's, per dozen ...	6 0	8 0
Pandanus Veitchii, per dozen ...	36 0	48 0
Pelargoniums, per dozen	9 0	12 0
— Ivy-leaved ...	7 0	9 0
Phœnix rupicola, each	2 6	21 0
Rhodanthi, per. dz. pots	5 0	6 0
Spiræa japonica, per dozen pots	10 0	12 0
— pink	10 0	12 0
Stocks, white, pink and red ...	6 0	8 0

Fruit: Average Wholesale Prices.

	s.d.	s.d.
Apples, Nova Scotian, per barrel	17 0	22 0
— Californian Newtowns, pr. case	4 0	7 0
— (Canadian), per barrel	20 0	—
— Oregon (Newtowns) p. case	10 0	14 0
— American, per barrel	20 0	32 0
— Tasmanian per case ...	7 0	18 0
— Australian per case	7 0	14 0
Apricots, French per box ...	1 5	—
Bananas, bunch:		
— Doubles ...	10 0	12 0
— No. 1	8 0	10 0
— Extra	10 0	12 0
— Giant	14 0	18 0
— Loose, p. doz.	0 6	1 0
— Red coloured...	5 6	6 6
— Jamaica Giants, per ton ...	£10	£12
— Jamaica Ordinary, per box (9 doz.) ...	4 0	5 0
Cherries, French, ½ sieve... ...	9 0	11 0
Cranberries, per case (30 qts.)...	10 0	11 0
— Cape Cod, per case (30 quarts)	9 6	—
Dates (Tunis) doz. boxes	4 6	5 6
Figs, Guernsey, pr. doz.	6 0	24 0
Gooseberries, per strike	3 6	4 0
— ½ bushel ...	7 0	7 6
Grape Fruit, case:		
— 96's		
— 80's		
— 64's	14 0	20 0
— 54's		
Grapes, Australian, per case ...	12 0	27 6
— English (new) per lb.... ...	1 9	5 0
Grapes:		
— Muscats ...	8 0	10 6
— Almeria, per barrel	16 0	21 0
Per dozen lbs.	4 0	6 0
— (Cape) per case White	3 0	12 0
Lemons:		
— (Naples), case	26 0	30 0
— Messina, p. case	7 6	17 0
Limes, per case ...	4 0	—
Mangoes, per doz.	6 0	10 0
Melons	1 3	2 6
— (English) ...	1 6	2 6
Nuts, Almonds, per bag	52 6	—
— Spanish, per sack	40 0	42 0
— Barcelona, bag	35 6	36 6
Nuts, Chestnuts, per bag ...	3 6	19 0
— Cocoanuts, 100	18 0	23 0
— English Cobs per lb.... ...	0 3	—
— Walnuts (Naples) kiln dried, cwt. cases	54 0	—
Oranges:		
— Denia, case ...	14 0	32 0
— Jaffa, per case	12 0	—
— Blood, per case	8 0	9 0
— Mandarins, per box ...	0 6	3 6
— Bitter, per ½ chest	16 0	18 6
— Seville Sour ½ chest ...	15 0	18 0
Peaches (Belgian), per dozen ...	6 0	12 0
— English, dozen	6 0	24 0
Pears (Australian), percase ...	6 0	10 0
— (American) per barrel, 180 lbs.	25 0	26 0
— cases	7 0	—
— (Cape)	5 0	6 0
Pineapples, St. Michael ...	3 0	4 6
Strawberries, p. lb.:		
— A quality ...	2 0	3 0
— B quality ...	1 0	1 3

Vegetables: Average Wholesale Prices.

	s.d.	s.d.
Artichokes (Globe), per dozen ...	2 0	2 6
Asparagus—		
— Toulouse ...	1 5	1 8
— Montauban ...	2 3	2 6
— Dijon	0 8	0 9
— Lauris ...	0 10	2 0
— (English) bndl.		
— Cambridge ...	0 9	1 9
— Worcester ...	1 4	6 0
Beans, Guernsey Dwarf, per lb.	0 9	0 10
— (English) p. lb.	0 9	0 10
— French, per packet, lb. ...	0 8	0 10
Beetroot, p. bshl.:		
— Long	2 0	2 6
Celeriac, per doz.	2 6	3 0
Cabbages (French) per dozen ...	1 3	2 0
— Cornish, per dozen	0 9	1 6
— Evesham, pots	4 0	4 6
Cauliflowers, per dozen	4 0	5 0
— (Cornish), per crate	15 0	20 0
Celery (washed), p. doz. bndls. ...	8 0	10 0
Carrots (English), pr. doz. bun....	4 0	5 0
— (French) per dozen bundles	7 0	10 0
— per cwt. ...	5 0	7 0
— (washed) p. bag	8 0	9 0
Chicory, per lb. ...	0 4	—
Cucumbers, p. doz.	1 6	2 6
Endive, per dozen	1 0	1 6
Greens (Spring), p. bag	5 0	6 0
Herbs (sweet), pkts., p. gross	7 0	—
Horseradish, 12 bundles ...	10 0	14 0
Leeks, per doz. ...	2 6	3 0
Lettuce (French), per doz. ...	3 6	4 0
— (English) per dozen	1 6	2 6
Mint, per dozen bunches ...	2 0	3 0
Mushrooms, cultivated, p. lb. ...	0 10	1 0
Mustard and Cress, per dozen punnets ...	1 0	—
Marrows, pr. dz. ...	3 0	6 0
Onions, (Spanish), per case ...	10 0	11 0
— Egyptian ...	6 0	7 0
— (Spring), per doz. bunches	2 0	3 0
Parsley, ½ sieve ...	1 6	2 0
— per doz. bun.	2 6	3 0
Peas (French) per pad	5 0	6 0
— (Guernsey), lb.	0 8	1 0
— (English) p. lb.	0 8	1 0
Radishes (English), per dozen ...	0 9	1 0
— (French) p. dz.	0 9	1 0
— (Jersey) long...	0 4	0 6
Rhubarb, forced, per 12 bundles	0 9	1 0
— Outdoor, p. dz	2 0	2 6
Spinach, pr. bshl.	3 6	4 0
Seakale, p. punnet	1 0	1 3
— ½ bushel ...	1 6	2 0
Tomatos (Canary Islands), per bundle... ...	16 0	20 0
— Guernsey, lb.	0 8	0 10
— English, lb. ...	10 0	1 0
Turnips (English), per dz. bunches	3 0	4 0
— (French), pr. dz.	0 10	1 0
Watercress, p. dz. bunches ...	0 4	0 6

Remarks.—Grapes of the varieties Muscat of Alexandria and Black Hamburgh are arriving in large quantities daily, some of the bunches being well coloured for the time of the year. The best samples are meeting with a ready demand. Hothouse Peaches have been less plentiful during the past week, and well-finished fruit have realised as much as 24s. per dozen. Belgium is also contributing a few Peaches and Grapes. Green Figs from the Channel Islands and the Worthing district are a limited supply. Melons are obtainable in much larger quantities, the variety Hero of Lockinge predominating. Cantaloupe Melons are now obtainable. There continues to be a very plentiful supply of morning-gathered Strawberries, which can only be cleared at low prices. Small boxes of Cherries and Apricots are arriving from France and Spain, also a few Cherries packed in ½-sieve baskets. Packages of fruits from Australia and Tasmania amounted to about 70,000 cases, and consisted of Apples, Pears, and Grapes. The Grapes, black and white varieties, are sent in boxes each holding 25 lbs. The supply of English and Channel Island Tomatos is increasing daily, but Tomatos from Teneriffe are almost finished. There has been a good supply of Gooseberries; many of the berries are very fine for this early season of the year. A heavy supply of Asparagus is obtainable from all sources, and the bundles are sold at very moderate rates. Fruit from Cape Colony is limited to a few boxes of Grapes. Supplies of forced vegetables are still equal to the demand, but there is still a scarcity of outdoor vegetables. *E. H. R., Covent Garden, May 8, 1912.*

Potatos.

	per cwt. s.d.	s.d.		per cwt. s.d.	s.d.
Lincolns—			**Lincolns—**		
Up-to-Date ...	3 9	4 6	Maincrops ...	3 9	4 3
King Edward ...	3 9	4 3	Blacklands ...	2 9	3 3
Northern Star ...	2 9	3 6	**Dunbars—**		
Evergoods ...	3 0	3 9	Up-to-Date ...	4 9	5 3
			Maincrop ...	5 3	5 6

New Potatos.

Teneriffe	11 0	13 6	Jerseys 16 0 17 0
Algerian	12 0	14 0	St. Malos 15 6 16 6

Cherbourgs 15s.–16s. per cwt.

Remarks.—Trade in old Potatos is very quiet and their prices are falling; indeed stocks of old tubers in London are so large for the time of year that prices promise to be very low by next week. Consignments of new Potatos are fairly plentiful. *Edward J. Newborn, Covent Garden and St. Pancras, May 8, 1912.*

SCHEDULES RECEIVED.

Windsor, Eton and District Rose and Horticultura Society.—The twenty-first annual exhibition will be held on Saturday, June 29, in the slopes of Windsor Castle. The challenge cup presented by the late King Edward is offered in the open class for 48 blooms, distinct. In the classes open to amateurs the "Windsor" Challenge Cup is offered for 24 blooms, distinct. Two other challenge cups are also offered in these classes. In the local classes, open only to amateurs residing within a radius of 10 miles from Windsor, 4 challenge cups are offered. In the plant section a challenge cup is offered for a group of plants arranged for effect. Secretary, Rev. L. G. Reed, The Cloisters, Windsor Castle.

Irish Rose and Floral Society.—The second annual show of this society will be held in conjunction with the provincial show of the National Rose Society in the Botanic Park, Belfast, on Friday, July 19. Gold medals are offered in the nurserymen's classes for 36 blooms, distinct, and in the amateurs' section for 24 blooms, distinct. Three challenge cups are offered for Sweet Peas. Secretary, Mr. H. P. Pinkerton, 18, Victoria Street, Belfast.

Richmond Horticultural Society.—The thirty-eighth annual flower show of this society will be held in the Old Deer Park, Richmond, Surrey, on Wednesday, June 26. The Gunnersbury Park Challenge Cup is offered for 48 Roses, distinct, three blooms of each. The Waechter Challenge Cup will be presented to the winner in the class for a collection of six dishes of fruit (distinct kinds). The schedule includes seven new classes open only to amateurs residing in the neighbourhood. Secretary, Mr. W. J. Cook, Holmsley House, Sheen Road, Richmond.

Richmond Royal Horse Show, to be held at Richmond, Surrey, on June 14 and 15. Secretary and manager, Mr. C. Capel Smith, 1, The Little Green, Richmond, Surrey.

National Hardy Plant Society.—The first exhibition of hardy plants and flowers under the auspices of this society will be held in the Royal Horticultural Hall, Vincent Square, Westminster, on Wednesday, June 19. Secretary, Mr. A. J. Macself, 52, Beechfield Road, Finsbury Park, London.

CATALOGUES RECEIVED.

James Veitch & Sons, Ltd., Chelsea—Dahlias, Nymphæas and other Aquatic Plants.
Dr. Macwatt, Morelands, Duns, Scotland—Primulas.
Bees, Ltd., Mill Street, Liverpool — Bedding Plants, Dahlias, Chrysanthemums, Roses, Garden Sundries.
C. H. Daniels & Son, Wymondham, Norfolk—Bedding Plants.
Thomas Gunn, Ltd., 34, Fore Street, London—Garden Requisites.
Thomas Kennedy & Co., Dumfries—Bedding Plants.
E. A. White, Ltd., Beltring, Paddock Wood, Kent—"Abol" Specialities in Syringes and Insecticides.
Dicksons, 108, Eastgate Street, Chester—Bedding Plants and Dahlias.

COLONIAL.

Anderson & Co., Ltd., 399, George Street, Sydney, Australia—General List of Vegetables, Flowers and Seeds.

FOREIGN.

The Royal Tottenham Nurseries, Ltd., Dedemsvaart, Netherlands—Hardy Perennials (wholesale).
Montariosa Nursery, Santa Barbara, California, U.S.A.—New and Rare Plants.
Ch. Lemaire, 103, Boulevard Magenta, Paris, France—Lilium candidum.

SELECT LIST
OF
Books on Gardening.

PRICES QUOTED ARE, IN ALL CASES, POST FREE TO ANY PART OF THE UNITED KINGDOM.

Botany, Lectures on Plant Physiology. By Dr. Ludwig Jost. Translated by J. Harvey Gibson. Morocco back, gilt top, 24s. 6d.; Cloth, 21s. 6d.

Botany, Practical Plant Physiology. By Frederick Keeble, Sc.D. 3s. 10d.

Botany, Structural. By D. H. Scott, M.A., 2 Vols.
PART I.—FLOWERING PLANTS. 3s. 11d.
PART II.—FLOWERLESS PLANTS. 3s. 11d.

Botany, The Treasury of. Edited by J. Lindley, Ph.D., F.R.S., and T. Moore, F.L.S. With 20 Steel Plates and numerous Woodcuts. Two Vols. 12s. 5d. complete. Valuable book of reference for gardeners.

British Plants, List of. By G. C. Druce, M.A. A detailed list of Species and Varieties. 2s. 9d.

British Plants, The Uses of. By Prof. Henslow. 4s. 9d.

Bulb-Culture. A guide to the cultivation of bulbs in the open and under glass. By W. D. Drury. Third Edition. Revised and Enlarged. 1s. 3d.

Bulb Growing, Pictorial Practical. By Walter P. Wright. Illustrated. Paper, 1s. 3d.; cloth, 1s. 9d.

Bulbous Plants, Beautiful. By Jno. Weathers. 5s. 4d.

Bulbs and their Cultivation. By T. W. Sanders. 2s. 9d.

Bulbs, The Book of. By S. Arnott. Together with an Introductory Chapter on the Botany of Bulbs. Illustrated. 2s. 9d.

Cactus Culture for Amateurs: Being Descriptions of the various Cactuses grown in this Country. By W. Watson, Curator of the Royal Botanic Gardens, Kew. New Edition. Profusely Illustrated. 5s. 4d.

Calendar of Garden Operations, The. Based on the original work compiled by the late Sir Joseph Paxton, M.P. Adapted to the requirements of Cottage Gardeners, Allotment Holders, and Amateur Gardeners, by members of the staff of the GARDENERS' CHRONICLE. 170 pages with 75 Illustrations. New Edition issued July, 1910. 8d.

Carnation Culture. Deals with Carnations and Picotees of all classes in the open ground and in pots. Fourth Edition. 1s. 3d.

Carnation Growing, Pictorial Practical. By Walter P. Wright. Paper, 1s. 3d.; cloth, 1s. 9d.

Carnation, The Book of the. By R. P. Brotherston. 2s. 9d.

Carnation, The Modern. By Hayward Mathias and P. Smith. Illustrated. 3s. 9d.

Carnation Year Book, The, 1911. Containing interesting articles, valuable information and numerous illustrations. 1s. 3d.

Carnation, The Perpetual Flowering. By Montagu C. Allwood. Illustrated. 2s. 3d.

Carnations and Pinks. By T. H. Cook, Head Gardener at Sandringham; James Douglas, V.M.H.; and J. F. McLeod, Head Gardener to Mr. J. Pierpont Morgan. Contains 8 full-page Coloured Plates, taken from colour photography. 1s. 9d.

Carnations and Pinks. Edited by E. T. Cook. 3s. 10d.

Complete New Catalogue (Eighth Edition) sent post free on application to

THE PUBLISHER,
41, Wellington Street, Covent Garden, W.C.

METAL ROSE and FRUIT TREE LABELS.
1/- dozen,
10/6 gross.

The Best and Cheapest Metal Label on the market.
A Customer writes:
"After five years use they are as good as the day we had them."
Samples post free.
WHITINGTON & SON,
Tekmar Works, Newbury.

MALDEN'S PATENT INFUSER
Simplest, quickest, and best method of obtaining
LIQUID MANURE
PRICE 11/6
See Testimonials. Order now from Ironmongers or Horticultural Sundriesmen or the Patentee:—
A. H. MALDEN POOLE DORSET.

GARDEN & TENNIS NETS
(Best Tanned only, Small Mesh).
50×8 yds., 17/-; 25×8 yds., 50×4 yds., 100×2 yds., 8/- each; 100×1 yd., 50×2 yds., 25×4 yds., 4/- each. Any size to order.
TENNIS NETTING (Corded). 25 × 2 yds., 6/6; 25×3 yds., 7/6; 25×4 yds., 8/6 each.
Prompt Delivery. Write for Price List and Testimonials.
L. WREN & SON,
Net Merchants, 139, High Street, Lowestoft

MARK SMITH, Ltd.,
LOUTH, LINCS.
"PERFECT"
WEED KILLER
STRONGEST, CHEAPEST & BEST.

TURF LOAM.
Very Fibrous Yellow Turf Loam.
SPECIALLY SUITABLE FOR VINE BORDERS
Carnations, Roses, Fruits under Glass, etc., etc.
7/6 per yard. Bag, **2/-** Samples Free.
Quotations Carriage Paid to any Station.
A. B. JOHNSTON, New Park, Cranleigh, Guildford.

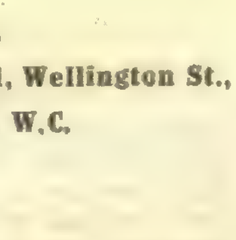
WEEDS One application of
HARRISON'S Reliable WEED KILLER
will keep your Garden Paths, Carriage Drives, etc., free from weeds for at least 12 months. The best Killer for Daisy, Plantain and Dandelion in lawns. Brightens the Gravel. Immense Saving in Labour.

1 Gallon	..	2/8,	drum	.. 9d.,	carriage	.. 9d.
2	,,	5/4	,,	1/3	,,	1/-
5	,,	12/-	,,	3/-	,,	paid.
10	,,	21/6	,,	5/-	,,	,,
40	,,	75/-	,,	5/-	,,	,,

Irish orders are not subject to these carriage terms, but are paid to any English port. Full price allowed for all drums and casks if returned in good condition carriage paid, within 2 months.

N.B.—In the prices of the above, please note that this Weed Killer mixes 1 to 50 of water, being *double* the ordinary strength. One gallon mixed with 50 gallons of water will cover an area of from 150 to 200 sq. yds. *effectively. There is no smell to this Weed Killer.*

Geo. W. HARRISON,
Horticultural Chemist,
READING.



Handbook of Tropical Gardening and Planting.

By H. F. MACMILLAN, Curator of the Royal Botanic Gardens, Peradeniya, Ceylon.

A fine record of progress in tropical agriculture and horticulture, and testifies not only to the fertility of Ceylon, but also to the resource of the author. The home-keeping reader will find much that is of interest in its rich and varied contents.

Nearly 200 illustrations. Post free, **12/-**

THE PUBLISHER,

"Gardeners' Chronicle" Offices, 41, Wellington St., Covent Garden, London, W.C.

CALENDAR OF GARDEN OPERATIONS

New and enlarged Edition just issued.

Indispensable to Cottage Gardeners, Allotment Holders and Amateur Gardeners.

Price 6d.; post free, 8d.

Press Notices.

"It is a concise and practical manual, from which possessors of small gardens in country or town may obtain much useful advice and guidance."—*Nature.*

"A vast improvement on the numerous editions which have been issued, and can be highly commended for those who lecture on horticultural subjects."
—*Journal of the British Gardeners' Association.*

"This book has had an enormous sale—a fact which is not surprising considering the splendid value given for the low price charged—sixpence. The new edition is well illustrated and contains new chapters on 'French Gardening,' and on the cultivation of trees in towns."
—*The Nurseryman and Seedsman.*

"There is no better sixpennyworth of guide to amateur gardening on a small scale."—*The Westminster Gazette.*

"The information given covers every department of gardening operations, so the Guide should prove of great assistance to all who are interested in any branch of the subject. The advice is conveyed in a concise, practical, and simple manner, and the value of the text is greatly enhanced by the number of excellent illustrations and diagrams which accompany it. Every amateur can be assured of finding something to interest and instruct in a perusal of the pages of this work, and the 'Calendar' should not fail to find a prominent place on his bookshelf."
—*The Observer.*

"A most valuable work for the amateur gardener."
—*The Lady.*

"Cottage gardeners, allotment holders, and amateur gardeners will find it a very useful handbook to consult."
—*The Gentlewoman.*

"Offers to all who possess even the smallest piece of ground, complete guidance as to what to plant and how to plant for every season of the year."
—*Universe and Catholic Weekly.*

"Is an excellent compendium for the use of cottage gardeners, allotment holders, and amateur gardeners."
—*The Christian.*

"One of the most important and invaluable books for the amateur to possess in particular is a good calendar, and in the work under review, this want is supplied in a most comprehensive manner."—*Purley Gazette.*

"It is full of interesting and general information as to the growing of fruit, flowers, and vegetables, and how to protect them from destructive garden pests."
—*The Western Daily Press.*

"The information with which the 170 pages are crammed has been brought thoroughly up to date, and chapters added on the cultivation of trees and shrubs in towns and on 'intensive culture,' as vegetable forcing is now termed."
—*Norwich Chronicle.*

"Copiously illustrated and free from technicalities, it should command a ready sale and unstinted appreciation."
—*Manchester Weekly Times.*

"The amateur gardener and the small holder will find it a most useful little book."
—*The Yorkshire Weekly Post.*

"A handbook of practical information prepared by experts associated with the GARDENERS' CHRONICLE."
—*The Scotsman.*

"Cottage gardeners, allotment holders and amateur gardeners will find the book of service."
—*The Dundee Advertiser.*

"Gives instructions in regard to operations connected with vegetables, fruit and flowers for the different months of the year; and there follow a number of valuable articles on special subjects."—*Aberdeen Journal.*

"As a guide and instructor to amateurs, this calendar is invaluable, and few volumes give as good value for sixpence."—*Irish Gardening.*

"It is excellent value for the money."
—*Cork Constitution.*

THE PUBLISHER,
"Gardeners' Chronicle" Offices, 41, Wellington St. Covent Garden, London, W.C.

THE WEATHER.

THE FOLLOWING SUMMARY RECORD of the weather throughout the British Islands, for the week ending May 4, is furnished from the Meteorological Office:—

GENERAL OBSERVATIONS.

The *weather* continued dry generally, but slight rain was experienced at times in the north-west and east, and late in the week rain fell in almost all parts of the Kingdom.

The *temperature* differed little from the average over the Kingdom as a whole, but was 2° above it in Ireland S. and 1·5° above in the English Channel, while in Scotland N. and England N.W. it was 1° below it. The highest of the maxima were recorded at most stations on May 2 or 3, and ranged from 70° in England E. and 68° in England S.E. and the English Channel to 62° in Ireland N., 61° in Scotland W., and 60° in Scotland N. Late in the week the maxima along the east coast of Great Britain were about 50°. The absolute minima, recorded early in the week, were low for the time of the year. In England S.W. (at Llangammarch Wells) the sheltered thermometer fell to 24°, in England S.E. to 26°, and in several other districts to 27° or 28°. Frost was experienced in all districts except the English Channel. The lowest grass readings reported were 16° at Newton Rigg, 17° at Wisley, and 18° at West Linton, Birmingham, and Llangammarch Wells. The temperature of the soil continued above the average in all parts of the Kingdom, both at 1 foot and 4 feet below the surface.

THE WEATHER IN WEST HERTS.

Week ending May 8.

The wettest day for six weeks.—There was one cold day in the middle of the past week, but with this exception all the days and nights were unusually warm. On the warmest night the exposed thermometer never fell lower than 54°, which is 19° warmer than the average minimum temperature, as indicated by that thermometer, for the end of the first week in May. The ground is at the present time 2° warmer at 2 feet deep, and 5° warmer at 1 foot deep, than is seasonable. Rain fell on four days, and to the total depth of rather less than half-an-inch. By far the greater part of this rainfall was deposited on the 4th inst. On that day the rain was falling, often very lightly, but still almost continuously, for nearly 24 hours. Although the quantity deposited was small, only amounting to 1¼ gallons of rainwater on each square yard of surface, yet this nevertheless proved the heaviest rainfall recorded here on any one day since March 23, or for six weeks, and more than the total quantity deposited during the whole of those six dry weeks. There has been no percolation at all through either of the soil gauges for over a month. The sun shone on an average for only 2¼ hours a day, or less than half the average duration for the same period in May. On two days no sunshine at all was recorded, and on two other days the sun shone brightly for less than an hour. Calms and light airs alone prevailed during the week, and the direction of the light airs was very variable. The mean amount of moisture in the air at 3 p.m. exceeded a seasonable quantity for that hour by as much as 15 per cent. A Horse Chestnut tree in my garden came first into blossom on the 4th inst., or eight days earlier than its average date in the previous 21 years, and earlier than in any of those years since 1894, or for 18 years. The first Rose to flower in the open ground in my garden was a variety of Rosa alpina, which also came first into flower on the 4th inst., and Rose sericea, pteracantha, which was out on the 6th inst., both dates being about a week earlier than last year. *E. M., Berkhamsted, May 8, 1912.*

GARDENING APPOINTMENTS.

Mr. R. LICKMAN, for 3 years Gardener to J. E. GREAVES, Esq., Bron Eifion, Criccieth, North Wales, and previously for 9 years Foreman at Coombe House Gardens, Kingston-on-Thames, Surrey, as Gardener to F. S. PEARSON, Esq., Edgewood, Great Barrington, Massachusetts, U.S. America.

Mr. JAMES MORISON, recently at Rothiemay Castle Gardens, Aberdeenshire, as Gardener at Balmoor House, near Peterhead, Aberdeenshire.

Mr. JOHN MCCULLOCH, for 10 years Gardener to the late Colonel MORISON and the present proprietor A. E. F. MORISON, Esq., of Mountblairy, near Turriff, Aberdeenshire, as Gardener to Major LLOYD, Leaton Knolls, Shrewsbury, Shropshire.

Mr. ALEAR, Gardener at Auckterlouie Castle, Guthrie, Forfarshire, as Gardener at Mountblairy Gardens, near Turriff, Aberdeenshire.

Mr. W. T. JORDAN, previously Gardener to H. L. HEBER-PERCY, Esq., Ferney Hall, Onibury, Shropshire, as Gardener to C. A. BOUGHTON-KNIGHT, Esq., Downton Castle, Ludlow. (Thanks for 2s. for R.G.O.F. box.—EDS.)

Mr. F. W. HART, for the past 8 years Gardener to SYDNEY SMITH, Esq., Werndee Hall, South Norwood, as Gardener to the Duchess of MARLBOROUGH, at Crowhurst Place, Lingfield, Surrey.

Mr. WILLIAM MCKENZIE, previously for more than 3 years Foreman at Ford Castle, Cornhill-on-Tweed, as Gardener to JAMES WEIR, Esq., Over Courance, Lockerbie. (Thanks for 1s. received for R.G.O.F. box.)

Mr. R. HORNE, as Gardener to Lieutenant-Colonel PHILIPS, Heath House, Tean, Staffordshire.

Mr. T. CHAUNT, for the past 9 years Gardener to the late A. W. CARRINGTON, Esq., J.P., Farington Lodge, Preston, and previously Foreman in the gardens at Cuerden Hall, Preston; Kingston Hall, Derby; and Lenox, Mass., U.S.A.; as Gardener to J. W. NEWALL, Esq., Vaynor Park, Berriew, Montgomeryshire. (Thanks for 1s. for R.G.O.F. box.—EDS.)

Mr. E. THAYER, recently Gardener to A. BAILEY-HAWKINS, Esq., Stagenhoe Park, Welwyn, Herts., and previously, for more than 5 years, principal foreman at Eastwell, Park, Kent, as Gardener to THE LADY MAGDALEN BULKELEY, Baron Hill, Beaumaris, Anglesey. (Thanks for 2s. for R.G.O.F. box.—EDS.)

Mr. J. WILLIAMS, for the past 8 years Foreman at Ragley Gardens, Alcester, as Gardener to the Lady HICKMAN, Wightwick Manor, near Wolverhampton. (Thanks for 2s. for the R.G.O.F. box.—EDS.)

SELECT LIST OF Books on Gardening.

PRICES QUOTED ARE, IN ALL CASES, POST FREE TO ANY PART OF THE UNITED KINGDOM.

Carnations, Picotees and Pinks. By T. W. Sanders, F.L.S. A Practical Guide to Culture and Propagation. Illustrated. 2s. 9d.

Chrysanthème, la Bibliographie du. By C. Harman Payne. 1s. 1d.

Chrysanthemum Culture. By W. Wells. For Exhibition, Decoration, Cut Flowers, and Market, well illustrated. Fourth Edition, new and enlarged. 1s. 6d.

Chrysanthemum Culture. For Amateurs and Professionals. By B. C. Ravenscroft. 1s. 3d.

Chrysanthemum Culture, Pictorial Practical. By Walter P. Wright. Illustrated. Paper, 1s. 2d.; cloth, 1s. 9d.

Chrysanthemums and How to Grow them for Exhibition. By J. B. Wroe. New Edition. Illustrated. 1s. 2d. Cloth, 1s. 8d.

Chrysanthemums for Garden and Greenhouse. By D. B. Crane. Edited by T. W. Sanders. Illustrated. 2s. 9d.

Colour in the Flower Garden. By Gertrude Jekyll. Many Illustrations and Diagrams for planting Herbaceous Borders. 13s.

Coniferæ, Manual of. By James Veitch and Sons. 20s. 6d.

Cottage Gardening: or Flowers, Fruits and Vegetables for Small Gardens. By E. Hobday. 1s. 8d.

Cucumber Culture for Amateurs. Including also Directions for the Successful Culture of Melons, Vegetable Marrows, and Gourds. Illustrated. By W. J. May. 1s. 3d.

Daffodils. By the Rev. Joseph Jacob. A full treatise on their culture for private and Exhibition purposes, with 8 full-page Coloured Plates. 1s. 9d.

Daffodil, The Book of the. By Rev. S. E. Bourne. 2s. 9d.

Dahlia, The: its History and Cultivation. By the late Richard Dean, and others. 1s. 9d.

Dahlias and their Cultivation. By J. B. Wroe. A practical treatise for all purposes. Seventh Edition. Paper, 1s. 2d.; cloth, 1s. 8d.

Diseases and Garden Pests, Book of Plant. Specially designed for the use of Cultivators. By R. Hooper Pearson, Managing Editor of the GARDENERS' CHRONICLE. 214 pages. Over 65 illustrations. Cloth, 2s. 9d. "It is to the intelligent gardener that Mr. Pearson's book will appeal."

Diseases of Cultivated Plants and Trees. By George Massee. 7s. 11d.

English Flower Garden, The. An Illustrated Dictionary of the Plants Used, and Directions for their Culture and Arrangement. By W. Robinson. With numerous Illustrations. 15s. 6d. Also 2 vols., half morocco, 24s. 7d. 1 vol., half morocco, 21s. 7d.

Fern Culture. By A. Hemsley. A practical work that should be highly acceptable to cultivators. Well Illustrated. 2s. 9d.

Ferns, for Amateurs. By George Schneider. Illustrated. New Edition. 3s. 10d.

Ferns, The Book of British. By C. T. Druery. Beautifully Illustrated. 3s. 10d.

Fertilizers and Feeding Stuffs. By Dr. Dyer. Sixth Edition, revised. Conveys a large amount of invaluable information in simple language. 1s. 2d.

Complete New Catalogue (Eighth Edition) sent post free on application to

THE PUBLISHER,
41, Wellington Street, Covent Garden, W.C.

The Gardeners' Chronicle
SCALE OF CHARGES FOR ADVERTISEMENTS.

Advertisements intended for insertion in the next issue MUST reach THE PUBLISHER not later than

WEDNESDAY, 5 p.m.

	£	s.	d.
Ordinary Positions ... ... per page	10	10	0
Facing matter and Back page ... ,, ,,	12	12	0

Half and quarter pages, column and half column spaces, pro rata.

	£	s.	d.
4 line space, about 20 words, single column ...		3	0
Per inch, single column		7	0
Per inch, across 2 columns		14	0
Per inch, across 3 columns	1	1	0

SERIES DISCOUNTS.

For three insertions, 5%; thirteen, 10%; twenty-six, 15%; fifty-two, 20%

Front page (no display allowed) 1/- per line space.

SITUATIONS WANTED.

26 words, 1s. 6d., and **6d.** for every additional **8** words or fewer.

These Advertisements must be prepaid, **AND APPLY ONLY TO GARDENERS, &c., OUT OF EMPLOYMENT.**

Advertisers may have replies to their advertisements addressed to the "GARDENERS' CHRONICLE" Office. A Box Office fee of 6d. is charged for each advertisement, and replies are forwarded post free at the end of each day.

The boxes for answers to advertisements are provided for the use of advertisers only, and no matter will be forwarded which is not, in the opinion of the Publisher, a bona-fide or specific answer to an advertisement. The boxes are not to be used for the distribution of printed or written announcements, or for the benefit of competing businesses. All advertisements and replies are accepted subject to the above conditions.

SUBSCRIPTIONS:—

THE UNITED KINGDOM ... ... **15/-** per annum.
ABROAD ... ... **17/6** ,,

Cheques and P.O.'s to be made payable to "GARDENERS' CHRONICLE, LTD."

41, WELLINGTON STREET, COVENT GARDEN, LONDON, W.C.

Telegrams "GARDCHRON, LONDON."
Telephone: GERRARD 1543

SITUATIONS VACANT.

Four Lines 3s. (Head-line counted as Two), 6d. for each succeeding line.

PRIVATE.

H. F. BRIGGS, Munden Park Gardens, begs to Thank the numerous Applicants for Pleasure Groundman, which is Now Filled.

R. PRATT, Begs to Thank all Applicants for Situation, which is now Filled.

WANTED, GARDENER (HEAD WORKING of two, with help given); wife experienced laundress; to live in lodge.—Write fully, e.g., wages, capabilities, &c., to E. MAGOR, Lamellen, St. Tudy, Cornwall.

WANTED, GARDENER (HEAD WORKING); thoroughly experienced with Fruit and Flowers In and Out; three kept; knowledge of Electric Light preferred.—Apply, stating experience, age, number of children, wages, and with copy references, to MARTIN LAWFORD, Trewern, Oswestry.

SURREY.—Wanted, GARDENER (HEAD WORKING, where three others are kept); fullest experience In and Outdoors, and highest references required; married, but no children preferred.—C. A., Box 13, 41, Wellington Street, Covent Garden, W.C.

WANTED, GARDENER; good all-round Man, for a month, to put neglected Garden in order; 25s. per week; Denmark Hill.—Apply, KAPPA, care of Streets, 30, Cornhill.

WANTED, GARDENER, capable single man, for Hotel Kitchen Garden; Tomatos, Cucumbers, &c., under Glass; Pigs and Poultry; £1 1s.; also strong lad; 12s.—MANAGER, St. Ives Hotel, Maidenhead.

WANTED, for Kent, active MAN to take entire charge of two Greenhouses, Plants, Carnations, Peaches and Vines, Forcing House and Frames; must be good Propagator; to help occasionally Outside; wages 23s. and cottage; good personal character indispensable; Scotchman preferred.—Apply by letter to L. M., Box 2, 41, Wellington Street, Covent Garden, W.C.

WANTED, strong, active MAN for Pleasure Grounds and Kitchen Garden; 18s. per week and Bothy.—Full particulars to G. BUDDEN, Warren House, Kingston Hill.

COLOURED SUPPLEMENT.

THE GARDENERS' CHRONICLE

ESTABLISHED 1841

No. 3725

No. 1,325.—VOL. LI. {THIRD SERIES.} SATURDAY, MAY 18, 1912.

{Registered as a Newspaper. WITH SUPPLEMENT.} {PRICE 3d. POST-FREE, 3½d.

SUBSCRIPTION—Inland, 15/-; Foreign, 17/6 [22fr. 10c.] [$4 26c.] per annum. Entered at the New York Post Office as second-class matter.

Postal Address—41, Wellington Street, Covent Garden, W.C. Telegraphic Address—"Gardchron, London." Telephone—Gerrard, 1543.

☞ For CONTENTS see page 327.

INTERNATIONAL HORTICULTURAL EXHIBITION.

The attention of advertisers is directed to the arrangements made by the "Gardeners' Chronicle" (see last issue, p. 318) for reporting the International Exhibition. The issues (May 25, June 1 and 8) containing the three Exhibition Supplements will be sold at the usual price (3d. each).

WEBBS' WALLFLOWERS.
The finest strains in existence.
WEBBS' Canary Bird (golden-yellow).
WEBBS' Ruby Gem (ruby-violet).
WEBBS' Vulcan (deep velvety crimson).
WEBBS' Eastern Queen (salmon shaded).
WEBBS' Universal (single mixed).
WEBBS' Double (mixed; very fine).
Each, 1s. per packet, post free.
WEBBS' Kinver Favourite (blood-red).
WEBBS' Primrose Dame (primrose).
WEBBS' Belvoir Castle (yellow).
Each, 6d. per packet, post free.

WEBB & SONS, The King's Seedsmen, WORDSLEY, STOURBRIDGE.

THE Popularity of "XL ALL" Specialities increases every year. All gardeners proclaim that nothing equals these celebrated preparations. "XL ALL" NICOTINE VAPORISING COMPOUND, the gardeners' favourite Fumigant, both Liquid and Cake. "XL ALL" NICOTINE INSECTICIDE WASH for Syringing, Dipping and Dressing Fruit Trees and Plants; Mealy Bug, Scale, etc., cannot exist where this is used. "XL ALL" INSECTICIDE WASH B (*sine* Nicotine), best non-poisonous Wash on the Market. No licence required to sell this. Other preparations of great renown are:—"XL ALL" WEED KILLER, "XL ALL" FERTILISER, "XL ALL" ROSE MANURE. Richards' GREEN SUNSHADE, finest powder shading on the market, 1s. packet, does 100 feet of glass. Don't forget to ask your Nurseryman or Seedsman for my small pink list.—G. H. RICHARDS, Manufacturer, 234, Borough High Street, London, S.E.

WM. DUNCAN TUCKER & SONS, Ltd., 27, Cannon Street, London, E.C.; Works, Tottenham. Conservatories, Winter Gardens, Vineries, Peach-houses, Portable Buildings, etc. Catalogue gratis.

FRUITING VINES IN POTS.—Muscat of Alexandria, and leading Market varieties. We make Vines a speciality.
G. COLEMAN, The Vineries, Burgess Hill, Sussex.

HUTS FOR THE GARDEN. — Fruit Rooms, Potting Sheds, Workshops, Cycle Houses, Boot Rooms, Servants' Mess Rooms, Children's Playrooms, &c. Send for Illustrated Catalogue, free.
BOULTON & PAUL, Ltd., Norwich.

ALPINES & HERBACEOUS PLANTS, —Himalayan and other rare Rhododendrons, rare Shrubs, Construction of Rockeries. Catalogues ready.
G. REUTHE, Keston, Kent.

Roses and Herbaceous Plants.
GUNN & SONS were awarded the 25 Guinea Challenge Cup in each collection at the Leamington Show. Up-to-date List for each now ready. Address: Olton, Warwickshire.

WALTERS & CO., Morland Rd., Croydon, Makers of Lath Roller Greenhouse Blinds; Pinoleums, Scrim, Tiffany; also Garden Trellis, Arches, Rose Trainers, of best designs. New Catalogue 1912, free.

SUTTON'S FIRE KING WALLFLOWER
Vivid orange, a new and beautiful colour in this favourite spring flower.
Per packet, 1s. 6d.
W. G. BURSTOW, Esq., Curator, Wallasey U.D. Council, writes:—"Your Fire King Wallflower is a great success here. It has been eulogised by our local press, and rightly described as a new departure. We grow over 4,000 of all the leading varieties.
Post free.

SUTTON & SONS, The King's Seedsmen, READING.

GARDEN PESTS.—Cross's "Clubicide" is the Gardeners' Insurance against damage by Eelworm, Wireworm, Slugs, Maggot, and all Disease Germs and Insect Pests. Kills all harmful Bacteria, reinvigorates the soil, stimulates plant life. In 1s. flasks and ½-gall. and 1 gall. drums. From all Seedsmen.
Sole Manufrs.: A. CROSS & SONS, Ltd., Glasgow.

Sow Now.
BATH'S EMPRESS PANSIES, as grown for the Royal Gardens at Frogmore. The richest and largest-flowered strain of Pansies extant. Per packet, 2s. 6d. and 1s. 6d., post free for cash.
(Dept. A), R. H. BATH, Ltd., The Floral Farms, Wisbech.

ORDER TRELLIS-WORK NOW.—Get our book on Trellis-work, showing Screens, Wall Panels, Window Surrounds, Arches, Arbours, &c., post free.
BOULTON & PAUL, Ltd., Norwich.

CHOICEST WALLFLOWERS.—Dicksons selected Dark Blood Red, Dicksons Golden Beauty, Primrose Dame, Eastern Queen, Ruby Gem, Golden Monarch, Vulcan, and Harbinger—all distinct and beautiful varieties, per packet 6d. and 1s., post free.
DICKSONS, Royal Seed Warehouses, Chester.

AUTO SHREDS FUMIGANT kills Leaf-mining maggot, insects in greenhouses, frames. For 1,000 cubic feet, 6d.; 10,000, 3s. 6d. No apparatus.
WM. DARLINGTON & SONS, Patentees, Hackney, N.E.

New Phloxes.
GUNN & SONS were Awarded a Silver Cup at the Great Show at Olympia. New Lists now ready. Address: Olton, Warwickshire.

SELECT YOUR ALPINES IN FLOWER. —A large collection, in pots, also Aquatics for present planting. Visitors cordially welcomed.—THE GUILDFORD HARDY PLANT NURSERY, Guildford.

BARR'S SEEDS FOR MAY AND JUNE SOWING.—Finest strains of Antirrhinums, Aquilegias, Campanulas, Canterbury Bells, Calceolarias, Cinerarias, Delphiniums, Hollyhocks, Lupins, Pansies, Primulas, Stocks, Wallflowers, etc. Special list post free.
BARR & SONS, 11, 12 & 13, King St., Covent Garden, London.

GREENHOUSE PAINTING & GLAZING "Vitrolite" superior to White Lead Paint, 9/- per gall. "Plastine" supersedes Putty, 16/- per cwt. Full particulars from W. CARSON & SONS, Grove Works, Battersea. Agents throughout the country.

BUNYARD'S CATALOGUES, free on application.
BORDER CARNATIONS, 50 varieties.
ROSES AND OTHER CLIMBERS, in Pots.
HERBACEOUS AND AQUATIC PLANTS for present planting.

GEORGE BUNYARD & CO., LTD., Royal Nurseries, Maidstone. Established 1796.

For Advertisement Charges see page viii.

Now is the time to plant
KELWAY'S GAILLARDIAS, which are among the most brilliant and the most easily grown of the hardy herbaceous perennials; they give abundant bloom in the same year that they are planted, and blossom profusely from June to November. The flowers are on long stems, and last in water for a fortnight. Choice named collections, 12s. a dozen. From pots. Carriage and packing free for remittance with order.—KELWAY & SON, The Royal Horticulturists, Langport, Somerset.

Now is the time to plant
KELWAY'S NEWEST GLADIOLI. These new Gladioli are a revelation. They should be planted by all who want glowing effect of colour in their beds and borders, and flowers for the house in July, August and September. We recommend trial of a selection of our "Cream of the World" collection of named varieties, flowering bulbs, for instance, one dozen for 9s.; per 100, £3 10s. Other choice collections, 30s. and 45s. per 100. Full descriptive list on application. Carriage free for remittance with order.—KELWAY & SON, The Royal Horticulturists, Langport, Somerset.

THE MODERN HERBACEOUS BORDER.—Full particulars and prices of Kelway Borders packed, arranged for planting, to flower in tasteful schemes of colour, from—KELWAY & SON, The Royal Horticulturists, Langport, Somerset. From ——, Esq., ——, Norwich. "Your case of plants, shrubs, etc., which I ordered, arrived here safely, and are now planted. I must congratulate your firm on the really excellent way in which they were packed, as they arrived absolutely fresh, as though they were just dug out of the ground."

OSMUNDA for Orchids.—Consignments arrive fortnightly. 2s. 6d. per bushel; per bag, 8s. 6d.
SANDER & SONS, St. Albans.

LISSADELL ALPINE & HERBACEOUS PLANTS.—Write for our new illustrated and enlarged List, containing many beautiful novelties at moderate prices. Also List of Seeds collected from above in 1911.
J. A. COOPER, Lissadell (No. 2), Sligo, Ireland.

GISHURST COMPOUND is harmless in use; its soluble Sulphur, &c., has for 40 years cured Blights and Fungus on Plants, and is good for washing unhealthy dogs. Gishurstine keeps boots dry in all weathers; they will polish. Good for Harness.
Wholesale from—
PRICE'S PATENT CANDLE CO. LTD., London.

HARRISON'S "RELIABLE" WEED KILLER.—Best and cheapest. See p. vii. this issue.

BEGONIA GLOIRE DE LORRAINE, old variety, also Rothschild var. and Turnford Hall, well-rooted young plants, 2s. 6d. doz., 50 for 6s., 10s. 6d. per 100; The King, 3s. 6d. doz., 50 for 12s.; carriage paid for cash.—H. DUDDERIDGE, The Dorset Nurseries, Blandford.

CUTHBERT'S SPECIALITE MUSHROOM SPAWN.—NEW SPAWN NOW READY. We continue to receive the most gratifying testimonials as to the productiveness and good quality of our Spawn. Per bushel, 5s.—R. AND G. CUTHBERT, Seed and Bulb Merchants, Southgate, Middlesex.

SPECIAL OFFER.—Iceland Poppies, in white and yellow, 2s. 100; Lupinus polyphyllus, mixed, strong plants, 3s. doz., 16s. 100; ditto roseus, 4s. doz., 25s. 100; Saxifraga "Bathoniensis," one of the best of the crimsons, 5s. doz., 35s. 100; S. "Red Admiral," new, keeps its colour well, 9d. each, 8s. doz.; Coreopsis grandiflora, strong plants, 2s. doz.; catalogues free.—BROADHEAD'S, Wooldale Nurseries, Thongsbridge, Huddersfield.

SALES BY AUCTION.

International Horticultural Exhibition, 1912.

MESSRS.

PROTHEROE & MORRIS

beg to announce that they will be holding a very important series of

Special Sales of Orchids

during the entire period of the Exhibition, short particulars of which are given below. All these Sales will take place at the

CENTRAL AUCTION ROOMS,
67 & 68, Cheapside, London, E.C.,

upon the dates named, commencing at **ONE** o'clock each day. The Auctioneers will be pleased to forward Catalogues of these Sales, post free, upon application.

Tuesday, May 21st.—From various sources, 200 Cattleya aurea, semi-established unflowered plants in beautiful condition. Odont. crispum Pittianum, Cattleya trianæ The Premier, Catt. Luddemaniana alba var. Empress, 200 lots of choice seedling Odontoglossums, etc., with numerous other very attractive plants.

Thursday, May 23rd.—By order of J. J. Holden, Esq., Southport, Lancs. A quantity of magnificent Cattleyas, including some of the finest *white varieties* in cultivation, together with rare Cypripediums and some of the best Odontoglossums, the whole being in a remarkably healthy condition.

Friday, May 24th.—By order of Francis Wellesley, Esq., Westfield, Woking. Very important sale of rare and valuable duplicate plants from this well-known collection, many being now offered for the first time. Some of the finest Cattleya species in cultivation and the rarest and best Cypripediums. (For fuller particulars see "Gardeners' Chronicle," May 11th.)

Tuesday, May 28th.—By order of the executors of the late N. C. Cookson, Esq., Oakwood, Wylam-on-Tyne. A selection of choice Orchids from this celebrated collection, including many fine Odontoglossums, rare Cypripediums, Cattleyas, etc., together with a number of valuable plants from the well-known collection of M. Jules Hye de Crom, of Vinderhaute-lez Gand.

Wednesday, May 29th.—By order of Messrs. Sander & Sons, of St. Albans. Important sale of a choice selection of rare and valuable plants from these renowned growers, including examples of the finest Cattleyas, Laelio Cattleyas, Cypripediums and Odontoglossums All being in a fine healthy condition.

Thursday, May 30th.—By order of R. Brooman White, Esq., Arddarroch, Garelochhead, being the sale of the first portion of this famous collection, including a number of the choicest forms of Odontoglossum crispum, a large quantity of hybrid Odontoglossums of finest parentage, etc., etc.

Friday, May 31st.—By order of R. G. Thwaites, Esq., of Chessington, Streatham, 150 lots of choicest hybrids, including Odontiodas, Cattleyas, Lælio and Sophro-Cattleyas, in vigorous health, from this renowned collection, which has specialised in the raising of the very finest seedlings.

By order of Wm. Thom, Junr., Esq., of Athol House, Blackburn, 100 lots of choice Cypripediums from this well-known collection. Together with many other rare and valuable plants from various sources.

Auction Rooms and Estate Offices—

67 & 68, Cheapside, London, E.C.

Telephone—Bank 857 (2 lines).
Telegrams—"Promptuary, London."

Wednesday next, May 22nd, at One o'Clock.

Japanese Liliums, Begonias, Gloxinias, Lily of Valley, Iris, Carnations, &c., Liliums Nepalense and Sulphureum; thousands of Hyacinthus candicans, double white French Ranunculus, Gladiolus, hybrids of Childsii, Gandavensis, Meadowvale, Graff's and "American" Bedding Begonia Worthiana, Tropæolum tuberosum, Watsonia Ardernei, Davallia bullata balls and designs.

At 3.30 o'Clock,

100 lots of Ornamental and Decorative Palms and Plants, Dracænas, Standard Bays, &c., from Belgium, Stove and Greenhouse Plants.

MESSRS. PROTHEROE & MORRIS will SELL the above by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C. On view morning of Sale and Catalogues had.

PROPERTY FOR SALE.

FREEHOLD BARGAINS.—Cottage, 2½ acres, near Southend-on-Sea; two 150 by 20 fitted Hothouses, Reservoir, 200 Fruit Trees; £450. Cottage, 2 acres, Burnham-on-Crouch; seven rooms, sheds, &c.; £350. Easy terms. Also cheap Land.—Allen, 15, New Bridge Street, London, E.C.

PROPERTY TO LET.

ESSEX.—TO LET, Villa, Market-garden, forcing houses, stable, storeroom, piggeries, &c.; 1¼ acres well stocked with fruit trees, crops maturing; main road; excellent situation; within mile of Chelmsford; same hands 24 years; owner retiring.—Further particulars apply, ALLEN, 98, Baddow Road, Chelmsford.

BUSINESSES FOR SALE, &c.

MUST BE SOLD. — FREEHOLD NURSERY on main G.E.R.; 12 miles from Southend; 550 ft. run of glass in capital condition and three acres of land; water supply from mains; price £500.—Apply Messrs. PROTHEROE & MORRIS, 67, Cheapside, E.C.

IN a popular residential town in Berkshire, old-established NURSERY and FLORIST'S BUSINESS; 12 greenhouses, total area 7¼ acres; commodious shop on main road and eight-roomed dwelling-house; good trade done; moderate rent; price £1,150.—Full particulars of Messrs. PROTHEROE & MORRIS, 67, Cheapside, E.C.

FOR SALE, a well-equipped NURSERY and FLORIST BUSINESS, situated in a busy neighbourhood, within easy reach of the London markets; good local trade; established 30 years; dwelling house on the nursery; price, including valuable lease, growing crops, outbuildings, 10 glasshouses, frames, lights, &c., and goodwill, £1,500; exceptional opportunity for a person wishing to secure a pleasant ready-money business.—For particulars, write to ESSEX, Box 22, 41, Wellington Street, Covent Garden, W.C.

SMALL NURSERY BUSINESS FOR SALE as going concern; close riverside town; glasshouses, pit and cold frames; dwelling-house and cottage let off; net rent £10; long lease.—P., Box 20, 41, Wellington Street, Covent Garden, W.C.

W. A. GARAWAY, Deceased.

FOR SALE,

the old-established BUSINESS of

JAMES GARAWAY & CO.

NURSERY 35 acres at Keynsham;

SEED, BULB & FLOWER BUSINESS at Clifton, Bristol.

Immediate possession at valuation.

Apply, F. J. TARR & SONS, Solicitors, Bristol; or
c JAMES GARAWAY & CO., Nurserymen, Bristol.

BUSINESSES TO LET.

UNIQUE Opportunity for Beginner.—NURSERY TO LET. About 500 ft. run glass, good dwelling-house, bungalow, stables, pigsties, about five acres in all of good arable land. Possession in September; arrangements can be made for freehold. Every facility will be given to intending purchaser to prepare his own stock. Incoming by valuation, which will be very low. Near good markets. Rent £60.—H. A., Box 1, 41, Wellington Street, Covent Garden, W.C.

NURSERY to LET; splendid position; five minutes from rail and trams; 350 ft. glass; 1¼ acres fruit; good house, rent £40.—Further particulars from MILES, Royal Hotel, Sheerness.

PARTNERSHIPS.

GENTLEMAN, with seven years' practical knowledge in Market Garden in England, seeks experienced Partner, about 30, either in England or Canada; references exchanged.—J. P., Box 21, 41, Wellington Street, Covent Garden, W.C.

EXHIBITIONS.

ROYAL SHOW

DONCASTER,
July 2nd to 6th, 1912.

73RD ANNUAL EXHIBITION of HORSES, CATTLE, SHEEP, PIGS, POULTRY AND FARM PRODUCE; JUMPING, SHEEP DOG TRIALS, HORSE-SHOEING AND BUTTER-MAKING COMPETITIONS, AGRICULTURAL EDUCATION, FORESTRY AND HORTICULTURE.

HORTICULTURE,

ENTRIES CLOSE ... ... MAY 31st.

LIVE STOCK entries close May 20th.

Prize-sheets and Entry Forms will be forwarded on application to

THOMAS McROW, Secretary,
Royal Agricultural Society of England,
16, Bedford Square, London, W.C.

HANLEY PARK, STAFFORDSHIRE

JULY 3rd & 4th, 1912.

SIXTEENTH GREAT

Annual Floral Fete

£500 IN PRIZES.

SILVER CUPS, GOLD AND SILVER MEDALS.

SILVER CHALLENGE CUP, VALUE £10 10s.

offered for "Trade Exhibit" (for particulars, see page 7 in Schedule).

Valuable Special Prizes offered by the principal firms in England.

Schedules post free on application to WM. POULSON, Secretary, Town Hall, Hanley.

SHROPSHIRE HORTICULTURAL SOCIETY.

Open Champion Class for Roses.

A SILVER CHALLENGE ROSE BOWL

(Value **£31 10s.**). Presented by the President of the Society, W. G. Phillipps, Esq.

In addition to above, Medals and Money Prizes value £32.

For a COLLECTION OF CUT ROSES, artistically arranged for general effect at the discretion of the Exhibitor. To occupy a space of 20 ft. by 4 ft.
(*To substitute Classes* 43 *and* 44 *in Schedule for* 1912).

Conditions are being prepared and will be forwarded on application to the Hon. Secs., Messrs. ADNITT & NAUNTON, Shrewsbury.

TUNBRIDGE WELLS & SOUTH EASTERN COUNTIES AGRICULTURAL ASSOCIATION

JUBILEE SHOW.

A Horticultural Section will be added to this year's Exhibition. Average attendance 16,000.

Application for Trade spaces received up to July 13th. Free cartage to and from stations.

The following Open Classes for Competition:—

SWEET PEAS. 18 varieties, distinct, 24 stems of each variety. Gypsophila or foliage allowed 40/- 30/- 20/-

CARNATIONS. Best collection cut (plants or foliage may be used in arrangement for effect) 60/- 40/- 20/-

CUT ROSES. Best collection arranged for effect on table space 8 ft. by 5 ft. 40/- 30/- 20/-

THE
Gardeners' Chronicle
No. 1,325.—SATURDAY, May 18, 1912.

CONTENTS.

Books, notices of—		Obituary—	
Irises	333	Bruant, Georges ...	342
Publications received	338	Keating, John... ...	342
British Gardeners' Association	337	Seabrook, F. W. ...	342
Chelsea: its historic horticulture	327	Orphan Fund, Royal Gardeners'	341
Citrons in the open in Devon and Cornwall	338	Royal Academy Exhibition, pictures at the...	331
Clarkia elegans	338	Scotland, notes from ...	338
Exhibiting, hints on ...	328	Shrewsbury Flower Show	338
Forest trees, exotic ...	338	Societies—	
Fruit crops, prospects of the	337	Haarlem Bulb Growers'	342
Gazaland, the economic flora of	332	Horticultural Club ...	340
Genetics, lectures on ...	337	Linnean	337
International Horticultural Exhibition 330, 336,	343	Manchester and North of England Orchid	342
Lælio-Cattleya Helius...	333	National Rose ...	337
Law note—		North of England Horticultural ...	341
Losses on a nursery business	346	Perpetual-flowering Carnation	340
Moraine gardening ...	338	Royal Horticultural...	339
Myrtus communis, seeds of	338	Royal Institution ...	340
Narcissus Crœsus ...	337	Royal Meteorological	337
New York International Flower Show, 1913 ...	337	Royal National Tulip	342
Nursery notes—		Scottish Horticultural	341
William Bull & Sons, Chelsea	332	Strawberries pot ...	1113
		Trees and shrubs—	
		Cornus Nuttallii ...	331
		Week's work, the	334, 335

ILLUSTRATIONS.

Chelsea Physic Garden, plan of, in 1753 329
Cups and medal to be offered at the International Exhibition 337, 343, 344
International Exhibition, plan of the 331
Lælio-Cattleya Helius 333
Narcissus Crœsus (Coloured Supplementary Illustration)
Railways, map of the London underground 330
View in the conservatory at Messrs. Bull & Sons' nursery 332

CHELSEA: ITS HISTORIC HORTICULTURE.

FEW, if any, of the London boroughs can claim to have played a more important part in the history of horticulture than Chelsea—the smallest of them all.

From a very early period its market-gardens were famous, the alluvial soil of this low-lying district being peculiarly adapted to the cultivation of vegetables, fruit and flowers; and many of the largest nurseries of the present day had their origin in this fertile plain.

It is claimed that the first red Pelargonium was raised at Chelsea, in the nursery of a Mr. Davis, who lived at the beginning of the 19th century.

In former years, the picturesque position of Chelsea, on the banks of the river, clothed with verdure and fine trees, attracted a number of wealthy people, who built themselves splendid residences in the district. Among others, one may mention Sir Thomas More, the author of the famous "Utopia." Sir Thomas lived at Chelsea for many years, and his house gained high reputation as a centre of religious and intellectual life.

Erasmus—More's great friend—has left a description of the house and its surrounding gardens.

Near More's residence lay Winchester House, the home of eight successive Bishops of that See, among whom was Sir Jonathan Trelawney, whose name has been preserved in the old Cornish song. Anne of Cleves died there in 1557.

In Cheyne Walk lived the famous Sir Hans Sloane, the first medical man upon whom a baronetcy was conferred. His claim to distinction is supported in various ways, perhaps chiefly by the fact that his collection of curios, acquired by the nation at his death, formed the nucleus of the vast national treasure now housed at the British Museum, but for horticulturists his connection with the Chelsea Physic Garden will possess paramount interest.

Chelsea Hospital.

The site of the present "hospital" was originally occupied by a college, founded by Dr. Sutcliffe, Dean of Exeter. The college was intended for the study of Divinity, but it was not successful, and after a time the ground reverted to the Crown, by whom it was granted to the Royal Society. This body, having no immediate use for it, sold it to Sir Stephen Fox, acting on behalf of Charles II. The Royal purchaser, coolly pocketing Dr. Sutcliffe's endowment, "generously gave" the site for the erection, at public expense, of a Royal Hospital for aged and disabled soldiers.

Part of the site, however, was utilised towards the end of the 17th century for the erection of a mansion by the Earl of Ranelagh, whose name is perpetuated in a portion of the grounds east of the Hospital. Gibson mentions the garden of this house in his *Views of the Gardens near London*, published in 1691. He writes that "My Lord Ranelagh's garden is newly-made; the plants are small, but the plats, borders, and walks are curiously kept and elegantly designed, having the advantage of opening into Chelsea College walks. The Kitchen Garden there lies very fine, with walks and seats; one of which, being large and covered, is then under the hands of a curious painter."

At the death of Lord Ranelagh, the property passed into other hands, and the site was eventually bought by Sir Thomas Robinson, who formed a company, and erected a huge "Rotunda" in 1741. For about half a century this place was the resort of the whole fashionable world; dancing, talking scandal, and showing off fine clothes were the chief amusements, and even royalty did not disdain to put in an occasional appearance. We read that it was not uncommon for an assemblage of many hundred people, the most distinguished and best-dressed in Europe, to grace the Rotunda. Its glories, however, waned till, finally, in 1804, it was closed, and the ground, deserted and neglected, became the prey of nettles and weeds, until it was re-bought by the Hospital and laid out much as we see it to-day.

Cremorne Gardens.

These gardens are planted on the site of old Chelsea Farm, at the west end of the river-bank. The name is that of Lady Cremorne (a great-granddaughter of William Penn), who resided at Chelsea Farm. The gardens were opened as pleasure grounds in 1845, but they quickly acquired a sinister reputation, and were closed about 30 years later.

William Curtis.

William Curtis, the founder, in 1787, of the *Botanical Magazine*, lived for many years in Pond Place, Chelsea. He began life as an apothecary's assistant, but he always showed a marked fondness for botany, and as soon as he was able, he gave himself up exclusively to the study of his favourite subject. He opened a botanical garden in Lambeth Marshes, but later on removed his collection of plants to a nursery ground at Queen's Elm, Brompton.

There were two celebrated nurseries which abutted on "Chelsea Common" (now, alas! built over), which were favourite resorts in the reign of George III—Colville's and Davey's. Colville's nursery was distinguished by the possession of what was then considered a large and splendid conservatory, in which the visitor might inspect no fewer than 500 species of Pelargoniums. There was also a greenhouse specially constructed to show the mode of growth of exotic parasitic plants. James Sweet, the author of the two classical works on the Geraniaceæ and Cistaceæ, was for some time connected with Colville's nursery as manager. The site of this famous nursery is perpetuated in the "Colville Arms Hotel." Davey's nursery lay to the west of Colville's, and was almost equally famous.

At the western end of King's Road many other nurseries have been established; notably those of Knight and Perry, which were later taken over by James Veitch, who moved from Exeter to London in 1853, and founded the present firm of James Veitch & Sons. To enumerate the achievements of this firm in the development of horticulture for the past century would occupy far more space than we have at our command; suffice to mention the names of Dominy, Seden, Heal and Tivey, renowned in the annals of hybridisation, and those of some of their more famous collectors, such as the brothers Lobb, Pearce, John Gould Veitch, Davis, Burbidge, Maries, Curtis, Burke, J. H. Veitch, and Wilson: all honourable names in the history of horticulture and botanical science.

The details of the early years of this nursery are intensely interesting, though they cannot be given here; they may, however, be found in the introduction to the *Hortus Veitchii*. Another of these Chelsea nurseries is that of Messrs. W. Bull & Sons. It was founded by the late William Bull, a man of exceptional knowledge and business ability, and for years was the Mecca of those interested in new and rare plants. The nursery was formerly of a more extensive character, and occupied a large site on the south side of the King's Road, but owing to the various exigencies of modern times, that part is now built over, only the present part, on the north side of the road, being retained. There the firm has recently developed the work of raising hybrid Orchids. Wimsett's Fern

nursery has for some time past been closed; and a number of fine orchards, which abutted on the Common, have disappeared.

Other King's Road nurseries which have ceased to exist, but had a reputation in their day, were those of Markham & Green, on the site of Markham Square, and Mrs. Moore's, immediately opposite the end of the Royal Avenue. The house then occupied by the proprietress of this nursery is still in existence.

Shaylor's nursery, which formerly existed in Oakley Street, is said to have been the place where the first Moss Rose flowered in this country.

CHELSEA PHYSIC GARDEN.

The Chelsea Physic Garden has the distinction of being the second oldest of the existing botanic gardens in England. The first place is taken by Oxford, which possesses records going about 40 years further back. The Physic Garden at Chelsea was founded in 1670 by the Society of Apothecaries, which had been granted a Royal Charter, and became an independent corporate body in 1617. Their keen interest in botany may be traced in the fact of their having held an examination in this subject as early in their corporate history as 1619, for the benefit of their apprentices. Thomas Johnson, the editor of Gerard's famous *Herbal*, gives graphic accounts of the early "herborisings" instituted in 1633 by the Society. These were well sustained, having been continued until quite late into the 19th century.

The Society must have possessed an earlier garden at Westminster, as we read of the plants having been transferred thence to Chelsea. The lease of the Chelsea ground was taken from Lord Cheyne, but in 1712, Dr. (afterwards Sir) Hans Sloane purchased from the Lord Cheyne the whole of the Manor of Chelsea, within which the garden lay.

The Apothecaries' Society soon found the Physic Garden a heavy drain on their corporate funds, and in 1714 a deputation waited on Sir Hans Sloane, and discussed with him the financial position of the garden. The result of this interview is not clear, but in 1718 a further conference was held, and within a few weeks afterwards Sloane intimated that he was prepared to transfer the property to the Society on certain specified terms. The deed of transfer, dated 1722, states that the conveyance was made "to the end that the Garden may at all Times be used as a Physick Garden, and also for the better Encouraging and Enabling the Society to support the Charge thereof for the Manifestation of the Power, Wisdom, and Glory of God in the Works of His Creation," and that their apprentices and others might learn to distinguish good and useful plants from those which bore resemblance to them "and yet were hurtful;" and many other such laudable purposes. This deed, it may be noted, prohibited the growing of herbs for conversion into drugs for the Society's use. There were other important clauses, among others, that the Society should pay £5 per annum to Sir Hans Sloane and his heirs "for evermore"; that 50 specimens of distinct dried plants were to be presented to the President and Council of the Royal Society with their names or reputed names attached, until the number of 2,000 had been reached. Those of each year had to be specifically different from those of former years. No other buildings were to be erected, except such as should be needed for the work of the Physic Garden.

In the case of the non-fulfilment of any of the conditions of the deed, the garden was to be held by the heirs of Sir Hans Sloane in trust for the Royal Society; or, failing this Society, for the Royal College of Physicians, on the same terms.

The fame of the Physic Garden soon became world-wide, and in 1682, during the curatorship of Dr. Watts, the system of exchange of plants and seeds with foreign gardens was instituted. Dr. Herman, of the Leyden garden, was the first to visit the Physic Garden with this object in view, and Dr. Watts returned the visit in due form.

Phillip Miller succeeded Dr. Watts as curator, and presided with marked skill and ability over the fortunes of the garden for 48 years (from 1722 to 1770). It was at this period that a writer remarked of the Chelsea Garden that it "exhibited the treasures of both the Indies." Miller's *Gardeners' Dictionary* is well known to all horticulturists; it went through eight editions, and was translated into several languages.

During Miller's long term of office, he had many pupils, some of whom became famous. Among others, we may mention Aiton, who was ultimately sent to Kew to take charge of the garden of the Dowager Princess of Wales; Sir Joseph Banks, whose mother lived at the old Tower House, close by the Garden; and Dr. Solander; all of whom received their early training at Miller's hands. The year 1736 was a notable one in the history of the garden; it was distinguished by a visit to the garden from Linnæus, the great Swedish botanist.

In spite of the fame and success of the garden, its support was always a severe strain upon the slender resources of the Apothecaries' Society. At length, in 1753, the year of Sir Hans Sloane's death, the Society felt itself compelled to apply to the President and Council of the Royal Society, with a view to getting them to take over the garden. This attempt, however, met with no success.

The immediate difficulties were somehow tided over, but in 1770 the pressure was again acute, and from that date onwards the Society had a continual struggle against financial embarrassment.

However, in 1898, a Royal Commission was appointed to report upon the suitability of the garden for carrying out the wishes of its benefactor, the result of which was the appointment of the City Parochial Charities as trustees of the garden. Sufficient endowment was then provided to relieve the financial strain, and many alterations and renovations were entered upon, after which the garden took up once more its useful career, which has since then been unbroken. Of the valuable work it has done, and the opportunities for research it has provided, many students of botany have written and spoken, and it is a matter for congratulation that it has been enabled to survive.

Among famous men who have held positions in the Garden, we may mention Dr. Lindley, the first editor of the *Gardeners' Chronicle*. This celebrated scientist held the post of Hortus Prefectus for over 30 years. Another name which readily occurs to the mind is that of Nathaniel Ward, the talented inventor of the "Wardian" case, which has proved so successful in enabling living plants to be safely transported over long distances.

A list of the curators of the Physic Garden may be interesting, and we give it below:—

Philip Miller, 1722-1770.
William Forsyth, 1770-1784.
John Fairbairn, 1784-1814.
J. W. Anderson, 1814-1846.
Robert Fortune, 1846-1848.
Thomas Moore, 1848-1887.
William Hales, 1899 ———.

Thomas Moore was for many years co-editor of the *Gardeners' Chronicle*, and was the author of numerous works on Ferns and other botanical and horticultural subjects. From the death of Moore, in 1887, until the transference of the Garden to the City Parochial foundation in 1899, the position of curator was vacant.

Mr. William Hales has entirely remodelled the gardens, and, with the aid of the trustees, revived their old glories, making them again a centre of horticultural and botanical learning. As we announced last week, Mr. Hales was elected an Associate of the Linnean Society only a fortnight ago.

Much valuable information about Chelsea and its gardens may be found in volume 5 of *Old and New London*, by E. Walford, and also in *Memoirs of the Botanic Garden at Chelsea*, by Field and Semple. The *Gardeners' Chronicle* published, February 3, 1900, p. 65, an article on the London Botanic Garden which formerly existed in Sloane Street, which will be of use to any who wish to investigate this subject.

HINTS ON EXHIBITING.

(Concluded from p. 312.)

THE NAMING OF EXHIBITS.

THE naming of exhibits is a most important item in any horticultural exhibition. It is often, however, done extremely carelessly, and I have seen exhibitions in which the naming was a positive disgrace. There are two main faults which are common in this respect—bad, indistinct writing, and incorrect spelling. The latter is a frequent cause of mistakes in local papers; the reporters are often entirely ignorant of Latin, and take the spelling blindly from the label. Proper names, too are often misspelt—I remember once seeing the Rose "Jules Finger" reported as "Jewel's Finger!"

Every name should be written in a clear, medium-sized hand for individual small exhibits and for cut flowers, picked fruits and vegetables; and in a large, bold hand for specimen plants. Of course, it is really much better to take the trouble to have the names printed. In the schedule of the International Show there is some excellent advice on the subject of naming, and it is to be hoped that exhibitors will not fail to avail themselves of it (see rule 8, and example). The size, of course, is too large for a small exhibit—it is intended to show the maximum. A card of this size could easily be cut into three for small exhibits—it is a stock size, and can be obtained at any stationer's.

Where it is possible to add the name of the country from which a plant has been obtained, it is desirable to do so, and also the date of introduction into England. In the case of plants that have been raised from seed, the name of the raiser should be acknowledged, if known.

My advice to all intending exhibitors is to give plenty of time to this subject, and have all the names printed in a good, clear type. It would be of the greatest assistance to the jurors, to the reporters, and also to the visitors. For myself, I should feel inclined to take off marks for bad naming, where there is otherwise little to choose between one exhibit and another.

The names should not, of course, be made too prominent. Without putting them out of sight, it is possible to avoid an unsightly appearance by placing them low down in the front of each individual exhibit. One often sees a photograph of an exhibit in which the name-cards are the most prominent objects in the group, which is, of course, absurd.

In the case of pot plants, the card should be placed as near the pot as possible. *J. H.*

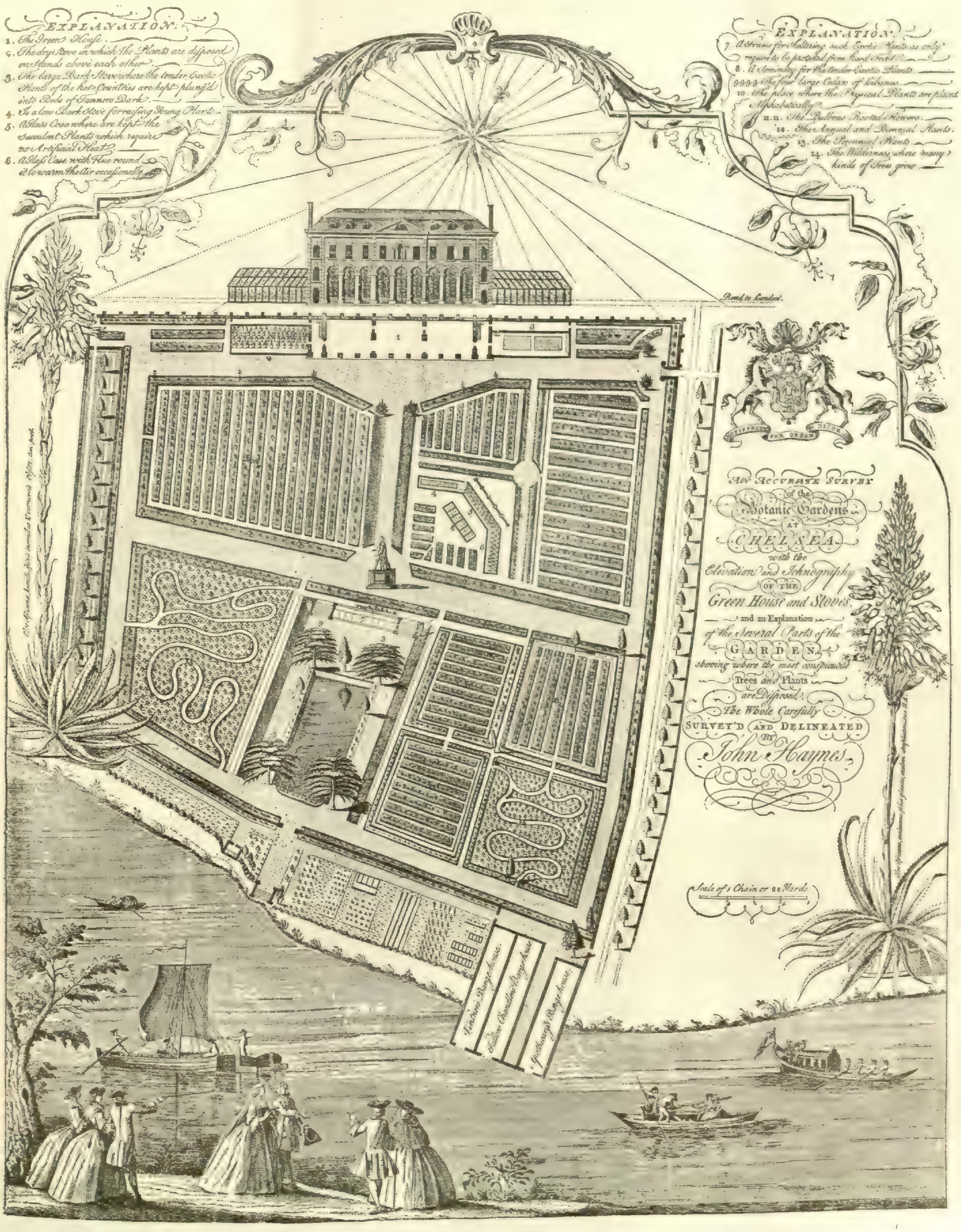


FIG. 161—PLAN OF CHELSEA PHYSIC GARDEN IN 1753.

THE CHELSEA SHOW: HOW TO REACH THE SITE.

NEXT week all roads will lead to the great exhibition at the Royal Hospital Gardens, Chelsea. The journey to London is made smooth by the great steamship and railway companies: the overseas visitor, on reaching England, finds a boat-train drawn up in sight of the ship which has brought him to our shores, and, when the Customs formalities have been observed, the express trains carry him to the Metropolis. The provincial visitor usually has a good choice of convenient trains for reaching a London terminus. London proper is almost encircled by the huge terminal stations of the chief main-line railway systems of the country. Paddington, of the Great Western, is in the west; Marylebone, the terminus of the youngest great railway which, rumour says, will soon be linked to its powerful neighbour, comes next; then, almost touching each other, are the stations of three powerful companies: Euston, of the London and North-Western Company, St. Pancras, the terminus of the Midland Railway, and King's Cross, the headquarters of the Great Northern Railway Company. Towards the east there is Liverpool Street (Great Eastern Railway) Station, with its many platforms. South of Liverpool Street Station, and almost in the heart of the City of London, is Fenchurch Street Station, the London terminus of the London, Tilbury and Southend Railway. The banks of the River Thames claim five important railway stations: Cannon Street, London Bridge, St. Paul's, Waterloo and Charing Cross, and all of them have a share of the foreign traffic.

The visitor has reached London quite easily, but which is the best and most direct road to the Exhibition? The wealthy person, who desires to do things with a minimum of trouble, will, no doubt, engage a taxicab, give his destination as "The Exhibition, Chelsea Hospital," and leave the rest to the driver and the fare-indicator. But many visitors, and especially those whose visits to London are infrequent, will require a less expensive and more interesting means of transit.

The rider in a taxi has a splendid view of London's stream of traffic, but loses the view of London itself. As a great statesman once said: "The *best* way to see London is from the top of a 'bus," and the omnibus company whose motto is "Travel above the ground—we will carry you all the way" quotes the saying of the famous leader on its maps and advertisements, and many people who will visit London primarily for the show will also want to see as much of London as possible, and will, weather permitting, endeavour to use the outside of a 'bus. Many omnibuses which ply along the King's Road, Chelsea, stop within sight of the Royal Hospital grounds, and less than a minute's walk will bring the visitor to an entrance gate. Those visitors who are staying in the suburbs will find the London electric railways speedy and convenient means of getting into London. The nearest railway station to the show is Sloane Square on the District Railway, and, besides the District trains, all "inner circle" trains stop there; Chelsea Station is not very convenient. Victoria District Railway Station may well be used, for the omnibuses which serve the Exhibition area stop outside the station, and a few minutes' ride brings the visitor to the show. Those who use the Hampstead Tube Railway (Golders Green and Highgate are the suburban termini, with a station at Euston) will do well to travel by train to Charing Cross Station and thence by 'bus to the show. The Bakerloo Tube, touching the Great Central Railway terminus, also has a station at Charing Cross. The Piccadilly Tube Railway, with Finsbury Park as its northern terminus (which at King's Cross Station is the most convenient line from St. Pancras or King's Cross main-line stations) has a station in the Strand, from which a 'bus may be boarded for the show.

From Liverpool Street Station, at the adjoining Metropolitan Station, inner circle trains run every few minutes to Sloane Square. The nearest tube station to Fenchurch Street Station is Mark Lane, which gives a choice of either inner circle or District west-bound trains; Cannon Street is equally fortunate, but at London Bridge the visitor will not find the tube trains so convenient, although Charing Cross may be easily reached by ordinary trains. Waterloo has a tube station on the premises, and the visitor may proceed to Charing Cross Station or Trafalgar Square, and to the show by 'bus.

All the 'buses have their routes indicated by a large number, and from the Strand, Charing Cross and Victoria stations "11" is the number to look for. At the Praed Street District Station, which is reached by a subway from Paddington, inner circle trains may be taken to Sloane Square.

OTHER PLACES OF GARDENING INTEREST.

After having done the show, gardening enthusiasts will turn their attention to the permanent places of horticultural interest. Gardening in the public parks of London has greatly improved during the past decade. In an ordinary season the spring-bedding effects would still be worthy of attention, but we fear that by the date of the show the glory of the May-flowering Tulips, Wallflowers and other spring-flowering plants will be a thing of the past, and it is too early for the summer-bedding displays. But the parks and gardens do not entirely rely on these seasonal effects for their attraction, and many of these grounds are always worth a visit. Many gardeners will visit the famous Covent Garden Market, where huge loads of garden produce of all kinds are being unloaded throughout the small hours of the morning. Tuesdays, Thursdays and Saturdays are the busy days; soon after 2 a.m. the market is in full swing, and most of the business is completed, and the various florists, having loaded their vans with purchases, turn their horses' heads homewards before the average person is awake.

The Royal Botanic Gardens at Kew will attract most gardeners. A pleasant way of reaching Kew is by train to Hammersmith or Shepherd's Bush, and thence by electric tram to Kew Bridge.

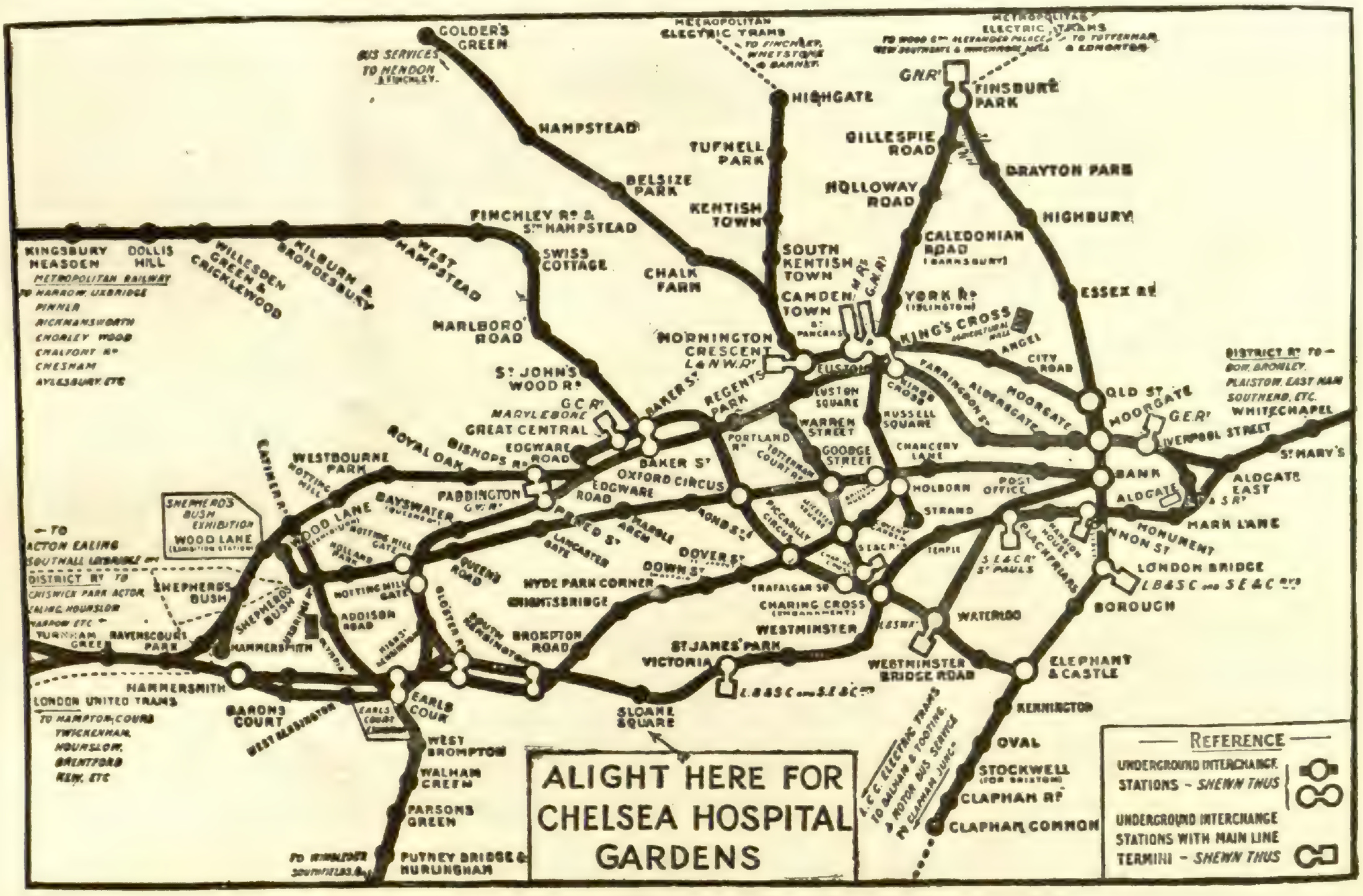


FIG. 162.—MAP OF THE LONDON UNDERGROUND RAILWAYS.

Besides the service of trams which complete their journey at Kew Bridge, those which continue to Hampton Court, Hounslow or Twickenham are available. A short walk over "the King Edward" river-bridge, and a turn to the right, brings the visitor in sight of the main entrance gates to the gardens. The gates are open at 10 a.m. on week days (1 p.m. Sundays) and the glasshouses and museums at 1 p.m. Past Kewites will note with feelings of regret the absence of the old horse-trams which used to run between Kew and Richmond: the last was taken off the road in the present month. Kew may also be reached by District Railway to Kew Gardens Station; two or three minutes easy walking leads to the Victoria Gate. Omnibus service No. 27 from Stoke Newington to Twickenham passes over Kew Bridge and stops at Kew Green. On Sundays many different omnibuses stop at Kew on their journeys to Hampton Court. Throughout the week Hampton Court, which has often been the subject of appreciation in our pages, and which is at all times well worth a visit, may be pleasantly reached by tram from Shepherd's Bush or Hammersmith. A little later in the year river steamers from Greenwich, calling at London Bridge, Chelsea, Hammersmith and Putney, provide a delightful means of reaching Kew and Hampton Court.

PICTURES AT THE ROYAL ACADEMY EXHIBITION.

THIS year's Academy is so dominated by Royal portraits that distinctive features in other provinces of art are almost obliterated. But, after careful study of the 1,996 works displayed, we are impressed by an unusual cheerfulness in the aspect of the walls, which is surely to be accounted for by the long, sunny days of last summer!

In the architectural section Edward White has two illustrations of his own work. These represent a terrace garden at Adelsnäs, in Sweden, designed for Baron Adelswärd, Minister of Finance, and a pergola and steps in the garden of Sir Walpole Greenwell at Marden Park, Surrey.

The painters who stand out from the rest as figure painters in this genre are Laura and Harold Knight, whose "Music" and "The Flower" are large and important works. Following comes Garnet Wolsely, who exhibits "The Sand Castle," a group of children at play on the shore. One of the best studies of sunshine and shade is "Slumber," by Isaac Snowman. This work is admirable in form and in the masterly foreshortening of the head and shoulders of the charming modern girl asleep on a garden bench under a tree. "The Barn," by Lindsay Macarthur, is a memorable though modest picture of the year. Homely though it be in subject it shows what true poetry can be garnered by genius from the lights and shadows of humble life. Of flower pictures proper there are comparatively few in the exhibition. In the nature of the case they do not "hang well" among large, full-sized figure subjects.

"Anemones," by Margaret Cornish; "Flowers from a London Garden," by Robert Buxton; a drawing of "Pink Anemones," by Edith Sprague; "Zinnias" and "Carnations," two richly-rendered studies by D'Arcy Hart, are conspicuous among the oil pictures. A. Parson's Diploma work, "Orange Lilies, Broadway," represents a charming group of magnificently-coloured flowers, balanced by a strong blue sky above; and another Lily picture, "An Old Garden," by George Murray, shows excellent work. "Imprisoned Spring" is a pathetic suggestion of springtime out-of-doors, conveyed by the wistful little maid-servant, who gazes sadly over the jar of golden Buttercups gleaming on the window-sill, reminding her of pleasant days of childhood in the meadows.

In the water-colour room are many excellent little garden pictures of the usual kind, and two admirable studies, the one a gathered branch of "Young Apples," as blooming as Peaches and nestling, still unculled, under their fresh green leaves; this is by Fred. Spencer. The other, a richly-tinged group of yellow "Roses," by Beatrice Miller. "Michaelmas Daisies," by Helen Thorneycroft. "Anemones," this time by Alexina MacRitchie. Indeed, this flower seems a Royal Academy favourite, for Anemones reappear again in red and purple, crowning the tresses of "A Nymph," by Frank Dicksee, R.A., in another room. Jessie Algie, one of our foremost flower painters, exhibits a study of "Stocks." There are several studies of birds, which are distinctly interesting and well done, notably "Flamingoes on the Coast of Tunis," by Sir Harry Johnston, and "An Intruder," by George Collins. This is a study of chaffinches in a green bower; and there is a new version of "Dignity and Impudence," in which Impudence is personated by a sparrow on a green lawn, who struts, carrying in his beak a gaily-coloured feather, before two magnificent peacocks, who, in guise of Dignity, look on pretending not to see him. "Welcome Sweet May," by Savage Cooper, is a Hampstead garden scene, in which a fair young girl meets Nature in the springtime of the year. Blue Irises are blooming in the

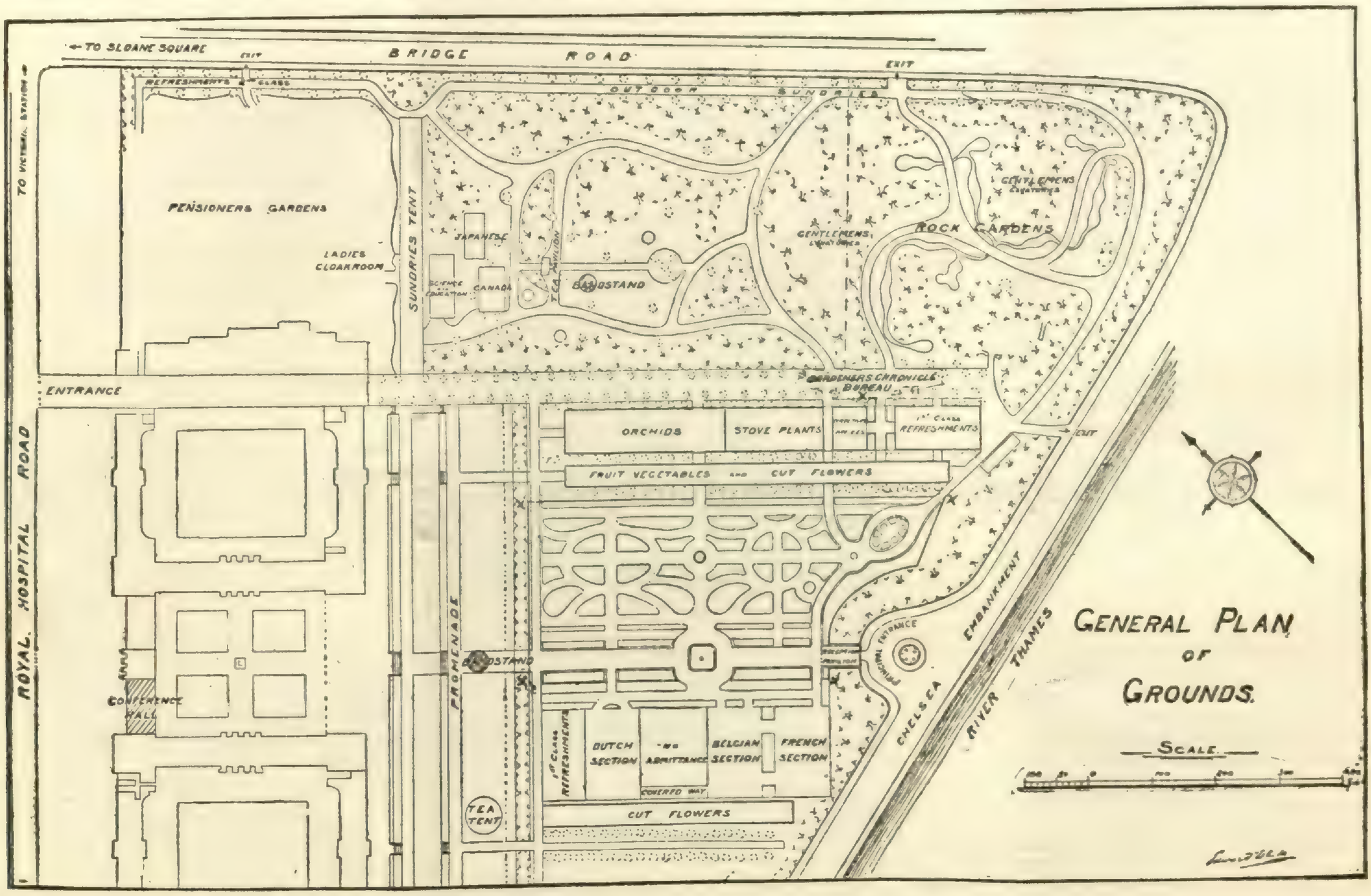


FIG. 163.—PLAN OF THE INTERNATIONAL EXHIBITION.

(The outlines of the large marquee are indicated by the following sign ✕.)

TREES AND SHRUBS.

CORNUS NUTTALLII.

A TREE of Cornus Nuttallii is flowering very finely in the gardens of F. D. Godman, Esq., at South Lodge. It is a fine specimen, probably 10 feet high, while the blooms are some 3 to 4 inches across. This handsome species is worthy of extended cultivation, being a conspicuous and beautiful shrub. *W. A. Cook, Leonardslee Gardens, Horsham.*

foreground, and wise "Solomon's Seal" appropriately retiring in the background. These may be taken as typical of several other garden subjects in the present exhibition. There are some excellent studies of wild flowers in their native fields or woodlands, notably "Cowparsley" and "Blue Bells in the Copse," by C. W. Johnson. A charming little landscape entitled "Noontide Rest," by Chas. W. Norton, and another of poetic feeling and twilight beauty entitled "The Castle of the Scropes," by Frank E. Horne. These and "The Margin of Maelog," a study of an Anglesey lake and its tall brown reeds, by George Cockram, should not be missed; to lovers of Nature they will appeal as among the best things in the exhibition. "The Botanist," by Lexden L. Pocock, an original and really beautiful rendering of a tangle of sweet grasses and wild Mint and Meadow Sweet, athwart which, upon an old gnarled tree, sits a girl graduate in botany, with her microscope and wallet, examining specimens for her collection. A true touch of Art meets Nature in the light on the little stream which meanders in the background.

Of "Pictures of the Year," by doyens of the Royal Academy and others, much has been said elsewhere, and so it is unnecessary to enlarge here upon merits or demerits, except to emphasise the fact that among the most important pieces of pictorial realism in the show are Mr. La Thangue's Rustic Boy and Red Calf, which he calls "A Sussex Down," and Mr. F. L. Emanuel's "Kensington Interior," and, above all, to say that the President of the Royal Academy in various examples of his skill as a painter of trees might be studied with advantage by those shirkers of detail who conceal incompetence beneath a too broad mantle of so-called Impressionism. *Mary L. Breakell.*

NURSERY NOTES.

WILLIAM BULL & SONS, CHELSEA.

THE great winter garden in the nursery establishment of Messrs. William Bull & Sons, King's Road, Chelsea (see fig. 164) with its lofty Palms, Tree Ferns, and variety of foliage plants, is admirably adapted for the holding of a flower show, and annually, in the month of May, Messrs. Bull arrange a special display, to which all interested in horticulture are invited.

The show this season, which opened on May 13, is equal to those of former years. The broad central walk is bordered with groups of various kinds of Lilies, Roses, Carnations and other flowers, forming a suitable setting to the Orchids and fine Hippeastrums, which are the great attraction in the show.

The specimens of Hippeastrum (Amaryllis) are of the best modern type, large-flowered and with broad segments. The colours range from pure white with a few red lines to deep crimson. Comet is a brilliant scarlet flower; Norah has white petals veined with red; Beryl, a large, red variety, has a greenish-white central star; Invincible is a large, light-red flower of fine shape. One pretty, fragrant white variety with deep-rose lines is a great improvement on the well-known H. vittatum.

The choicest of the Orchids is a fine set of blotched forms of Odontoglossum crispum raised from seeds a few years ago, and now blooming strongly. They equal the best of the blotched imported O. crispum in size and shape, and a few have unusually dark blotchings. The best of those noted were O. c. "The Marvel," a flower of large size and good substance, with big, dark-purple blotches on the inner parts of the sepals and fringed petals; O. c. Mabel, an equally good form, with redder blotching, the greater part of the lip being dark-brownish red; O. c. Coronet and some which showed traces of mixed parentage. A hybrid of O. ardentissimum bore a grand spike with 11 branches. We also observed good typical forms of Odontoglossum crispum and various other Odontoglossums, some pretty Cattleya Mendelii, and C. Mossiæ; a number of Lælio-Cattleya Baden Powell varying in the tint of the blossoms; good forms of L.-C. Aphrodite, the variety Queen Mary (white with violet-mauve front to the lip) being the best; several hybrids between Cattleya Schröderæ and L.-C. Warnhamiensis varying from pale yellow to pink with purple lip. Two very pretty designs are made up of forms of Dendrobium nobile with the elegant lavender, purple spikes of a hybrid Odontoglossum from O. ardentissimum and O. Edwardii, and a group of Odontiodas in which the rose and white forms of O. chelsiense raised by the firm are the principal features.

NOTES ON THE ECONOMIC FLORA OF GAZALAND.

(Concluded from p. 322.)

THE most important economic plants in the Loganiaceæ are the species of Strychnos. S. mitis is a new species, the yellow fruits of which are said to be eaten by birds, squirrels and monkeys. The forest Touracos (Turacus Livingstonii) are particularly fond of the berries, which are borne very abundantly, and a dozen of these creatures may be seen at a time feeding among the branches. S. Burtonii is a large tree, with edible fruits; they are large, spherical, hard and of an orange-yellow colour, and contain a rather solid yellow pulp, surrounding numerous seeds. The pulp, though pleasant, is somewhat tasteless, but is used by the natives in times of scarcity. It is dried, ground, mixed with honey, and made into a pulpy food, which, however, does not appeal much to the European palate.

S. spinosa, known as the Kaffir Orange, is a large shrub, with a spreading crown. The fruits are about 5 inches in diameter, globose, and, like the former species, contain a quantity of pulp, in which the seeds are buried. This pulp is much relished by the Kaffirs, as well as by baboons and pigs, the two former breaking the hard outer covering with stones or by throwing the fruits on the ground. The pulp, which has a somewhat bitter taste, is first beaten up with water, the seed taken out, the residue mixed with meal and made into a kind of porridge. The wood is tough, and is used for making hoe handles.

The order Borragineæ is represented by four species, and the only one which appears to be of use is Ehretia divaricata, on which Mr. Swynnerton writes the following note:—Trunk much gnarled and fluted rendering it a poor subject for the saw. But in view of its remarkably handsome dark-brown grain it might well prove useful for cabinet work. In the Bignoniaceæ, only two species of Markhamia, namely M. acuminata and M. lanata, are referred to as having any economic application. The timber of the former is stated to be durable, and used for rafters, while that of the latter is a favourite with native bowyers. In the Pedalineæ the well known Sesamum oil plant of the tropics (S. indicum) finds a place.

In the order Verbenaceæ—important from an economic point of view on account of its valuable timbers, including the teak—two species only are noted, namely, Lippia asperifolia and Vitex Eylesii. The leaves of all the Mushanis—or Lippias—are used as a remedy for indigestion, being chewed, or ground and mixed with water, and drunk by the natives. They are also used as a disinfectant after the handling of infected or decaying substances. To Vitex Eylesii is attached the following note:—"A smallish tree, with black edible fruit. Leaves dried, pulverised and scorched are used by natives as a snuff in cases of sore throat or cold in the head." In the important order Labiatæ, in which no fewer than 11 new species are described, one only, Leonotis mollissima, is noted for its economic uses, its leaves being used as a cattle medicine, and as one of the constituents of an antidote to snake bites."

A useful plant is Piper capense, a straggling shrub, some 6 to 9 feet high, very plentiful in some parts of the forest, the fruits of which have an excellent aromatic flavour, and are frequently used by the traveller for making soups and stews.

The most important plant in the Proteaceæ appears to be Faurea saligna, which is described as one of the largest trees of the open woods,

FIG. 164.—VIEW IN THE CONSERVATORY AT MESSRS. W. BULL AND SONS' NURSERY, CHELSEA.

and fairly common in many parts of the district. The timber has a handsome Beech-like grain, and is easily worked and durable. It is used by the natives for doors, and on account of its splitting well is a favourite wood for the floors of their raised huts. As an example of its durability underground Mr. Swynnerton adds the following note:—"A coffin made of the wood and buried in the ground in a spot infested with white ants, when taken up after some years, and though partially eaten and bored with a few holes, it had held together very well, and was in fair condition. Most of the local timber would have completely vanished in two or three months." A new species of Protea and one of Leucospermum are described, but no reference is made to their having any economic value. The following note, however, is interesting:—"No species of Leucospermum has so far been recorded as tropical." It is also interesting to note that Osyris abyssinica, a shrubby, santalaceous plant, is used in tanning: while the leaves of O. arborea, an Indian species, are used as a substitute for tea, the infusion smelling very much like the real article, but having powerfully emetic properties. Though a large number of new species is described in Euphorbiaceæ, the number of references to useful plants is comparatively small. The milky juice of Euphorbia matabelensis is used as bird-lime. Bridelia micrantha, a tree of 30 to 40 feet high, produces a white and exceedingly durable wood, which makes excellent yokes for oxen. Pounded to a fine paste, the bark is smeared by the natives over their doors and baskets to stop cracks. Uapaca Kirkiana, a smallish tree of the open woods, produces large, three-seeded fruits, which are edible and much relished by the natives and all kinds of animals. Antidesma membranaceum, a large shrub, also produces small edible berries Croton sylvaticus is one of the largest forest trees, growing to a height of 100 feet or more, with a diameter of 3 to 4 feet. The branches are said to be very brittle and easily broken off by the wind. The bark is pounded and thrown into pools to poison fish, and it is also pulped and used as a poultice in cases of colic. The bark of one of the new species, namely, C. Gubouga, S. Moore, the specific name of which is one of the native names of the plant, is also used for poisoning fish.

Neoboutonia Melleri, a large tree with soft timber, yields a milky juice, which is said to contain rubber. Another probable source of rubber is Excœcaria sylvestris, one of Mr. Spencer Moore's new species, which is described as a large, handsome evergreen shrub, 15 to 20 feet high, the milky juice of which flows freely from the twigs, but more scantily from the old stems.

Notwithstanding the extent and importance of the Order Urticaceæ, not only from the number of species contained in it, but also with respect to its economic importance, ten species only are enumerated, six of which have uses of a minor character. Thus, Celtis dioica (a new species), one of the largest forest trees, bears small yellow berries, which form the staple food of the forest birds, while the wood, which is white, has a most offensive smell, which is noticeable at some distance, particularly in the case of decaying trees. Ficus exasperata is another large tree, the leaves of which are very rough and used by the natives as sandpaper for polishing the handles of the various native weapons and implements. The leaves of F. capreæfolia are also used for a similar purpose. F. capensis is a large, branching tree, bearing large edible Figs, but always infested with ants. The fruit is very attractive to forest pigeons and starlings, and makes excellent jam. F. subcalcarata is another large tree, with shady, spreading crown. The milky latex is said to coagulate into a substance like papier maché, while from Bosquiea Phoberos, a large tree of 80 feet high, "an ochreous-yellow latex" is said to be yielded fairly freely.

At the moment of finishing these notes I have received, through the courtesy of the general secretary of the Linnean Society, the following communication from Mr. Swynnerton, dated Gungunyana, Melsetter, Rhodesia, December 29, 1911:—"It should be clearly understood that my information on native uses of plants is from native sources, and should, therefore, be received with the usual caution—not that I have any reason at all to doubt the reliability of my informants, most of whom were in my service. Much of it has been confirmed by my neighbours, the missionaries." *John R. Jackson, Claremont, Lympstone, Devon.*

FIG. 165.—LÆLIO-CATTLEYA HELIUS, A GOLDEN-YELLOW VARIETY.

LÆLIO-CATTLEYA HELIUS

(L.-C. G. S. BALL × C. SCHRODERÆ).

BARON BRUNO SCHRODER, The Dell, Englefield Green (gr. Mr. J. E. Shill), is to be congratulated on possessing this triumph of the hybridist's art (see fig. 165). It is the first clear golden-yellow flower to rival in shape and form Cattleya Mossiæ, and is, in effect, a golden-yellow C. M. Wageneri, in spite of Lælio-Cattleya being a parent. L.-C. G. S. Ball, first flowered by Messrs. Jas. Veitch & Sons in 1900, is the result of crossing the handsome Cattleya Schröderæ with the comparatively small and narrow-petalled, orange-scarlet Lælia cinnabarina. The result was satisfactory, for in the hybrid the good form and substance of C. Schröderæ predominated, but took over in a more or less degree the yellow and orange colour of Lælia cinnabarina. This in a clear golden-yellow tint has been handed down to L.-C. Helius, but C. Schröderæ has again imparted size and substance to the hybrid. The petals are broad and wavy at the edge, slightly lighter in colour than the sepals, and with a delicate nankeen-yellow shade. The lip has an orange-coloured disc, with a few slight purple markings in front.

NOTICES OF BOOKS.

A POPULAR WORK ON IRISES.*

PROFESSOR BAYLEY BALFOUR in his preface to this book remarks that the gardening world has recognised for some time past that in the realm of the Iris the mantle of the late Sir Michael Foster has descended upon Mr. Dykes, and he speaks of that larger book on the same subject which Mr. Dykes is soon to publish. That will be a work for experts, and for those who wish to know all that is to be known about the Iris. The volume now under review is for the gardener, and it gives him all the information he is likely to require. Even a small book on a large subject can only be well done by one who knows that subject thoroughly. Indeed, full knowledge is almost more needed for a small book than for a large one, for without it the writer cannot have a firm grasp of his subject, or insist upon its most important points. Anyone who knows but a little about Irises can

Irises, by W. Rickatson Dykes, M.A., L.-ès-L., with eight coloured plates. "Present-day Gardening Series." Edited by R. Hooper Pearson. (Messrs. T. C. & E. C. Jack. 1s. 6d.

see how much knowledge must have gone to the making of this book, and what pains Mr. Dykes has taken to describe the different species accurately and to name them rightly. This kind of accuracy is as much needed for a popular as for a scientific work, since a gardener cannot be sure of getting the plant he wants unless he knows its name.

The book deals with different Irises in their several groups. There are also chapters on Irises for the rock-garden and Irises for the herbaceous border, and a very useful calendar giving both the flowering time and the best season for planting. The latter information will be of great value to the ordinary gardener, who is apt to assume that autumn and early spring are the best times for moving any plants. Mr. Dykes tells him that he should plant Iris cristata in June, just after the flowers have faded. Many gardeners have probably failed with the beautiful little Iris gracilipes because they have planted it in autumn when it is at rest, and can make no root action for many months. Like Iris cristata it should be disturbed only at a time when its roots will instantly get a grip of the ground, and when it will be firmly established before the winter comes. But this applies to nearly all Irises which have permanent roots. Even German Irises, easily grown as they are, thrive best if they are moved in summer after flowering, so that they have time to establish themselves before winter, and the bulbous Irises of the Juno group often fail because they are planted late with their thick roots either badly damaged or destroyed altogether. The important point with them, as with so many Lilies, is to get good bulbs to start with; then in most cases success is sure with a light, rich, well-drained soil and a sunny position.

But even Mr. Dykes cannot tell us how to grow Oncocyclus Irises. He recommends that they should be got early before they start into growth, and then sent to a cold storage establishment where they can be retarded until the end of February. Mr. Dykes has made the experiment himself with some success, but ordinary gardeners will probably prefer to grow Iris germanica. On the germanica section Mr. Dykes has a very useful chapter, mentioning the best varieties in each class, including the newest introductions. He points out that German Irises, easy and common as they are, are often not treated as well as they deserve. They throw out long roots just under the soil, and resent disturbance of these. The roots must have room and time to grow strong if the plants are to keep free of disease, and the German Iris therefore should not be crowded in the border with all kinds of other plants.

There is a chapter on Irises that seldom flower, containing a great deal of out-of-the-way information. But to the ordinary gardener this chapter will be of negative rather than of positive interest. He will learn from it to be on his guard against I. humilis, which remains flowerless year after year, and which, when at last it does bloom, has "dull-coloured flowers produced so low down as actually to touch the ground." In other cases, as for example in the case of I. ruthenica, it is all important to get a free-flowering form. Indeed, Mr. Dykes advises us always, if possible, to choose our Irises, not from catalogues, but from plants in flower, at least when, as in so many cases, the species is variable. I. sibirica, for instance, is a familiar plant, but seedlings differ in quality almost as much as human beings.

I. tingitana, perhaps the most beautiful of all bulbous Irises, is another very shy bloomer. No doubt it grows, in its native Africa, in very poor soil, but Mr. Dykes advises that in our colder climate it should be richly nourished, even recommending well rotted manure an inch or two below the bulbs. Plants are like human beings; their diet should vary with climate, and if they are starved in the matter of sun they should not also be starved in the matter of food. Probably no southern bulbous Iris likes poor soil in England. Even the Spanish Iris soon deteriorates if it is not well treated.

The book, considering its low price, is well produced, and the coloured illustrations from photographs are very fair, but we wish they were more securely fastened. That, however, is the only complaint we have to make against a book which even the expert can hardly read without learning a great deal. *A. Clution Brock.*

The Week's Work.

THE HARDY FRUIT GARDEN.

By F. Jordan, Gardener to Lady Nunburnholme, Warter Priory, Yorkshire.

Figs.—If the work has not been done already, no time should be lost in securing the shoots of Fig trees to the wall. Wood made last year is hard and well ripened, the trees having been favoured with a mild winter. With fair summer weather, provided that careful attention is afforded the trees, ripe Figs may be expected next September. Tie in the branches thinly, and remove blind, pointed shoots, or cut them back to dormant buds if growth is required for extension. Fig trees on walls should never be pinched, as the secondary growths will not ripen before the winter arrives. Mulch and water occasionally trees that promise a good crop of fruit, but fruitless trees should neither be mulched nor watered, as a warm, dry condition at the roots will favour the production of short, spur-like shoots, which will ripen properly in an ordinary summer, and pass through the winter without injury from cold.

Pears.—Pear trees have blossomed profusely, and a plentiful crop may be expected. Several enemies attack the Pear at this season, chief among them being the Pear midge and the Pear slug. The former deposits its eggs upon the blossoms, causing the fruits to fall to the ground later. Such fruits should be gathered and burnt; better still, pick off all the deformed fruits before they fall and burn them. Where the Pear midge has given trouble in previous seasons, remove the surface soil, and apply kainit, also spray the trees during the winter with a suitable insecticide. Very little can be done during the growing season to combat the pest besides picking up the fruits which contain the caterpillars, or removing infested fruits from the trees by hand. The Pear slug is also a destructive pest, and trees badly infested are soon stripped of the leaves, whilst the fruits fall to the ground. The female insect lays her eggs during the next few weeks. Dust the trees well two or three times with quicklime, or syringe them with a suitable summer wash. If the Pear slug is very numerous, the surface soil beneath the trees should be removed during the winter and burnt, afterwards applying soil fumigant and fresh soil.

General Remarks.—I would again draw attention to the necessity of watering recently-planted trees, for they are sure to suffer injury if neglected in this matter, especially on light soils. Any trees that have become loosened in the soil by strong winds should be made firm and supported with strong stakes if necessary. Use the hoe frequently during fine weather to keep down weeds, and conserve the moisture in the soil. Continue to protect, for the present, the trees growing on south walls, and on warm mornings thoroughly wash the foliage with water from the garden engine. Remove suckers that appear in the middle of Raspberry rows or around fruit trees.

THE FLOWER GARDEN.

By J. G. Weston, Gardener to Lady Northcote, Eastwell Park, Kent.

Tub-gardening.—In many establishments numbers of plants are grown in tubs for furnishing terraces, balconies, verandahs, or broad flights of steps, and there are few gardens where such plants, when well grown, would not be an additional attraction during the summer months. A great variety of tubs is catalogued by the sundriesmen, but ordinary petroleum barrels, sawn in half, are suitable, and not so expensive as those made specially for the purpose. The barrels, which last for many years, should be well burnt out, and have holes bored at the bottom for drainage. They should be coated with paint on the outsides; a quiet, dark green being a suitable colour. There is an almost unlimited choice in the variety of plants suitable for this method of culture, and, as many of them will occupy the same tub for a number of years, a specially good compost should be provided. Certain plants may require a special soil, but the majority may be planted in a mixture of two parts rich loam and one part each of leaf-mould and rotted dung, adding sand, to ensure porosity. The soil should be mixed thoroughly, and used in a moderately dry condition, so that it can be well rammed when the subjects are planted. Plants that will occupy the tub for several years should not receive the full amount of soil at the start; subsequent top-dressings will furnish the plants with all they need, and obviate the danger of the compost becoming sour. Hydrangea hortensis is a favourite subject for tub culture, and, when top-dressed and fed as occasion requires, thrives and makes a large specimen in its original tub. Plants in these gardens that are between 5 and 6 feet high and as much through, have been in the same tubs for many years. They are housed in the late autumn before the frost injures the growths, kept on the dry side all the winter, and allowed to start into growth naturally in spring, without fire-heat. Weak and immature shoots are cut away, and the plants afforded a top-dressing of loam and dung in the spring. They are now ready to be placed in their permanent quarters, being full of buds, which are already expanding. Pelargoniums, both the Zonal and Ivy-leaved varieties, are splendid subjects for growing in tubs where bright colours are desired, the pink and scarlet being especially effective. Agapanthus umbellatus and its white variety are superb subjects for growing in tubs. They flower best when well established, and the tubs crammed with roots. If plenty of liquid stimulants are afforded when the flower-spikes are developing the plants will remain in a healthy condition for many years in the same tubs. Marguerites grow beautifully, and make huge clumps. When seen against a dark background, such as a Yew hedge the flowers have a charming effect. Fuchsias are extremely graceful subjects for tub gardening, but should be well hardened before they are exposed out-of-doors, or the tender foliage will be liable to injury. Fuchsias established in tubs are best allowed to start naturally like Hydrangeas. The scented-leaved Geraniums are eminently suitable for this system of gardening, also Lippia citriodora, the lemon-scented Verbena, Calceolaria amplexicaulis, Lilies, Sweet Peas, Orange trees, Myrtles, Cordyline indivisa, Phormium tenax, P. t. variegata, Palms, Yuccas, Agaves and Tree Ferns. Plants in tubs must not be left to take care of themselves. They must be afforded stimulants regularly, and also plenty of water when they are established.

THE ORCHID HOUSES.

By J. Collier, Gardener to Sir Jeremiah Colman, Bart., Gatton Park, Surrey.

East Indian House.—Such plants as Angræcums, Aërides, and Saccolabiums are developing numerous aerial roots, and should be afforded a moist, tropical atmosphere, but light, and fresh air must be admitted with discretion, or the foliage may become spotted and unhealthy. A moderate supply of water only should be afforded the roots, but not more than is sufficient to keep the surface layer of Sphagnum-moss in a healthy, growing condition. Some of the plants are sending forth their flower-spikes; weakly specimens that have lost many of their bottom leaves should not be allowed to flower until they have regained more vigour.

Angræcum.—Many of the dwarf-growing kinds of Angræcum, such as A. Ellisii, A. Kotschyi, A. arcuatum, A. Leonis, A. citratum, A. fastuosum, the sweet little A. hyaloides, and others of this class, will soon be starting into growth, and plants that require repotting should receive attention. A compost consisting of equal parts A1 fibre, cut up rather short, leaf-mould, and Sphagnum-moss, should be used, with a surfacing of clean picked heads of Sphagnum-moss. These plants are best grown in the coolest and most shady part of the East Indian house.

Cypripedium.—Cypripediums growing in the East Indian house should receive plenty of water at the roots, and a light spraying overhead on bright days. Care must be taken that water is not allowed to remain in the axils of the leaves, or the young growths of such species as C. lævigatum, C. Rothschildianum, C. Stonei, and C. Lowii will rot at their bases.

Calanthe.—The deciduous Calanthes are now in various stages of growth, and those plants that are unfolding their leaves and rooting freely may be allowed more water at the

roots, increasing the supply gradually as the plants make further progress. Care must still be exercised in watering specimens that are not far advanced in growth. The evergreen species of Calanthes, such as C. Masuca and C. veratrifolia, are coming into flower, and should not be too liberally supplied with water at the roots, or the flowers may become spotted. After passing out of bloom, and when commencing to make new growth, the plants should receive attention as to potting. Rather large pots should be used, and they should be filled one-third of their depth with clean crocks for drainage purposes. The compost should consist of equal parts rich fibrous loam and Osmunda fibre, cut up rather short, with a suitable quantity of leaf-mould, crushed crocks, and silver sand. Pot moderately firm, and provide a good space below the rim of the pot for holding water, as the plants require copious supplies of moisture at the roots throughout the year.

CATTLEYA.—Plants of Cattleya Lawrenceana and C. Schröderæ are passing out of flower, and should be subjected to a short season of rest. They should be placed in the coolest part of the house, and be kept rather dry at the roots. As soon as growth commences afresh, they should be repotted or top-dressed as is found to be necessary. Any plants of C. Mendelii and C. Mossiæ that have failed to produce flower-sheaths may be potted at this season. The flower-spikes should be removed from weakly specimens in order to throw all the energies of the plants into the growth. Plants of the autumn-flowering C. labiata, C. gigas, C. Gaskelliana, C. Bowringiana, C. Dowiana and its variety aurea, are developing fresh growth, and should be placed in the lightest and warmest part of the house: allow the compost to become dry before watering. When the flower-sheaths are seen to be developing in the young growths, the quantity of water afforded the roots may be increased slightly.

THE KITCHEN GARDEN.

By EDWIN BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

MAIZE.—Green Corn is not generally cultivated in gardens in England as a vegetable, although it is considered by many a great delicacy. To obtain the best results, a little extra care is necessary with the young plants. I prefer to sow the seed in pots, and to transplant the seedlings singly when of a suitable size into large 60 pots. The young plants need to be watered carefully. They should be planted out at the end of this month, or early in June, growing the plants in the meantime in a cold frame. Well-grown plants should be set out at a distance not nearer than 2 feet apart, and a space of 3 feet should be allowed between the rows. Keep the surface soil loosened during the growing season, and afford water copiously during hot weather.

HOEING.—Hoeing is of far more importance in cultivation than most persons imagine. Constant stirring of the soil amongst the various growing crops in the kitchen garden does more to stimulate growth, either on heavy or light soil, more especially during times of drought, than any other means, ensuring the conservation of moisture in the soil. Both the draw and Dutch hoes are valuable implements, the former being best for the coarser growing kinds of vegetable, and the latter for use between rows of seedlings.

MULCHING.—The application of mulches of some kind or another to the various kinds of vegetables is also of the utmost importance and, wherever possible, their use should be largely extended. Mulches not only act as stimulants, but also conserve the moisture in the soil, being equally beneficial on all kinds of soil. For strong-growing crops, such as Peas, Beans of various kinds, Cauliflowers and Globe Artichokes, half-decayed stable manure, or even long litter, is perhaps preferable to anything else, whilst for Onions, Carrots, Beets and similar vegetables manure from a spent hot-bed, or that which has been used for Mushroom growing provides excellent material. On heavy soils, half-decayed leaf-mould is equally valuable.

WATERING.—To obtain the best results in the culture of vegetables, it is imperative that a good supply of water is available. Wherever practicable, means should be taken to have a pool, wherein a good supply of water can be stored, and thus become warmed before it is applied to the plants. The best time for applying moisture, either to the roots or overhead, is during the late afternoon or evening.

TURNIPS.—Frequent sowing of Turnips should be made in an open site in the garden during, if possible, showery weather. Snowball is an excellent variety for sowing at this season, also Red Globe, which, perhaps, withstands the effects of hot weather better than any other variety that I am acquainted with. Where birds are troublesome, means must be taken to protect the seeds from them. Perhaps the easiest and most successful plan is to scatter freshly-mown short grass over the surface of the seed-bed. This will not only protect the seeds from the birds, but materially assist in their germination, and favour the growth of the plants when in a young state. Attend to the thinning out of previous sowings, and apply dressings of fresh soot and wood ashes during the early mornings whilst the plants are wet with dew.

PLANTS UNDER GLASS.

By THOMAS STEVENSON, Gardener to E. MOCATTA, Esq., Woburn Place, Addlestone, Surrey.

COLEUS.—Coleuses are very useful subjects to grow where a large quantity of plants are required for furnishing either in the dwelling-house or conservatory. They are easily raised from seed, but seedlings are not usually so bright and effective as some of the named varieties which require to be propagated annually from cuttings. Hart's Conqueror, Vesuvius, Mrs. H. B. May, Beckwith's Gem, Hendersonii, Conrad Rosenthal, and Cordelia are all excellent varieties. The last-named is one of the best for decorative purposes, though it is not suitable for growing as specimen plants. In order to obtain the best results, it needs to be grown in plenty of heat and moisture, exposed to full sunshine. Plants grown in "48" pots attain a height of about 2 feet, producing a fine display of large leaves almost orange-scarlet in colour. To maintain a succession of small plants, they should be propagated at intervals all through the summer, potting on the older specimens till they are of a desired size. If afforded a moderate amount of air during their later stages of growth, they will be hardy enough to withstand the trying conditions when employed for decorative purposes.

PRIMULAS.—The present is a suitable date for sowing various kinds of greenhouse Primulas. The old type of P. sinensis, though still grown in large quantities, is, in many instances, being superseded by smaller-flowered kinds, which are better adapted for decorative purposes, though I doubt if they last better in the conservatory. The stellata type provides plants in many beautiful shades of colour. The flowers attain to a height of 15 to 18 inches, and are extremely useful and effective for decorative purposes. P. obconica, which is an easy plant to cultivate, may now be had in colours ranging from pure white to rosy-crimson. As a continuous bloomer the plant is difficult to beat, but unfortunately it causes skin trouble to many persons, and for this reason it is not popular in all gardens. P. malacoides is a species of recent introduction. This graceful plant should be cultivated in fairly small pots, certainly not larger than 4½-inch (48's), which may be placed in small vases for decorative purposes in the dwelling house. P. kewensis has bright-yellow flowers and mealy foliage, providing a pleasing change from those described above; the blossoms are sweetly scented. Seeds of all these Primulas should be sown in well-crocked, shallow pans, filled with a light, sandy compost. They should be germinated in a moderately warm house, covering the pans with glass and brown paper to prevent the soil from becoming unduly dry, a condition which prolongs the process of germination in all Primulas.

CINERARIAS.—If early batches of greenhouse Cinerarias are required, the seed should now be sown. In addition to the old, large-flowered florists' varieties, some have star-shaped and others Cactus flowers, and all are useful plants for conservatory decoration. Those of the stellata type form fairly large plants, varying from 2 feet to 3 feet 6 inches in height, but those of the Cactus type are of a much dwarfer habit, being only about 18 inches tall. The seed should be sown as advised for Primulas, but rather cooler temperature should be provided for Cinerarias, as the plants germinate much quicker. I prefer to raise them in a cool-house or pit, the seedlings being much more sturdy when propagated without much heat.

HUMEA ELEGANS.—This decorative plant may be raised from seed sown at about this date. To obtain the best results, it is advisable to grow this plant steadily under cool conditions. Sow the seed in pots and pans, as directed for Primulas, affording a little heat at the outset; immediately the young plants are established in small 3-inch pots (60's) they should be allowed a cool treatment.

FRUITS UNDER GLASS.

By E. HARRISS, Fruit Foreman, The Royal Gardens, Windsor.

CUCUMBERS.—Plants carrying full crops of fruit should be fed liberally with liquid manure and artificial fertiliser, sprinkling the latter lightly over the surface of the bed just previous to watering. A top-dressing should be placed over the roots as soon as they appear on the surface in quantity. A mixture of loam and well-decomposed horse manure is suitable for the purpose. Attend carefully to the stopping and tying of the shoots, which may be thinned more liberally now than formerly. Open the ventilators at the top of the house a little in the forenoon, but close them again early in the afternoon, after syringing the plants and damping the walls and paths. Should spot disease appear on the foliage, cut off the affected leaves and burn them. Discontinue syringing, but maintain a moist atmosphere by damping the bare spaces. During very hot weather it is a good plan to afford the plants some slight protection from the sun's rays. Raise another batch of plants in readiness to replace the older ones when they are worn out. It is not a good practice to retain the old plants for too long a time; when old they require much attention, and the fruits they produce are tough and bitter. During the summer months excellent crops of Cucumbers may be grown in cold frames. The plants will require a moderately warm hot-bed; plenty of well-rotted leaves should be placed on the surface of the hot-bed for the roots to enter. Set the plants in mounds composed of loam and leaf-mould in equal parts. One plant will be sufficient for each light. Afford plenty of moisture both at the roots and in the atmosphere, and close the pit early in the afternoon, thus giving the plants the full benefit of the solar heat. Attend regularly to the stopping and thinning of the growths and remove exhausted leaves. Occasional light fumigations will keep the plants free from aphis.

PLANTING YOUNG VINES.—I do not generally recommend the planting of vines raised from eyes rooted early in the same year, but if it is intended to renew a house of early vines, and the Grapes may be cut from the old canes early in June, then there will be an advantage to plant these young canes. The old vines will furnish a crop and the young ones will become established in the same year. But this method will involve a considerable amount of labour at the time when work is pressing in all departments. The soil and all necessary ingredients should be got in readiness, so that the work may be facilitated when the time for planting arrives. Do not allow the young plants to become pot-bound, but shift them into larger pots if necessary.

TREATMENT OF YOUNG VINES.—Vines which were planted this season must be given every encouragement to grow freely. Keep the atmosphere humid, and admit plenty of air in the forenoon during favourable weather, but avoid cold draughts. Syringe the foliage with tepid rain-water early in the morning and again at closing time, which should not be later than 3 p.m. Lightly stir the surface of the border to admit warmth and air to the roots. Later on a mulch of some light dung spread over the roots will be beneficial. Use fire-heat only at night-time or during cold and wet weather. Even on these occasions it must not be used to excess. Stop the side shoots at the second or third leaf and tie them to the trellis. Pinch the points of the leaders when they have reached to one-third the length of the trellis. Guard against over-cropping young vines which have been planted in recent years, even though they may be strong and healthy.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, *as well as specimens of plants for naming, should be addressed to the* **EDITORS, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Special Notice to Correspondents.—*The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.*

Local News.—*Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Illustrations.—*The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c., but they cannot be responsible for loss or injury.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.*

APPOINTMENTS FOR THE ENSUING WEEK.

WEDNESDAY, MAY 22—
Royal International Hort. Exh., in the Chelsea Hospital Gardens. Exhibition open to the public on every week day until May 30 inclusive. Bath and West and Southern Counties Sh. at Bath (5 days). Royal Botanic Soc. meet.

FRIDAY, MAY 24—
Linnean Soc. meet. and Anniversary.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—54·2°.

ACTUAL TEMPERATURES:—
LONDON.—*Wednesday, May 15* (6 P.M.): Max. 67° Min. 55°.
Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—*Thursday, May 16* (10 A.M.): Bar. 29·4°; Temp. 55°; *Weather*—Sunshine.
PROVINCES.—*Wednesday, May 15:* Max. 62° Norfolk; Min. 49° Newcastle-on-Tyne.

SALES FOR THE ENSUING WEEK.

TUESDAY—
Semi-established Cattleya aurea and other valuable Orchids, at 67 and 68, Cheapside, E.C., by Protheroe and Morris, at 1.

WEDNESDAY—
Liliums and other Hardy Bulbs, at 1; Palms and Plants, at 3.30; at 67 and 68, Cheapside, E.C., by Protheroe and Morris.

THURSDAY—
Orchids, by order of J. J. Holden, Esq., of Southport, at 67 and 68, Cheapside, E.C., by Protheroe and Morris, at 1.

FRIDAY—
Orchids, by order of Francis Wellesley, Esq., of Woking, at 67 and 68, Cheapside, E.C., by Protheroe and Morris, at 1.

The Eve of the Exhibition.

Vast numbers of people, both at home and abroad, are looking forward to the Exhibition with increasing interest and expectation—happy people, whose only care is the purchase of a ticket which will entitle them to a unique opportunity for enjoyment and admiration and, if their tastes lie in that direction, to an occasional effort in criticism. But there is another section of the community which awaits the event with less cheerful feelings. The organisation of the Exhibition has entailed an enormous amount of labour and anxiety on the directors and others. The preparation of the exhibits has put a yet larger number of people to endless trouble and vast expense. Those who belong to either of these categories would be more than human were they not to be seized, now that the strenuous work is all but done, with feelings of regret that they had ever undertaken such a herculean task. Mixed with a deep sense of relief that the opening day is upon them are regrets that the time is too short for further efforts after perfection. At the instant when the ship is ready to launch, the buoyant optimism which led to her construction gives place to a sentiment of desperate fatalism. Such feelings are natural, and beset all strenuous men at the dark hour before action. It is only the brainless optimist who is always confident. Such an one was he who, engaged in hanging wallpaper, replied to the irate master's exclamation, "Why, man, you have hung it upside down!" with the soft answer, "Oh! it will dry all right."

Knowing that such feelings of pessimism are bound to beset not a few of those who have laboured to make the Exhibition a success, we, who have watched their labours and appreciate the splendid work which they have done, step in at this moment, when all's done that may be done, to assure them that "it *will* dry all right."

The exhibitor of delicate subjects may be wringing his hands when he finds that, in spite of all his careful devices, the fierce sun has damaged some of his finest specimens. Nevertheless, as he knows full well, he is a resourceful man, and when his exhibit is staged none will believe in viewing its magnificence that he and his foreman and his men have lived through weeks of trouble. So also the organisers need not vex their souls with apprehension. They have done all that can be done to deserve and command success, and may leave the rest to the powers above and to the Standing committee which, as we understand, will be the power below to take decision and action during the time of the Show.

For our part, we have complete confidence that the net effect of the Exhibition will be a magnificent proof not only of the skill of the world's horticulturists, not only of the fact that British horticulture can hold its own against all comers, but also that the love for and interest in plants is keener and more widely disseminated today than it ever was before. The organisers and exhibitors will find no mean satisfaction when they see the thousands of admiring visitors thronging to the Exhibition, and when they themselves realise that they have taken a leading part in making the finest Horticultural Exhibition that the world has ever seen. They may at the moment wish that they were well out of it; but for the rest of their lives they will be proud of the unselfish and patriotic part which they have played in this great achievement.

——— **ARRANGEMENTS FOR THE CONFERENCES.**—Two important Conferences will be held during the International Exhibition at Chelsea on subjects connected with horticulture. Both will be presided over by the Rt. Hon. A. H. DYKE ACLAND, Chairman of the Science and Education Committee, and will be held in the Recreation Hall of the Chelsea Royal Hospital. Admission is free, and all interested in the subjects are cordially invited to attend. Those attending the exhibition may enter the conference hall from the exhibition grounds. Those not attending the exhibition may enter the conference room from the Royal Hospital entrance. The first conference will be on Thursday, the 23rd inst., at 2 p.m., the subjects being "Horticultural Education," speakers: Prof. L. H. BAILEY, Cornell University, U.S.A., on "Horticultural Education in America"; Herr K. WEINHAUSEN, of Berlin, on "Horticultural Education in Germany"; W. HALES, Esq., of Chelsea Physic Garden, on "The Education of a Gardener"; and Prof. A. BUYSSENS, of the School of Horticulture, Vilvorde, Belgium, on "Horticultural Education in Belgium." The second conference is arranged for Friday, the 24th inst., at 9.30 a.m., on "Legislation in Connection with Plant Diseases and Pests." The speakers include Prof. RITZEMA BOS, of Holland, on "The Value of Importation Regulations as a Means of Preventing the Introduction of Plant Pests from Abroad"; A. G. L. ROGERS, Esq., of the Board of Agriculture, on "The Aim of Legislation in Great Britain"; H. MAXWELL LEFROY, Esq., M.A., F.Z.S., F.E.S., Imperial Entomologist for India, on "Legislation in Connection with Insect Pests"; H. J. GÜSSOW, F.R.M.S., Botanist to the Canadian Government, on "Legislation in Connection with Fungus Diseases"; and A. W. SUTTON, V.M.H., of Reading, on "Import Dues and Regulations." Reports are being prepared by the Science and Education Committee on the present condition of both horticultural education and legislation against plant pests, and will be printed with the papers and discussion.

———As an instance of the magnitude of some of the exhibits, the following particulars relating to that of LEOPOLD DE ROTHSCHILD, Esq., Gunnersbury House, Acton (gr. Mr. J. Hudson), are of interest. The display of fruit trees in pots will occupy 1,380 square feet. There will be 13 different kinds of fruits shown in 50 distinct varieties. This enormous contribution will be set out in the form of two pairs of parallelograms at opposite ends of the tent, each parallelogram filling a space of 40 feet long by 8 feet wide, and each of the pairs of groups being connected by five pergolas of fruiting vines and Cherries, which will span the path. To remove these fruit trees from Gunnersbury to the show grounds 18 to 20 vans will be required. Another of Mr. LEOPOLD DE ROTHSCHILD'S exhibits will be composed of the great specimen plants of scented-leaved Pelargoniums, for which Gunnersbury House gardens are also noted. These plants will require a space 80 feet long by 4 feet wide.

———The medal (see fig. 166) for the Exhibition was designed and executed by Mr. ALLAN G. WYON. The design has met with the approval of the Committee of the Royal Academy. The medal is included amongst the select works of art of the year, and is on view at Burlington House.

LIST OF FUNCTIONS.

Monday, May 20.—Private Press View. Dinner at Holborn Restaurant, offered by the National Rose Society, at 7 p.m.

Tuesday, May 21.—Reception at Grosvenor Square by the Duke and Duchess of PORTLAND, at 9.30 p.m.

Wednesday, May 22.—At about 1.30 p.m., lunch to jurors, in marquee on the site.

Thursday, May 23.—Conference on "Horticultural Education" in the Recreation Hall, Chelsea Hospital, at 2 p.m. Visit to the Royal Gardens at Windsor Castle. Dinner at Gunnersbury, offered by Mr. LEOPOLD DE ROTHSCHILD. Dinner offered by the Perpetual-flowering Carnation Society, at 6.45 p.m., at the Holborn Restaurant.

Friday, May 24.—Conference on "Legislation Affecting Diseases of Plants," at 9.30 a.m., in the Recreation Hall. Banquet at the Horticultural Hall, offered by the Royal Horticultural Society, at 7.15 p.m.

Saturday, May 25.—Dejeuner à la Fourchette and garden party at Burford Lodge, offered by Sir TREVOR LAWRENCE, Bart.

NARCISSUS "CRŒSUS"

AWARDED R.H.S. FIRST CLASS CERTIFICATE ON APRIL 2, 1912

Sunday, May 26.—Reception by Sir FRANK CRISP at Friar Park, Henley.

Tuesday, May 28.—Visit to Kew Gardens.

Excursions have been arranged by the Perpetual-flowering Carnation Society for American and Continental visitors at the show. On Saturday, the 25th inst., visits will be made to Mr. W. E. WALLACE's nurseries at Eaton Bray, and, in the afternoon, the gardens and stables at Ascott, by kind permission of Mr. LEOPOLD DE ROTHSCHILD, who will entertain the party to tea. On Monday, the 27th inst., an excursion is arranged to Mr. C. ENGELMANN's nurseries at Saffron Walden, and the visitors will be entertained to lunch by Mr. ENGELMANN. On Tuesday, the 28th inst., outings are arranged to Hampton Court Gardens, Mr. ROBERT PAGE's nurseries, and Windsor, where luncheon will be provided. After luncheon, Mr. A. F. DUTTON's nurseries at Iver, and Messrs. LOWE & SHAWYER's establishment, at Uxbridge, will be visited. On Wednesday, the 29th inst., a visit will be made to Enfield and district to inspect Messrs. STUART LOW & Co.'s nurseries at Bush Hill Park, thence to Mr. ALFRED SMITH's, Enfield Highway. Lunch will be partaken at Waltham Cross, after which Mr. STEVENS's and Messrs. THOS. ROCHFORD's nurseries at Cheshunt will be inspected.

———The annual dinner of the Kew Guild will be held on Tuesday, the 28th inst., at the Holborn Restaurant. Lt.-Col. D. PRAIN, C.M.G., F.R.S., will preside.

———**RAILWAY FACILITIES.**—The L. and S.W. Ry. Company have informed the Hon. Sec. for Devonshire (Mr. P. C. M. VEITCH, Exeter), that, although they are not prepared to run excursion trains to London for the great show, they are willing to run a special train at reduced fares on the third day of the show, leaving Plymouth at 6 a.m., calling at Exeter before 8 a.m. for Waterloo, and returning just after midnight. But the railway company require 200 tickets to be taken; the only alternative offered is the ordinary Saturday to Monday tickets to London, by which passengers may travel by any ordinary train on Saturday which has a through connection. Passengers holding week-end tickets may not return on the Saturday, but Monday being a Bank Holiday the tickets are available for use on Tuesday.

———**ORCHID SALES IN THE SHOW WEEK.**—A full week of sales of Orchids on the occasion of the International Show is announced by Messrs. PROTHEROE & MORRIS. A very important event is the sale on May 24 of rare, duplicate plants from the collection of FRANCIS WELLESLEY, Esq., many of which have been certificated. Mr. WELLESLEY is a keen judge of a good variety, and, consequently the merit of the duplicates offered is assured. On May 23 there will be rare Cattleyas, Cypripediums, Odontoglossums, &c., from the collection of J. J. HOLDEN, Esq.; on Tuesday, May 28, choice Orchids by order of the Executors of the late NORMAN C. COOKSON; and some good things from Mons. JULES HYE DE CROM. On Thursday, May 30, from the famous collection of Odontoglossums of R. BROOMAN-WHITE, Esq., some of the best will be offered, and on other dates other fine Orchids will be on sale.

OUR SUPPLEMENTARY ILLUSTRATION.—Our Supplement illustrates Narcissus Crœsus, a variety which received a First-class Certificate at the Royal Horticultural Society's meeting on April 2 last. When fully expanded the pale primrose colour of the perianth fades to nearly pure white. The frilled corona is widely expanded, and its colour has been described by some Narcissus enthusiasts as approaching the vividness of a glowing red-hot coal. Narcissus Crœsus was raised by Mr. J. C. WILLIAMS, of Caerhays Castle, Cornwall, and the stock is now in the possession of Mr. ALEX. M. WILSON, at Shovell, Bridgwater. The growers state that this variety is a first-class garden plant; it has a robust constitution, and is very free-flowering. It may be safely predicted that Narcissus Crœsus will become a very popular and widely-grown flower.

NATIONAL ROSE SOCIETY.—A conference on Roses will be held under the auspices of the National Rose Society in the Holborn Restaurant, on the 20th inst., at 5 p.m. The president, the Rev. J. H. PEMBERTON, will deliver an address on "The Modern Development of the Rose," under the headings: I.—Its Development as a Perpetual: (*a*) Rose du Roi, 1817, Gloire de Rosomanes, 1825; (*b*) the Hybrid Perpetual; (*c*) the Hybrid Tea; (*d*) Dwarf Cluster Roses; (*e*) Pernettiana. II.—Its Development as a Pillar Rose: (*a*) the Ayrshire; (*b*) the Multiflora; (*c*) the Wichuraiana. III.—Its Development as to Use: (*a*) Standard; (*b*) Exhibition; (*c*) Decoration; (*d*) Bedding and Massing; (*e*) Autumnal-flowering; (*f*) Cultivation under Glass. IV.—The Future Prospects of its Development. After the conference (at 7 p.m.) a dinner will be given in honour of the distinguished foreign rosarians visiting the Royal International Horticultural Exhibition. Members and their friends, including ladies, are invited.

BRITISH GARDENERS' ASSOCIATION.—For the period of the Chelsea Show this association has engaged rooms at 92, Pimlico Road (at the corner of Lower Sloane Square), near the entrance to the Chelsea Hospital grounds. These rooms will be open to all gardeners during the show, and the general secretary (Mr. CYRIL HARDING) will be in attendance prepared to give information concerning the aims of the association.

FIG. 166.—MEDAL DESIGNED BY ALLAN G. WYON FOR THE DIRECTORS OF THE ROYAL INTERNATIONAL EXHIBITION.

LECTURES ON GENETICS.—Professor BATESON resumed his course of lectures at the Royal Institution on Tuesday, the 14th inst. The lecturer dealt with recent progress which has been made in the problem of sex and its bearing on inheritance. He described the interesting observations made by Dr. VRIES and others on the results of crossing species of Œnothera (e.g. Œ. muricata and Œ. biennis). Professor BATESON showed that the evidence from these and similar experiments points definitely to the conclusion that the male and female germ-cells may carry different factors. Herein is to be found the explanation of the fact that reciprocal crosses between species may lead to dissimilar results.

LINNEAN SOCIETY.—At the invitation of the President, Dr. D. H. SCOTT, the Council of the Linnean Society visited Oakley on Saturday, May 11. The party arrived at East Oakley House at one o'clock, where they were welcomed by their hosts. After inspecting the delightful gardens which Mrs. SCOTT has established with so much art, the guests partook of luncheon. Subsequently the more energetic among the visitors made excursions on foot or by motor to the places of interest in the neighbourhood, whilst those of reposeful mind remained to enjoy at leisure the charm and peace of the Hampshire garden. After tea the party returned to London, delighted with their visit and with the kindly and generous hospitality of their hosts. Amongst those who availed themselves of Dr. SCOTT's invitation were:—Sir DANIEL MORRIS, Dr. HORACE BROWN, Professor POULTON, the Rev. Professor HENSLOW, Professor OLIVER, the Assistant Director of Kew, Mr. E. S. GOODRICH and Dr. A. B. RENDLE, the Rev. T. R. STEBBING, Miss SAUNDERS, Miss G. LISTER, Miss THOMAS, Dr. STAPF, Professor DENDY, Dr. DAYDON JACKSON, Dr. E. A. NEWALL ARBER, Mr. A. W. OKE, Mr. F. ESCOMBE, and Professor KEEBLE.

INTERNATIONAL FLOWER SHOW, NEW YORK, 1913.—An international flower show will be held by the Society of American Florists and Ornamental Horticulturists in the Grand Central Palace, 46th and 47th Streets, Lexington Avenue, New York, U.S.A., from April 5 to 12, 1913. The European address of the show is Exhibition Offices, 75, Chancery Lane, London, W.C.

ROYAL METEOROLOGICAL SOCIETY.—At a meeting of the members of this Society to be held at 70, Victoria Street, Westminster, on May 22 next, at 4.30 p.m., a paper will be read on "The Thunderstorm of March 11, 1912, in Hampshire and Sussex."

FRUIT PROSPECTS.—The Monthly Agricultural Report for May (Board of Agriculture) shows that the damage done by frost to the Plum crop is both considerable and general. Thus, the Eastern, N.E., S.E., E. and W. Midlands all report damage; all the more disappointing because of the large quantity of blossom. Gooseberries and early Strawberries suffered in Kent and N.W. Surrey, and Pears were much thinned by frost in parts of Worcestershire. The fruit crop in Scotland appears to have suffered less than in the more southerly parts of Great Britain.

SHREWSBURY FLOWER SHOW.—The hon. secretaries of the Shropshire Horticultural Society announce a new Champion Rose Class for the summer show in August next. The president has given a silver rose bowl of special design of the value of 30 guineas, and medals and money prizes amounting to £32 are also offered.

PUBLICATIONS RECEIVED.—***The Harvest of the Hives,*** by the Rev. Gerard W. Bancks. (London: Unwin Brothers, Ltd.) Price 6½d., post free.—***Bulletins of Popular Information.*** (Jamaica Plain, Massachusetts: Arnold Arboretum, Harvard University.)

SCOTLAND.

ABERDEEN CHRYSANTHEMUM SOCIETY.

THE schedule of prizes for the annual exhibition of this society, of which Queen Alexandra is patron, has just been issued. There is this year an alteration in the rule as to the removal of exhibits. These may now be removed on the Saturday, after 10 p.m., instead of on the following Monday morning, as hitherto. The show takes place on November 22 and 23, in the large hall of the Young Men's Christian Institute, Aberdeen.

ABERDEEN CITY PARKS GARDENERS.

AT a recent meeting of the Links and Parks Committee of the City of Aberdeen, an application was made by the gardeners employed in the parks and links for an advance of wages. The question was remitted to a sub-committee for consideration. It has arisen in consequence of a movement among the various classes of gardeners in the city for an improvement in their remuneration.

PRESENTATION TO A GARDENER.

MR. WILLIAM TOUGH, gardener at Arndilly House, Craigellachie, has been presented by friends and fellow employees with a purse of sovereigns on the occasion of his departure for the United States.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

CITRONS IN DEVON AND CORNWALL.—In two gardens near Plymouth, many years ago, I remember Citrons growing on south walls and fruiting splendidly without artificial heat, and protected in winter only by lights of glass. One severe winter these Citrons were killed, and in neither garden, I believe, have they since been planted again. Would some reader kindly inform me whether they are now cultivated in any gardens of Devon and Cornwall as above, without artificial heat. *R. Irwin Lynch, Botanic Garden, Cambridge.*

CLARKIA ELEGANS (see p. 323).—I have cultivated this pretty annual for several years past with the same good results as Mr. Herdman. The only difference is that I grow the plants in 8-inch pots, five plants in each pot. The plants in these gardens are not yet in full bloom, as they are being retarded as much as possible to replace plants of Schizanthus and Cineraria "Feltham Beauty" in the cloisters when these have finished flowering. I enclose some blooms, taken from different plants, to show their excellent bright salmon colour. The seed was saved from the Firefly strain, and each of the 140 plants grown is true to colour. Godetia Double Rose, when grown in the same manner as the Clarkias, is another desirable annual for pot culture. *A. Shakelton, Forde Abbey Gardens, Chard.*

———Many plants in these gardens grown in 8-inch pots have attained the height mentioned by Mr. Herdman. We grow Clarkia elegans three plants in each pot; some of the growths at 3 feet 6 inches high are 1½ inch in circumference. *A. Middleton, Greenfield House Gardens, Laleham.*

MYRTUS COMMUNIS.—I have failed to raise plants of the common Myrtle from own saved seed sown during both autumn and spring. The fruits matured early last autumn, and the seed obtained from them appeared to be quite sound. The seed was sown in sandy soil, also in silver sand alone, and placed in various temperatures, but failed to germinate. Will someone who has been successful kindly give their opinion on the cause of failure? *Sidney Legg.*

EXOTIC FOREST TREES.—I am afraid that Sir Herbert Maxwell, in his criticism of my note (p. 277), has rather misunderstood the sentiments expressed in it. He accuses me of wishing to plant nothing but trees indigenous to Britain. After carefully reading through the article in question, I have been unable to find anything to justify this conclusion. What I did condemn was the planting of large areas with species that may or may not develop into good timber. Experimental planting within reasonable limits is, of course, to be encouraged, but to cover large areas with a tree which has hitherto only been grown in a park is foolish, to say the least of it. Of course, the planter may be lucky and get good timber, and can then afford to laugh at his more cautious colleagues, who prefer to wait and see the behaviour of the same tree on a smaller area before embarking on extensive planting operations. Thuya gigantea may be growing well at Benmore, but, as the trees there are only 35 years old, they have scarcely had time to give absolute proof of their value as forest trees. I have seen various plantations of Thuya in Germany, and, with few exceptions, they developed red-rot after about 20 years. Snow, too, did more damage to them than to any other tree in the neighbourhood. I did not disparage the Japanese Larch, but merely remarked that its immunity from canker and its rapid growth are not so startling as at first supposed, and I could point to two plantations growing side by side where the growth of the European species was superior to the Japanese. I would not place it second to the former in order of merit, but, in my opinion, its superiority has yet to be proved. My experience of the quality of Douglas Fir timber is not limited to that of wide-planted trees or park specimens, and I know of a good many plantations on the Continent where it is provided with close company of its own species. Although the lower branches died off at an early age, they remained on the stem for many years, and are so tough that they can scarcely be torn off, much less fall off by their own weight. I did not remark about the timber being coarse, but I did state that it was of good quality, merely mentioning that the peculiar toughness of the dead branches generally rendered it knotty. *G. W.*

POT STRAWBERRIES.—This subject seems to have awakened the interest of a number of your readers, as it awakened mine when I read Mr. West's letter relating the failure of his plants of Royal Sovereign. I at once came to the conclusion that the failure was due to no other cause than the presence of thrips in the crowns of the plants, and this view I shall hold until Mr. West says there was no such pest present on the plants. Mr. West may have been in the happy position of some of the subsequent contributors to this subject who seem never to have known failure, especially from this cause, and I would point out, in support of my view, that it is not uncommon to discover the presence of thrips which had escaped observation because the trouble had never come under his notice before. The experience of *Yorkshire Gardener* at Hackwood, whose memory serves him so well, only goes to confirm my theory that a hot, dry season is conducive to the development of thrips even in the least suspected places. I may add, however, that the best early-forced berries I have seen of Keen's Seedling were a misshapen lot, though of good colour. I am not surprised at the conclusion arrived at by Mr. C. H. Branson that Royal Sovereign is worn out. Nine or ten years ago I arrived at the same conclusion, though it is now my favourite variety, and I have forced the variety George Munro with it. The circumstances which led to my opinion that the variety was worn out are these. For two years in succession a very large proportion of a batch of 2,000 plants prepared for forcing failed to develop satisfactory crowns. Later we procured young plants of the same variety from across St. George's Channel, and the results were most gratifying. The soil in which our Strawberries were growing was Strawberry sick; it should be common knowledge, as it is frequently pointed out, that almost any variety of Strawberry will deteriorate in medium to light soils in a few years. The remedy is to burn the plants as they stand and afterwards heavily lime and trench the ground, utilising it for the growing of vegetable crops for at least two years. The soil in the gardens at Hackwood Park is, to the best of my recollection, of a heavy, retentive nature, and I was informed by a gardener, who served as a journeyman under the late Mr. Dickson, that Mr. Dickson won prizes for Strawberries picked from plants growing in the same position for at least nine years. The best results in forced Strawberries I have seen were of plants of Royal Sovereign and Vicomtesse Hericart de Thury, that were layered in July in 6-inch pots filled with a compost of heavy loam, well-decayed manure, a good proportion of mortar rubble, and some soot, the whole dried, and mixed thoroughly. The compost was rammed into the pots as hard as possible. It is best to store pot Strawberry plants in frames during the winter plunged in leaves, but standing firmly on a layer of ashes, to prevent as much as possible worms entering through the drainage holes. It is advisable to fumigate the frame as soon as the plants are in position. One or two applications of weak liquid manure or soot-water will not harm Strawberries in pots before they throw their flower-spikes, especially if they have been layered early in small pots and subsequently potted on. These stimulants will generally cause any worms which may be present in the pots to come to the surface, and help in detecting the presence of thrips by causing them to leave their cover in the crowns, which they do not always do on applications of clear water. *W. M. Macdonald, Mount Melville Gardens, St. Andrews, N.B.*

———It would be interesting to hear from Mr. West how his later batches of Strawberry plants have fared, whether they also have failed to throw up sufficient flowers for a crop of fruit. I do not believe either red-spider or worn-out stock was responsible for the scarcity of flower, but that from some cause or other the roots were damaged. I am more than satisfied that pot-plants suffer greatly from too much wet in the autumn, causing many of the best roots to be destroyed. This trouble I have more than once experienced and found that the early forced plants are those which fail. Later batches appear to a great extent to get over the check and flower satisfactorily. All gardeners do not include sufficient accommodation for wintering Strawberry plants under glass. But if frames are not available, some means should be adopted to prevent the soil in the pots from getting soddened and also severe frosts from damaging the centres of the crowns. *H. Markham.*

MORAINE GARDENING.—I do not understand why my remarks are called "inconclusive" because Mr. Malby causes many of his plants to "thrive amazingly" in his cemented moraines. For I have never denied that they might; my assertion is, and remains, that such "contraptions" are completely unnecessary, inasmuch as the plants he instances will thrive quite as amazingly without such refinements of luxury. Nor need Mr. Malby be afraid for the enthusiasm of gardeners; no one grudges necessary trouble, nor is likely "to be terrorised by the problem of a little cement"—if such a labour be inevitable. Those, however, who had justly hoped that the moraine might prove a simple and easy solution of their troubles, have every right to be deterred at the prospect of cementing, when such a precaution is found to be completely gratuitous and uncalled for. We well know and admire the "excellent results" to which Mr. Malby, with such just complacency, alludes: but as they can be quite equally well attained without any of the elaborate methods that he practises, his less exacting disciples (may I include myself in their number?) need not feel at all anxious about discarding any thought of such cemented entrenchments. It is for the relief of these I write; from afar I revere the carefulness of Mr. Malby, for it expresses true zeal. But it is not necessary, though very beautiful and laudable, to make a special soil-mixture for Bellis perennis, although by so doing I have no doubt that "excellent results" would ensue. And even so for a successful moraine, it is never necessary,

and, therefore, rarely desirable to achieve the construction otherwise than I have often described and never seen practised properly with anything but complete profit and triumph. I cannot enter into the ultimate philosophy of the moraine, but so the matter is—even in my own wet-wintered climate. It is delightful for us to think of Mr. Malby's star-spangled moraines with their cemented bottoms, but it is even more delightful for us, if possible, to realise that they would probably be no less lavishly spangled if the bottoms were not cemented at all. Let us, therefore, wed simplicity with earnestness, give thanks for the simple moraine, and go on and prosper each our several ways. *Reginald Farrer.*

SOCIETIES.

ROYAL HORTICULTURAL.

May 14.—As was only to be expected, considering the nearness of the International Show at Chelsea, the exhibits at this fortnightly meeting were fewer than usual, though the attendance towards the middle of the afternoon was fully up to the average. The magnificent collection of trophies shown by the Directors of the Royal International Exhibition attracted a continuous crowd of admiring visitors. The Orchid Committee awarded one First-class Certificate and one Award of Merit. The Floral Committee recommended four Award of Merit. The exhibits of Darwin and other May-flowering Tulips in the Narcissus section were unusually fine. The Fruit and Vegetable Committee made no award of any kind.

At the three o'clock meeting of the Fellows in the lecture room the seventh "Masters Memorial Lecture" was delivered by Prof. I. B. Balfour, F.R.S., his subject being "Gardening and Drought."

Floral Committee.

Present: H. B. May, Esq. (in the Chair); the Rev. Page Roberts, and Messrs. Chas. T. Druery, W. J. Bean, G. Reuthe, C. Blick, J. F. McLeod, N. F. Barnes, Geo. Gordon, Wm. Howe, J. Jennings, C. R. Fielder, R. C. R. Nevill, H. J. Cutbush, R. W. Wallace, C. Dixon, A. Turner, W. Cuthbertson, C. E. Shea, Chas. E. Pearson, W. P. Thomson, E. H. Jenkins, J. T. Bennett-Poë, W. J. James, George Paul, J. W. Barr, W. B. Cranfield, Ed. Mawley, and R. Hooper Pearson.

Messrs. Geo. Mount & Sons, Canterbury, arranged a group of magnificent Roses. Large blooms of Frau Karl Druschki, Mrs. John Laing and Ulrich Brunner were shown in large numbers, and there were the delightful single variety Irish Elegance and the sweet-scented Juliet. The dark blooms of Captain Hayward and the White Killarney were much admired. All the blooms shown were on stout stalks, which possessed plenty of rich green leaves. (Silver-gilt Flora Medal.)

Messrs. Frank Cant & Co., Colchester, exhibited Roses in pots and cut blooms of many varieties. Two desirable single-flowered varieties—the climbing R. sinica Anemone and the H.T. Sheila Wilson—attracted much attention. Sprays of the double-pink cluster Rose Minnehaha bore large numbers of flowers. (Bronze Banksian Medal.)

Messrs. Dobbie & Co., Edinburgh, staged beautiful Sweet Peas tastefully arranged; the colours were enhanced by the dead-black background and white paper which covered the staging. Besides several very promising seedlings, the varieties Melba, Thos. Stevenson, Mauve Queen, Dobbie's Scarlet, Sunproof Crimson and Edrom Beauty are desirable flowers. (Silver-gilt Flora Medal.)

Mr. Breadmore, Winchester, also exhibited an attractive set of Sweet Pea blossoms: Mrs. R. Hallam, Lavender Geo. Herbert, Princess Mary, Dazzler and Freda were the best of his collection. (Silver Flora Medal.)

Messrs. Wm. Cutbush & Son, Highgate, London, set up, against the back wall of the Hall a splendid group of hardy flowering shrubs. Large, trained plants of Rose Mrs. F. W. Flight bore quantities of flowers. The sterile Hydrangea hortensis "Moullière" had immense heads of bloom. As a separate exhibit, this firm showed Carnations. (Silver Flora Medal.)

Messrs. H. B. May & Sons, Upper Edmonton, staged many varieties of bedding Verbena free from mildew and bearing fresh blooms, the shrubby Allamanda neriifolia and Heliotropium Mme. Rodrigues and Lord Roberts. (Silver Flora Medal.)

Mrs. Charrington, Broadoaks, West Byfleet (gr. Mr. W. H. Hawthorn), exhibited Caladiums and Gloxinias.

The St. George's Nursery Co., Harlington, Middlesex, contributed many sturdy plants of the florist's Calceolaria. The varieties displayed a wide range of colour. (Bronze Flora Medal.)

Messrs. W. & J. Brown, Stamford, Peterborough, exhibited Heliotropium Lord Roberts in pots: the plants bore immense trusses of bloom. Gaillardia Lady Rolleston and Dianthus delicata were also well shown by this firm.

Mr. Chas. Turner, Slough, arranged many varieties of Lilac, interspersed with sprays of Tamarix africana, in tall Bamboo stands. The uncommon Wistaria multijuga alba attracted attention. There were many well-coloured dwarf Japanese Maples in pots, and, at the front of the exhibit, we noted ususually fine blooms of Tree Pæonies. (Silver Flora Medal.)

Messrs. Paul & Son, Cheshunt, Hertfordshire, filled a corner of the Hall with an exhibit of Lilacs. (Silver Banksian Medal.)

Mr. Philip Ladds, Swanley Junction, made an attractive display with pot plants of various bedding Pelargoniums, Erica magnifica, Stocks, and Hydrangea hortensis in 5-inch pots, which bore heads a foot across. (Bronze Banksian Medal.)

Mr. Vincent Slade, Taunton, Somerset, staged a praiseworthy collection of single and double Zonal Pelargonium blooms.

Mr. H. Burnett, Guernsey, arranged an exceedingly fine collection of Carnations. The blooms were borne on unusually long, stiff stalks. Mrs. W. B. Clode, a salmon-rose-coloured variety, which has such a delightful old-clove scent, and the large-flowered Mrs. C. F. Raphael were very prominent. (Silver Banksian Medal.)

Messrs. Allwood Bros., Haywards Heath, Sussex, exhibited splendid blooms of Carnations La Rayonnante, May Day and other desirable varieties. (Bronze Banksian Medal.)

Carnations were also shown by Messrs. Young & Co., Hatherley, Cheltenham. (Bronze Banksian Medal.)

Messrs. Stuart Low & Co., Bush Hill Park, Middlesex, included well-flowered pot plants of Fabiana imbricata and the pink Boronia polygalifolia in their attractive collection of greenhouse plants. This firm also showed a good selection of cut blooms of Carnations, the variety Juliana being especially good. (Silver Flora Medal.)

Sir Walpole Greenwell, Marden Park, Surrey (gr. Mr. Lintott), exhibited Dracæna "Marden Gem."

Professor I. Bayley Balfour, F.R.S., Royal Botanic Gardens, Edinburgh, exhibited a very interesting collection of rare Primulas. These plants showed a great diversity of size and form. Primula Bulleyana × Beesiana has salmon flowers with an orange eye. P. deflexa produces dense heads of small blue flowers on tall slender stems. The inflorescence of this species is very suggestive of that of Verbena officinale. P. malvacea bears umbels of mauve flowers of good size, somewhat of the appearance of those of P. obconica. The tiny rosy flowers of P. tibetica are at first sight quite un-Primulalike, and the long-stalked spathulate leaves are very distinctive. P. Reidii bears white, bell-shaped drooping flowers.

Mr. Maurice Prichard, Christchurch, Hants., arranged vases of hardy cut flowers. The varieties of Scilla nutans were very interesting. Besides several shades of blue, there were Scilla nutans rosea, S. n. Rosalind, and S. n. rubra with flowers of different shades of rosy-mauve. These are good varieties for naturalising. Tall spikes of Eremurus himalaicus, E. himrob, and Verbascum "Caledonia" made a good background to this attractive display. (Bronze Banksian Medal.)

Messrs. Reamsbottom & Co., Geashill, King's County, Ireland, staged exceedingly fine double St. Brigid Anemones. (Bronze Banksian Medal.)

Mr. R. d'E. Day, The Nurseries, Sutton Scotney, Hants., again contributed a magnificent display of Spanish Irises in distinct colours. (Bronze Flora Medal.)

Mr. L. R. Russell, Richmond, Surrey, exhibited a very good selection of cut flowers of single and double Pyrethrums.

Mr. Amos Perry, Enfield, Middlesex, made a bright display with May-flowering Tulips. The deep rose-coloured Darwin variety Europe and the richer-coloured Rev. G. A. Ellacombe of the same type were especially brilliant in colour. Mr. Perry also exhibited many varieties of Iris in an attractive manner, whilst at the end of the exhibit there was a very showy set of Papaver orientale. (Bronze Banksian Medal.)

Messrs. R. Wallace & Co., Colchester, staged an interesting collection of cut flowers of Iris. Of the many varieties of German Iris shown, we especially admired Queen of May, Ed. Michel, and Albert Victor. Iris Susiana and some seedlings of I. pallida were also noteworthy. (Bronze Flora Medal.)

Messrs. Carter, Page & Co., 52, London Wall, London, exhibited cut flowers of various types of Dahlia, Viscaria, Phlox Drummondii, annual Chrysanthemums, and other border flowers. (Bronze Banksian Medal.)

Mr. James Box, Lindfield, Sussex, staged Ranunculuses and varieties of Papaver orientale.

Mr. G. W. Miller, Wisbech, showed cut blooms of Pyrethrum Queen Mary and other varieties.

Mr. G. Reuthe, Keston, Kent, staged Rhododendrons in bloom and a collection of uncommon hardy plants.

Messrs. Phillips & Taylor, Bracknell, Berkshire, made a bright show with hybrid Rhododendrons, various dwarf Phloxes, Auriculas, and very good blooms of Trollius Orange Globe.

Hardy plants were also exhibited by Messrs. Thompson & Charman, Bushey, Herts.; the Burton Hardy Plant Nurseries, Christchurch, Hants.; Mr. Greening, Richmond; Messrs. John Peed & Son, West Norwood; Messrs. J. Cheal & Sons, Crawley; and the Misses Hopkins, Shepperton-on-Thames.

Awards of Merit.

Tropæolum albiflorum.—A slender, climbing species from Peru or Chili. The flowers are whitish, lined and flushed with pink at the base of the petals; the individual flowers are about 1½ inch across. The small glaucous digitate leaves are grey-green in colour. Shown by Miss Willmott.

Petunia Brown's Purple (strain).—The flowers are very large and of a velvety violet-purple colour. Shown by Messrs. W. & J. Brown, Peterborough.

Phyllocactus Coopermannii.—This is a beautiful Cactus, having reddish-magenta flowers fully 8 inches across. Mr. Worsley showed two forms of a cross between P. Cooperi and the Mexican species P. Ackermannii, and that which received the award was distinctly the finer flower.

Cereus amecænsis.—The large, pure-white flowers of this Cactus are remarkably beautiful. The flowers are produced on stout growths which, like those of the Phyllocactus, evidenced high cultivation. Also shown by Mr. A. Worsley, Isleworth.

Narcissus Committee.

Present: E. A. Bowles, Esq. (in the Chair); Miss Willmott, the Rev. Joseph Jacob, and Messrs. W. A. Milner, P. R. Barr, W. T. Ware, W. Poupart, J. T. Bennett-Poë, C. Bourne, G. W. Leak, and Chas. H. Curtis, secretary.

Messrs. Barr & Sons, Covent Garden, London, exhibited a varied collection of good Tulip blossoms just inside the entrance to the Hall. Besides many of the varieties we noted a fortnight ago, the scarlet and yellow English Tulip Goldfinder, George Hayward (flaked purple and yellow), Lady of the Lake (pure yellow), Nora Ware (pale mauve), Don Pedro (rich maroon), and Panorama (brick-red) were especially noteworthy. (Silver-gilt Flora Medal.)

Messrs. Hogg & Robertson, Mary Street, Dublin, exhibited a magnificent collection of Tulips. Under the influence of the glare and heat of the Hall the blooms became fully-expanded early in the day. Some of them, such as those of the rose-magenta Baron von Goldstein, measured 7 inches across. Ascania has a delightful shade of mauve; Arizona is a large flower with a deep vinous purple colour; Turenne, a large May-flowering Tulip with a bronze-shaded purple; Lutea pallida, White Queen, Europe, Mrs. Moon, Bartigan, Gesneriana spathulata and Blériot are a few excellent varieties. (Silver-gilt Banksian Medal.)

Messrs. R. H. Bath, Ltd., Wisbech, exhibited many good Tulips. The blooms of The Sultan, which were on the point of fading, were very dark in colour, and served to enhance the brightness of the varieties Inglescombe Yellow and Mrs. Moon. Bartigan and Dom Pedro were also well shown. (Silver-gilt Banksian Medal.)

Messrs. Alex. Dickson & Sons, Hawlmark Nurseries, Dublin, showed a large number of Tulip blooms. Flora's Ornament, Moralis, N. F. Barnes, and Sensation are typical examples. (Silver Flora Medal.)

Messrs. Jas. Veitch & Sons, Ltd., Chelsea, London, exhibited many cut flowers of Cottage and Darwin Tulips from their Feltham nursery. The yellows, such as Inglescombe Yellow and the darker-toned Bouton d'Or, were very showy. Gala Beauty, with scarlet and yellow-flaked petals, is also a noteworthy variety. (Silver Banksian Medal.)

Messrs. G. & A. Clark, The Nurseries, Dover, arranged cut blooms of Iris, Pyrethrum, Thermopsis tabacea var. montana, and Tulip Mrs. A. Clark, a rich yellow Cottage variety.

W. Winans, Esq., Surrenden Park, Pluckley (gr. Mr. E. Butler), showed a variety of Tulip (Walter Winans), 4 to 5 inches across, of a deep-rose colour with a white centre, arranged with cut sprays of Larch.

Messrs. J. Jeffries & Son, Cirencester, showed Tulips in variety.

Orchid Committee.

Present: J. Gurney Fowler, Esq., (in the Chair); Messrs. Jas. O'Brien (hon. sec.), Harry J. Veitch, Gurney Wilson, R. Brooman-White, W. Bolton, de B. Crawshay, W. H. White, A. Dye, H. G. Alexander, J. E. Shill, W. H. Hatcher, J. Cypher, W. Cobb, A. A. McBean, T. Armstrong, R. G. Thwaites, F. J. Hanbury, C. J. Lucas, J. Wilson Potter, C. Cookson, and Sir F. Moore.

Mr. H. A. Tracy, Orchid Nursery, Twickenham, staged an effective group, for which a Silver Flora Medal was awarded. With a good selection of excellent forms of Cattleya Mossiæ, and C. Mendelii were arranged the pure-white, large-flowered C. intermedia Parthenia, C. Skinneri alba, the rare, true C. dolosa, with three flowers on a spike; various Lælio-Cattleyas, including some unnamed crosses of Cattleya Schröderæ; Dendrobium Findlayanum; Restrepia guttata, R. trichoglossa, Masdevallia Schröderiana, M. gemmata, M. Estradæ, M. O'Brieniana; also good forms of Lælia purpurata, Lælio-Cattleya Fascinator, L.-C. Canhamiana, a good selection of Odontoglossum crispum.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), was awarded a Silver Flora Medal for a group comprised principally of varieties of Miltonia vexillaria, including gigantea, Kaiserin Augusta, chelsiensis, and leucoglossa. Several fine species and hybrids of Cypripedium, the white Dendrobium Dearei, Oncidium Kramerianum, O. serratum, a good selection of Odontoglossums, Chondrorhyncha Chestertonii, Brassia maculata, B. Lawrenceana, Masdevallia mucosa in several fine specimens, Odontioda Bradshawiæ, O. Charlesworthii from a batch raised at Rosslyn, and some crosses of Odontoglossum Edwardii, also raised by Mr. Pitt; Cœlogyne pandurata, C. Dayana, Epidendrum sceptrum, and Anguloa Clowesii.

De B. Crawshay, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), was awarded a Silver Banksian Medal for a bright little group of Odontiodas and Odontoglossums raised at Rosefield. Odontoglossum Valeria (Edwardii × Vuylstekei) had flowers almost entirely chocolate purple; O. Volutella (elegans × Vuylstekei) showed the influence of O. elegans, but very much enlarged, white with dark blotching; O. Honolulii (Hunnewellianum × harvengtense) was uniformly spotted with brown. The fine set of Odontiodas were of vivid tints of red and scarlet, the most distinct being O. Carmen (C. Noezliana × O. nebulosum), pale red with whitish lip, tinged with salmon colour and well indicating O. nebulosum.

Messrs. Hassell & Co., Southgate, were awarded a Silver Banksian Medal for an effective group, the back of which was composed of handsome Odontoglossums, and the front of the elegant white and lilac Oncidium pulchellum. Others noted were good Odontioda Charlesworthii, O. chelsiensis, Cypripedium niveum, Cattleya Mossiæ and its light variety Arnoldiana, Lælio-Cattleya Fascinator, L.-C. Olivia, and Maxillaria Sanderiana.

R. G. Thwaites, Esq., Chessington, Streatham (gr. Mr. G. M. Black), was awarded a Silver Banksian Medal for a group of excellent Odontoglossums, several of the large, white forms of O. crispum being exceptionally fine. Dia-Cattleya Sanderæ, a pretty white flower with rose front to the lip, some bright scarlet Odontiodas, several of the graceful Odontoglossum Clytie, Lælio-Cattleya Fascinator, and Brasso-Cattleyas were also noted.

Messrs. J. & A. A. McBean, Cooksbridge, secured a Silver Banksian Medal for a small but select group of very fine forms of Odontoglossum crispum, arranged with good Cattleya Mossiæ, C. Mendelii and choice forms of Odontioda Charlesworthii.

Mrs. Norman Cookson, Oakwood, Wylam (gr. Mr. H. J. Chapman), showed Odontoglossum × Solon var. Roland, and a finely-blotched O. crispum.

AWARDS.

First-class Certificate.

Cymbidium Woodhamsianum Fowler's variety (eburneo-Lowianum × Lowianum), from J. Gurney Fowler, Esq., Glebelands, South Woodford (gr. Mr. Davis).—This plant is the finest Cymbidium of its class. The beautiful flowers, which measure nearly 5 inches across, have the sepals and petals of a clear apricot yellow, with an old-gold colour tint, and some faint bronzy lines on the veining. The lip is white at the base, with red spots on the side lobes, the front having a horseshoe-shaped band of chestnut-red.

Award of Merit.

Lælio-Cattleya Apollo (C. Schröderæ × L.-C. Warnhamiensis), from C. J. Lucas, Esq., Warnham Court, Horsham.—A pretty flower of good size. The sepals and petals are pale nankeen-yellow. The lip has an orange disc, and is pink in front with rose veining.

Cultural Commendation

to Mr. W. H. White, Orchid grower to Sir Trevor Lawrence, Bart., for a fine plant of Dendrobium Loddigesii. It is the D. pulchellum of gardens, and D. Seidelianum of Reichb. f.

Fruit and Vegetable Committee.

Present: J. Cheal, Esq. (in the Chair); and Messrs. C. G. A. Nix, W. Bates, A. Dean, E. Beckett, E. Perkins, A. R. Allan, A. Grubb, A. Bullock, P. C. M. Veitch, J. Harrison, J. Jaques, O. Thomas, H. Somers Rivers, J. Davis, A. W. Metcalfe, and G. Kelf.

Mr. A. A. Humphrey, 120, Victoria Street, Westminster, showed an ordinary doormat on which was growing a dense crop of Mustard, just ready for cutting as a salad. The Committee did not look upon the practice with favour.

Mrs. J. W. Wells, Rogate, Petersfield, showed a bundle of Asparagus stems.

The Superintendent sent from the Society's gardens at Wisley six heads of Spring Cabbage of the variety Mackinlay's Matchless, grown from seeds sent by Mr. Mackinlay, West Park Gardens, Ampthill. The heads were green and conical, but not all were ready for cooking.

ROYAL INSTITUTION.

At the meeting of the Royal Institution, to be held on the 24th inst., a lecture will be delivered by Mr. A. D. Hall on "Recent Advances in Agricultural Science—The Fertility of the Soil." On the 21st inst. Professor W. Bateson will lecture on "The Study of Genetics."

PERPETUAL-FLOWERING CARNATION.

Members of the Floral Committee of this Society recently visited the nurseries of Mr. C. Engelmann, at Saffron Walden, and awarded a First-class Certificate to the variety Lady Northcliffe. In accordance with a new rule, which came into force at the beginning of this year, varieties must be seen growing before a First-class Certificate can be awarded. The variety Lady Northcliffe is the first to receive this award under the new regulations.

HORTICULTURAL CLUB.

LECTURE ON THE ROSE.

(Continued from p. 324.)

There is only one member of the Systylæ peculiar to the New World, and that is found in R. setigera, otherwise known as R. rubifolia, sometimes called the Prairie Rose. This Rose is very effective when in flower, covered with its large, pink blossoms. Its foliage is noticeable from the fact that the leaves are, for the most part, trifoliate, a peculiarity it shares with the Asiatic Rose R. anemonæflora. In the course of the last century, there were many garden hybrids of R. setigera introduced into this country. Mr. Wm. Paul, in *The Rose Garden,* gives a list of eight varieties, of which the best known was, perhaps, Baltimore Belle; but only one now survives, in Reine Olga de Wurtemburg, a hardy climbing or pillar Rose, with nearly evergreen foliage. It was introduced by Nabonnand in 1881.

My last Rose from the Systylæ group is not referred to either by Crépin or Baker. It is R. souliana, described by Crépin about 1896. The colouring of stems and foliage is unique. Its winter stems are of a curious greeny grey colour, and the foliage has a bluish tinge, which is very striking. It is relatively rather late in flowering, and a great beauty when in full bloom, while its small orange fruits give it a new interest in autumn. It makes a fine shrub, some 6 feet or more in height, and seems hardy enough at Kew, though in my garden I have found it suffer rather severely from frost. Still, the foliage is so strikingly graceful and pleasing that it should be grown by those who can afford it space for development.

In the Banksia group we have a beautiful hybrid between R. sinica and R. indica in the Rose called Sinica Anemone. I think it requires a wall to grow it to perfection in this country, but it makes huge growth, and many of my friends have found it difficult to treat at pruning time. The foliage is large and attractive, and when it comes into flower in the late spring its magnificent single blossoms, with petals of a pale pink colour, and glistening, satiny texture, are most decorative in the garden.

Another wall Rose is to be found in the Bracteatæ. The Macartney Rose has bright, glistening foliage, clothing the wall like fresh green Ivy, from which its single white flowers, with bright-yellow stamens, look out in very attractive fashion.

R. microphylla I must mention, if only for its charming foliage. This is finely cut and most graceful, the leaf consisting generally of some 15 very small, tightly-packed leaflets, while its curious fruits, almost like little Chestnuts in appearance, are covered with little spikes, and nearly open at the top. It is a rather low growing shrub, about 2 feet 6 inches with me, and it has a peculiar habit of casting its bark in places during winter.

Coming now to the great group of the Cinnamomeæ, we find here some of the most notable of decorative shrubs in the genus. R. cinnamomea itself is a charming little plant, growing, with me, some 4 or 5 feet high, with straight, upright branches, and specially attractive at two periods, the first in early spring, when covered with its fresh, rather pale-green foliage, and the second when the leaves have fallen in autumn, and it shows its smooth, bright-red stems, which are as brilliant and striking as those of the Siberian Cornus. In order to get the best effect from the winter stems, it is desirable to encourage the greatest possible production of young wood, and to get this a judicious pruning and thinning out of the older wood immediately after the flowers are over is useful.

R. macrophylla makes a useful shrub. The leaves are very large, with 9 to 11 leaflets of a rather sombre green, with a slight reddish tinge, which is, perhaps, even more noticeable on the bracts. The habit of the plant is very erect and stiff, perhaps a little too much so to be really graceful. The flowers are bright pink, of a fair size, and the sepals very long, much longer than the petals, and twist about in a curious fashion. The fruits are of a very typical shape, rather like an old-fashioned coffee urn, and look very well when ripe and hanging on the stems. There are several varieties of this Rose, which differ but slightly in character, and perhaps Crépin's R. Davidii, which he at first placed among the Systylæ, ought to be referred here.

R. sericea is one of the most beautiful garden plants we have. Unlike most Roses which have five petals, this Rose has only four, arranged like a Maltese cross. There is scarcely any time of the year when this Rose is not attractive. It makes a large bush, throwing up tall, stiffish stems 7 or 8 feet long, from which their lateral branches are put forth, carrying very finely-cut, Fern-like foliage, each leaf having from 9 to 13 closely-packed leaflets; the lovely white flowers are produced on the axils of the leaves. When in full flower the plant is a most charming object, though, unfortunately, the flowering period is all too short, lasting only about a fortnight. Later on the plant is covered with orange-coloured berries, which are then very decorative. After this it begins to push up its strong root-shoots, which are one of the most interesting parts of the plant. They are thickly covered with bright-red thorns and setæ, which are almost transparent, and produce a beautiful effect in the autumn or winter sunshine. In the cultivation of this plant our great object should be to get it covered with its beautiful foliage down to the base and prevent it from becoming leggy. The varieties of this Rose are certainly very numerous. Crèpin suggested they would be found to rival R. canina in number. One very curious form called R. sericea Pteracantha has the thorns very dilated at the base an inch or inch and a half broad. Then, though the most beautiful form is white, the colour of the flowers may vary considerably. Hooker describes them as white or straw colour, while Lindley illustrated a form with five petals and pink in colour. I was at one time much puzzled by the berries, which, in the forms in my own garden, are bright orange, but in other cases I have seen are quite red. I found the explanation of this, however, in a note of Mons. Vilmorin, who states that seeds from Yunnan have always given varieties with red fruits, while those from Se Tchuan (or Schu Chuan), further north on the Western Chinese border, give varieties with red fruits. Of the plants I have myself seen, I think the yellow or orange-fruited sorts have been the most decorative.

R. Fedtschenkoana is a tall, rampant grower from Turkestan, producing numerous root shoots and bearing characteristic foliage of a greyish tint. I refer to it principally in order to mention a hybrid between this and R. rugosa, which was sent me a year or two ago. This hybrid is a really fine garden plant producing fine white flower-heads, followed by beautiful bunches of red berries, which partake of the rugosa character. It has the great advantage from the gardener's standpoint of giving a second period of bloom. The plant grows to about 5 feet in height, and is of quite easy culture.

(To be continued.)

NORTH OF ENGLAND HORTICULTURAL.

April 24.—The meeting and exhibition of the N.E.H.S., held at Leeds on this date, was not so large as usual. Few Orchids were shown, but rockwork and Alpine exhibits were numerous.

A specially-fine exhibit was shown by Mr. W. Allsop, Superintendent of Public Parks, Leeds, representing a rock-garden with miniature hills of gorse in the distance and dells planted with Polyanthus and slopes of Alpines coming down to a base of boggy land planted with moisture-loving subjects, while in the middle distance and foreground were more miniature mountains of varying size well arranged and planted.

AWARDS.

Plant and Floral Committee.

Gold Medals were awarded to Earl Grey, Howick Hall (gr. Mr. Lambert), for an exhibit of many choice and rare varieties of Narcissus, including Weardale Perfection and Mrs. Camm. Mr. W. Allsop, Leeds, received a Silver-gilt medal for the Alpine garden referred to. A large Silver-gilt Medal was awarded to Mr. C. Engelmann, Saffron Walden, who showed Carnations, the varieties Regina and Sunstar being prominent in the collection. Large Silver Medals were awarded to Messrs. Aldis & Rowntree, Leeds, who staged a large and interesting collection of Narcissus in pots; Mrs. Whitehead, Deighton Grove, York, for a well-grown collection of Cyclamens; the Cookridge Nurseries, Leeds, for forced shrubs, plants, and bulbs; Messrs. S. Broadhead & Sons, Huddersfield, received a Silver Medal for Alpines; Messrs. G. Gibson & Co., Bedale, who showed herbaceous and Alpine plants; Mr. J. Wood, Boston Spa, for choice Alpine plants; and Messrs. Wm. Artindale & Son, Sheffield, staging Alpine plants and cut flowers, also received Silver Medals. Large Bronze Medals were secured by Mr. Alva J. Hall, Harrogate, for Alpine plants; Messrs. Conway, Ltd., Halifax, for Alpines and forced shrubs; and Mr. W. Sheepshanks, Arthington Hall, Leeds, for Alpine plants.

Orchid Committee.

Large Silver Medals were awarded to Messrs. Charlesworth & Co., Haywards Heath, who staged fine Lælio-Cattleyas and Odontoglossum hybrids; and John H. Craven, Esq., Keighley (gr. Mr. F. Corney), who exhibited some very choice plants, including Odontiodas. A Silver Medal was secured by Messrs. A. J. Keeling & Sons, Westgate Hill, Bradford, whose outstanding plants were Lycaste Balliæ, L. Skinneri alba, and Cymbidium insigne.

Sundries.

Messrs. W. Dixon & Co., Leeds, were awarded a Silver Medal for an exhibit of bees and bee-keeping appliances. A Silver Medal was also awarded to the Four Oaks Spraying Co., Birmingham, for garden implements.

First-class Diplomas to Carnation "Regina," shown by Mr. C. Engelmann, and Viola Craven Gem, shown by Craven Nursery, Lancaster.

Second-class Diplomas.—Carnation Sunstar, shown by Mr. C. Engelmann, and Odontioda Bradshawiæ "Rawdon variety," shown by Messrs. Mansell & Hatcher, Rawdon.

Third-class Diploma to Cattleya Mendelii "The Knowles variety," shown by J. Hartley, Esq., Morley.

SCOTTISH HORTICULTURAL.

May 7.—The monthly meeting of the above association was held on this date. Mr. Massie, the president, was in the chair, and there was an attendance of 110 members.

Mr. James Whytock, the Palace Gardens, Dalkeith, gave an interesting account, illustrated by lantern slides, of a tour he made through Ontario and New York State last summer. One of the most important rural industries in Ontario is fruit-growing, and the tract bordering Lake Ontario is one of the most productive fruit regions of America. Between Toronto and Hamilton, for example, one may pass through 80 miles of orchards in one stretch. Apples and Peaches are the chief fruits grown, and the latter find a ready market in Toronto and the other large cities. There are few important private horticultural establishments in Canada, but some of the public horticultural establishments are conducted on an immense scale. At the Dale estate, at Brampton (see *Gardeners' Chronicle*, March 25, 1911, p. 177), for example, 22 acres are covered with glasshouses, each house being 800 feet long by 25 feet wide, and heated by steam, and in these Roses, Carnations, Chrysanthemums, and other flowers are grown by hundreds of thousands, and all planted out on benches running the full length of the house. In the large cities, decorative gardening is extensively practised, and much attention is given to street trees. In Toronto, the public parks and gardens cover 1,600 acres, and the annual cost of upkeep is £64,000, including the care of street trees. Those of New York City cover 7,223 acres, and cost £166,000 annually, and, in addition to this, £8,000 is spent yearly on the upkeep of the street trees.

The exhibits were:—Fifteen vases of the newest varieties of Sweet Pea, including Lavender George Herbert (fixed), Lady Miller, Dobbie's Scarlet, and Mrs. Cuthbertson, from Messrs. Dobbie & Co. (Silver-gilt Medal); Darwin and late-flowering Tulips, from Mr. D. W. Thomson (Silver-gilt Medal); Tulips from Messrs. James Grieve & Sons, Edinburgh; Rose Prince of Bulgaria, shown by Messrs. Todd & Co., Edinburgh: hardy Rhododendrons, from Mr. A. Johnstone, Hay Lodge, Edinburgh; Echium sp., from Mr. Thos. Nicholson, Joppa; Aquilegias, from Mr. T. Thomson, Craigiehall Gardens, Cramond Bridge; Auriculas, from Miss Burton, Polton; and varieties of Myosotis and Daisy, from Mr. C. Comfort, Broomfield, Davidson's Mains.

ROYAL GARDENERS' ORPHAN FUND.

ANNUAL FESTIVAL DINNER.

May 8.—The 24th anniversary gathering of the members and friends of this institution took place at the Hotel Cecil on Wednesday the 8th inst. Sir Henry Durning-Lawrence, Bart, presided, and there were about 130 guests present, including Sir Edward Stern, Lieut.-Col. the Rt. Hon. Mark Lockwood, M.P., and Messrs. N. N. Sherwood, V.M.H., Edward Sherwood, Harry J. Veitch, V.M.H., T. Goldney, Leonard G. Sutton, W. Barr, G. Barr, W. Iceton, A. E. Bunyard, A. Watkins, W. Bates, W. Poupart, D. Ingamells, G. Cuthbert, J. F. McLeod, A. W. Metcalfe, G. J. Ingram, W. Y. Baker, G. Caselton, W. Howe, H. B. May, J. Vert, E. Beale, F. A. Bevan, W. Collins, George Gordon, V.M.H., R. Hooper Pearson, and Brian Wynne (secretary).

The loyal toasts having been given and honoured, Sir Henry Durning Lawrence proposed the toast of the evening "The Royal Gardeners' Orphan Fund." He was, he said, a great believer in bringing people together to dine as a good and friendly spirit was thus encouraged. The charity was a useful and necessary one. There were charities maintaining large institutions with staffs demanding big salaries, in which the individuality of the orphans was sunk in a number. The Royal Gardeners' Orphan Fund did not do those things; on the contrary, the children were supported in their own homes where this was possible. The cost per week per child was 5s., and the speaker believed that there was not a workhouse in England that maintained a child for less than 7s. 6d. per week. He would make all gardeners missionaries in so excellent a cause, and urged them all to bring in at least one fresh subscriber during the ensuing year. There were at present 130 orphans on the fund at 5s. a week and 14 others receiving 2s. 6d. a week pending their election to full benefits. The annual income was insufficient, hence the imperative necessity of missionary efforts. The fund should not have so largely to depend upon its annual festival dinners for the wherewithal to carry on its splendid work, but, on the contrary, the assured income which annual subscriptions alone could bring.

The treasurer, Mr. Edward Sherwood, in response, said that during its history the Royal Gardeners' Orphan Fund had disbursed upwards of £25,000, and was now supporting 130 children with full benefit of 5s. a week. He regarded the rules which empowered the committee to grant half benefits and to make donations of £10 to give orphans a start in life as of great good. The assured income of £375 from trust funds practically sufficed to meet the expenses of management. He urged gardeners and local secretaries to enlist the sympathy and assistance of all lovers of gardening, of all members of gardeners' societies and mutual improvement associations with a view to increasing the amount of £380 per annum now received in subscriptions. He thanked the chairman for his presence and his admirable speech, and accepted the heartiness with which the toast had been received as a good omen for the result—the result which would bring light and hope into the lives of the orphans.

To Mr. N. N. Sherwood, V.M.H., was entrusted the toast of "The Visitors," and he put it most genially. There were visitors *and* visitors, but all those who came to the gatherings of the Royal Gardeners' Orphan Fund were welcome, and he hoped that if they had never been before, they would spare no efforts to come again. In reference to Col. Lockwood, whose name was coupled with the toast, he said there was no one more interested in gardeners and gardening, and he was delighted to see him present.

Responding, Lieut.-Col. the Rt. Hon. Mark Lockwood, M.P., said that it was his first visit, but it would not be his last. He hoped that all the visitors would do their utmost, and he regarded those who gave quietly what they could afford as the backbone of institutions of this nature. His comparisons of visitors were most humorous, and the speech was warmly greeted.

Mr. H. B. May gave the health of the Chairman, and Sir Henry Durning Lawrence suitably responded, again urging the claims of

the orphans of the men who in growing beautiful flowers added so much to the joys and pleasures of our lives.

The secretary, Mr. Brian Wynne, announced that the subscriptions amounted to £1,070. The chairman headed the list with £105, and other sums included N. N. Sherwood and his sons, £100; Sutton & Sons, £50; George H. Cuthbert, £55 19s.; J. F. McLeod, £40; G. Reynolds, £36; Anthony Waterer, £35; Rothschild & Sons, £26 5s.; David W. Thomson, £22 7s.; Sir Wm. H. Lever, Bart., £21; Sir Edward D. Stern, £21; R. B. Leech, £19 19s.; W. Nutting, £16 5s. 6d.; R. Hooper Pearson, £16; Lord Joicey, £15 5s.; James Carter & Co., £10 10s.; James Veitch & Sons, Ltd., £10 10s.; Alfred Watkins, £10 10s.; T. W. Sanders, £10 10s.; J. C. Eno, £10 10s.; Barr & Sons, £10 10s.; Leonard Sutton, £10; F. C. Stainsby, £10; W. Howe, £8 8s.; H. B. May, £7 7s.; W. Lane, £7; W. P. Thomson, £6 13s. 6d.; G. L. Caselton, £6; Sir Philip H. Waterlow, Bart., £5 5s.; Harry J. Veitch, £5 5s.; C. J. Nice, £5 5s.; W. Cutbush & Son, £5 5s.; Corry & Co., Ltd., £5 5s.; Thames Bank (Blackfriars) Iron Co., Ltd., £5 5s.; Osman & Co., Ltd., £5 5s.; J. T. Anderson & Sons, Ltd., £5 5s.; Sir William Cooper, Bart, £5; R. Jardine, £5; Thos. P. Warren, £5; Otto Beit, £5; T. Goldney, £5; J. C. Parr, £5, and Mrs. Holt, £5.

Covent Garden subscribed £188 5s., the subscribers including D. Ingamells, £120; H. L. Wright, £49 6s.; and W. Poupart, £18 19s. The lists included 10 guineas from Edmund Rochford, and 5 guineas each from Joseph Rochford, James Sweet, Jesse F. Smith, Parsons & Co., Geo. Monro, Ltd., Butler Bros., John Collingridge, A. F. Dutton, Geo. Messer, H. O. Larsen, and James L. Kinnell.

ROYAL NATIONAL TULIP.

May 14.—The annual exhibition of this Society was held at the Horticultural Hall in conjunction with the meeting of the Royal Horticultural Society. Owing to the forwardness of the season the exhibits were not quite so numerous as usual, but many of the flowers shown were of high quality.

The 1st prize (a Silver Cup) offered for 12 dissimilar rectified Tulips, was won by Mr. A. D. Hall, Harpenden. The feathered bizarre bloom George Hayward, which was also the premier feathered bloom, was an exceptionally fine flower. Samuel Barlow and Mabel, both flamed flowers, were the next best in this good exhibit. The 2nd prize (a Silver Medal) was awarded to Mr. C. W. Needham, Hale, who received the 1st prize for six dissimilar rectified blooms. 2nd, Mr. A. D. Hall.

The class for three feathered Tulips was responsible for some really good flowers. In Mr. Hall's 1st prize stand the varieties Garibaldi (bizarre) and Mrs. Collier (rose) were outstanding features of the class. 2nd, Mr. Needham. Mr. Dunn, Cambridge, had the best three flamed Tulips; his varieties were Sam Barlow, Annie McGregor and Sutherland. 2nd, Mr. Peters, Cambridge, who showed the variety Mabel in fine form.

The six best dissimilar breeder Tulips came from Mr. Needham, who showed Goldfinder and Anne McGregor very well indeed. 2nd, Mr. Hall, whose purple seedling was the premier bloom of its class in the show. Mr. Needham exhibited the best three dissimilar breeder Tulips. His finest bloom was Rose Hill. 2nd, Mr. Hall.

The special prize for the best pair of rectified Tulips was awarded to Mr. Dunn, who showed Lord Lulford and Sir John Paxton. 2nd, Mr. W. J. Bentley.

In the classes for growers of fewer than 400 blooming bulbs, Mr. W. L. L. Lock, Paignton, was placed 1st and Mr. A. E. Chater 2nd. Mr. H. C. Bartleet won the 1st prize for three breeder blooms, and Mr. Loat was placed 2nd. There was no competitor for the Silver Medal offered for two rectified flowers.

The Rev. Joseph Jacob was the only competitor in the two classes for six vases of distinct garden Tulips or for a like number of Darwins. In the former class Mr. Jacob showed Glare of the Garden, especially good; and his best Darwins were Zulu and King Harold. The premier bizarre bloom was Sam Barlow, shown by Mr. Dunn.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

May 2.—*Committee present:* Rev. J. Crombleholme (in the Chair); and Messrs. C. Parker, H. Thorp, A. Warburton, Z. A. Ward, J. Cypher, J. Evans, W. Holmes, A. J. Keeling, D. McLeod, and H. Arthur (secretary).

A *Silver-gilt Medal* was awarded to Z. A. Ward, Esq., Northenden (gr. Mr. Weatherby), who exhibited an excellent group of well-grown Odontoglossums, hybrids predominating.

Silver Medals to Col. J. Rutherford, M.P., Blackburn (gr. Mr. Lupton), for a group of Odontoglossums, Odontiodas, Miltonias, and Cypripediums; J. McCartney, Esq., Bolton (gr. Mr. Holmes), for a group consisting principally of Cattleyas; H. Thorp, Esq., Rhodes, for a group of Odontoglossums.

Other exhibitors were O. O. Wrigley, Esq., Bury (gr. Mr. Rogers); J. J. Holden, Esq., Southport (gr. Mr. Johnson); A. Warburton, Esq., Haslingden (gr. Mr. Dalgleish); Rev. J. Crombleholme, Clayton-le-Moors (gr. Mr. Marshall); Messrs. J. Cypher & Sons, Cheltenham; Messrs. Charlesworth & Co., Haywards Heath; Messrs. Keeling & Sons, Bradford; Mr. W. Shackleton, Great Horton, Bradford; and Mr. D. McLeod, Chorlton-cum-Hardy.

AWARDS.

First-class Certificates.

Odontoglossum crispum "Perfect Gem," a full, round, large flower, with an even blotch on the sepals and petals, from A. Warburton. *Brasso-Cattleya Maggie* (Warneri alba × B. Digbyana), a fine, almost white variety, from J. J. Holden, Esq.

Awards of Merit.

Odontoglossum Hilda (amabile × Rolfeæ) and *O. amabile variety "Wardii,"* both from Z. A. Ward, Esq., *O. eximium* "Rutherfordianum," from Col. J. Rutherford, M.P. *Cypripedium Greyi Claytoniense* (Godefroyæ × niveum), from the Rev. J. Crombleholme.

HAARLEM BULB GROWERS'.

The following awards have been made at recent meetings of the Narcissus and Floral Committees of the above society:—

First-class Certificates.

Narcissus Vulcano (N. poeticus ornatus × N. double Van Sion).—A double-flowered, sulphur-yellow variety, with orange-red centre.

N. South Pole.—This variety has a large white perianth, and clear sulphur-yellow and white trumpet, finely recurved at the mouth.

N. Bedouin.—A cream-white variety, having a yellow cup, with an orange-red border.

N. Campernel rugulosus maximus.—The colour of the perianth and trumpet is a pure golden-yellow.

N. Sunrise.—A variety with white perianth and golden-yellow cup, marginated with orange-red.

N. Great Warley.—A large-flowered variety, having a white perianth and trumpet of a clear citron-yellow colour.

Awards of Merit.

N. Solo.—A seedling of N. Golden Spur; the perianth and trumpet are pure yellow in colour.

N. Thackeray.—A large-flowered seedling, which has a long, finely-recurved trumpet; the perianth and trumpet are golden-yellow.

N. March Glory.—A very large, clear-yellow seedling; the perianth is flat, and the trumpet finely recurved.

N. Plenipo.—A cross between N. poeticus ornatus and N. double Van Sion. The double flowers are sulphur-yellow in colour.

N. Isis.—An Engleheartii seedling. The perianth is creamy-white, the broad, flat cup citron-yellow, with orange-red margin.

N. Holbein.—A variety with creamy-white perianth, and citron-yellow cup.

N. Colossus.—A seedling of N. King Alfred. The perianth is clear yellow, and the trumpet has a darker shade of the same colour.

N. Laurens Koslar.—A Poetaz seedling with a white perianth and a yellow cup.

N. fl. pl. Glacier.—A double-flowered variety. The citron-yellow blooms have a clear-yellow margin.

N. St. Bavo.—A seedling of N. Golden Spur. The double flowers are creamy-yellow in colour.

N. Tresserve.—A cross between N. Emperor and N. Golden Spur. The perianth is a creamy yellow and the trumpet is a shade or two deeper.

N. Golden Lion.—A seedling with the form of N. Glory of Haarlem. The perianth and trumpet are golden-yellow in colour; the perianth is very regular, and the trumpet short and finely recurved.

N. Albert Vis.—A hybrid from N. poeticus King Edward VII and N. polyanthus Staten Generaal. The perianth is white, and the cup is orange-coloured. Recommended for forcing purposes.

N. Mount Erebus.—A Leedsii flower, with a pure-white perianth; the light citron-yellow of the cup changes to ivory-white.

N. polyanthus No. 67.—This seedling has a clear-yellow perianth and an orange cup.

Freesia Tubergenii Robinetta.—The dark-carmine flowers are spotted with yellow.

Freesia Tubergenii "Gem."—The lavender-blue flowers, which change to white, are spotted with yellow.

Obituary.

F. W. Seabrook.—The many friends of this well-known gardener, who for 21 years was in charge of Ramsey Abbey Gardens, Hunts, will learn with regret of his death on May 10. Deceased took his life by poison during a fit of depression which followed upon the death of a daughter. Mr. Seabrook had carried out extensive alterations in the abbey gardens during the past winter and spring, and the state of the gardens reflects great credit upon his ability. He enjoyed the confidence and esteem of his employers, Lord and Lady de Ramsey, and was regarded by them more as a friend than a servant. He was a very successful exhibitor at the flower shows held at Huntingdon, Ramsey, and other places, and took a prominent part in local affairs. Roses are grown in great profusion and variety at Ramsey Abbey and the grounds are thrown open to the public one day in each week during summer, when large numbers of people visit them. Deceased leaves a widow and four daughters.

Georges Bruant.—We regret to announce the death of this well-known nurseryman of Poitiers, France. His establishment was known far and near; Zonal Pelargoniums and Chrysanthemums were his specialities, but many other subjects, such as Begonias, Cannas, Dahlias, Fuchsias, and Roses, were grown by him in large numbers. Both in France and abroad M. Bruant staged with success the objects of his cultural skill, and his services were often in request at the various International Horticultural Shows held on the Continent. He had been appointed to act as a juror at the International Exhibition at Chelsea. M. Bruant was held in high esteem by his fellow countrymen, and was the recipient of important honours, of which the Cross of Officer of the Legion of Honour was perhaps the most important. The business will be carried on by his son-in-law, M. Viand Bruant, who is already known for his literary work in horticulture.

John Keating.—The *Florists' Exchange* records the death on the 19th ult. of Mr. John Keating, an employé at Greenwood Cemetery, Brooklyn, New York, and a native of Ireland.

SCHEDULES RECEIVED.

Stirling Chrysanthemum Association.—The Chrysanthemum exhibition of this association will be held in the Public Halls, Albert Place, Stirling, on Thursday and Friday, November 7 and 8. Secretary, Mr. George Petrie, The Gardens, 27, Bark Terrace, Stirling.

Cardiff and County Horticultural Society.—The twenty-fourth annual show of this society will be held on July 17 and 18, in the Sophia Gardens and field. The schedule embraces 175 classes, besides sections devoted to forestry and beekeeping. Secretary, Mr. A. Maurice Bailey, 24, Duke Street, Cardiff.

Royal Botanical and Horticultural Society of Manchester.—The Rose and summer show of this society will take place at the White City and Royal Botanical Gardens, Manchester, on July 19 and 20. Secretary, Mr. P. Weathers, Botanical Gardens, Manchester.

ROYAL INTERNATIONAL HORTICULTURAL EXHIBITION.

LIST OF JURORS.*

PRESIDENT.

Leopold de Rothschild, Esq.

SPECIAL JURY.

Balfour, Bayley, Prof., F.R.S., V.M.H., Royal Botanic Gardens, Edinburgh.
Benary, Fritz, Herr, Erfurt, Prussia.
Bonthuis, K. P., Holland.
Bowles, E. A., Esq., M.A., F.L.S., Myddleton House, Waltham Cross.
Callier, A., Monsieur, President de la Société Royale d'Agriculture et de Botanique, Ghent, Belgium.
Crisp, Frank, Sir, J.P., F.L.S., Friar Park, Henley-on-Thames.
Fowler, J. Gurney, Esq., Glebelands, South Woodford.
Krelage, Ernst H., Heer, Bloemhof, Haarlem, Holland.
Lawrence, Trevor, Sir, Bart., K.C.V.O., V.M.H., 57, Prince's Gate, S.W.
Moore, F. W., Sir, V.M.H., Royal Botanic Gardens, Glasnevin, Dublin.
Pearson, Alfred, Esq., J.P., The Hut, Lowdham, Notts.
Prain, Col., F.R.S., V.M.H., Royal Botanic Gardens, Kew.
Vilmorin, Maurice L. de, Mons., 13, Quai d'Orsay, Paris.
Wilks, W., The Rev., Shirley Vicarage, Croydon.

COMPETITIVE.

Allan, A. R., Mr., Hillingdon Court Gardens, Uxbridge.
Allan, W., Mr., Gunton Park Gardens, Norwich.
Alexander, H. G., Mr., Westonbirt Gardens, Tetbury, Glos.
Arnold, T., Mr., Cirencester House Gardens, Cirencester.
Ashton, B., Mr., Lathom House Gardens, Ormskirk, Lancs.
Ashworth, E., Mr., Harefield Hall, Wilmslow, Cheshire.
Atkinson, William, Mr., Royal Nurseries, Handsworth, Sheffield.

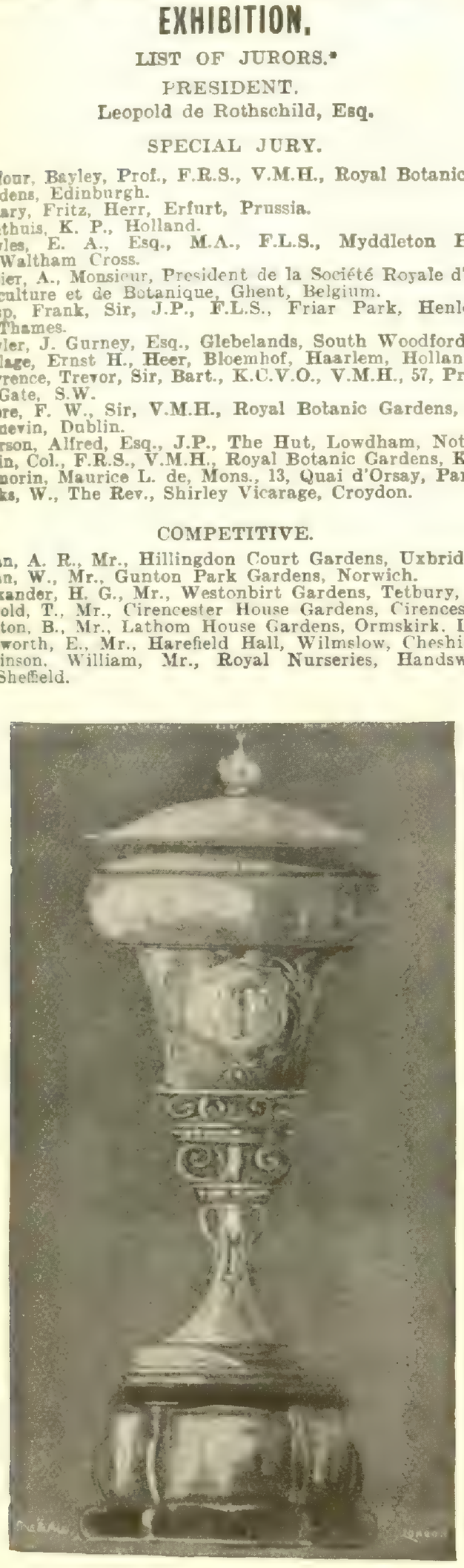


FIG. 167.—ROYAL INTERNATIONAL HORTICULTURAL EXHIBITION.

(Cup presented by the Fruiterers' Company for the most meritorious group of fruit trees in classes 392 and 393.)

Bain, W., Mr., Burford Gardens, Dorking.
Baker, W. G., Mr., Botanic Gardens, Oxford.
Ballego, J. G., Leyden, Holland.
Baltet, L. C., Monsieur, Faubourg Croncels, Troyes (Aube), France.
Barbey, W., Monsieur, Valleyres, Vaud, Switzerland.
Barbier, A., Monsieur, Route d'Olivet, Orleans, France.
Barker, S., Mr., Clumber Gardens, Worksop.
Barnes, N. F., Mr., Eaton Gardens, Chester.
Barr, J. W., Mr., The Nurseries, Taplow.
Bates, W., Mr., Cross Deep, Twickenham.
Bean, W. J., Mr., Royal Gardens, Kew.
Beckett, C., Mr., Chilton Gardens, Hungerford.
Bedford, F., Mr., Straffan House Gardens, Straffan, Co. Kildare.
Belin, A., Monsieur, 22, Route de Sannois, Argenteuil, près Paris.
Benary, Fritz, Herr, Erfurt, Germany.
Bennett-Poë, J. T., Mr., 29, Ashley Place, S.W.
Beyrodt, O., Herr, Marienfelde, Berlin, Germany.
Bilney, W. A., Mr., Ronneby, Oatlands Chase, Weybridge.
Bolton, William, Mr., Millbank, Wilderspool, Warrington.
Boscawen, J., Hon., Tregye, Perranwell, Cornwall.
Bowerman, J., Mr., Southcote Manor Gardens, Reading.
Breadmore, C. W., Mr., 120, High Street, Winchester.
Briailles, Count Gaston Chandon de, Epernay (Marne), France.
Brotherston, H., Mr., Knebworth House Gardens, Knebworth.
Brown, J., Mr., Houston House Gardens, Houston, N.B.
Brown, J., Mr., Longfield, Heaton Mersey, Manchester.
Bruin, B. de, M. Koster & Sons, The Nurseries, Boskoop, Holland.
Buchner, M., Theresienstrasse, Munich, Bavaria.
Budde, J. K., Heer, Curator, Botanic Gardens, Utrecht, Holland.
Bullock, A., Mr., Copped Hall Gardens, Epping.
Bunyard, G., Mr., Royal Nurseries, Maidstone.
Burnett, H., Mr., St. Margaret's, Guernsey.
Callier, A., Monsieur, Ghent, Belgium.
Camm, W., Mr., Cliveden Gardens, Taplow.
Cant, B. E., Mr., The Old Rose Gardens, Colchester.
Cant, F., Mr., Braiswick Nursery, Colchester.
Carriat, B., Monsieur, Horticulteur, Route de St. Jean, Antibes, Alpes Maritimes, France.
Cayeux, F., Monsieur, 8, Quai de la Mégisserie, Paris.
Ceuterick, A., Monsieur, Secrétaire Générale, Société Royale d'Agriculture et de Botanique, Ghent, Belgium.
Chapman, H., Mr., Oakwood Gardens, Wylam-on-Tyne.
Charlesworth, J., Mr., Imoth House, Haywards Heath.
Chatenay, Abel, Monsieur, 84, Rue de Grenelle, Paris.
Cheal, J., Mr., Lowfield Heath, Crawley, Sussex.
Chenault, R., Monsieur, 79, Route d'Olivet, Orleans, France.
Clark, F. J., Mr., Tehidy Gardens, Camborne, Cornwall.
Closon, Jules, Monsieur, Messrs. Jacob Makoy & Co., Rue de Joie, 90, Liège, Belgium.
Cobb, Walter, Mr., Normanhurst, Rusper, Horsham.
Cock, Jules de, Monsieur, Meirelbeke, Ghent, Belgium.
Cock, Lucien de, Monsieur, Villa des Lauriers, Meirelbeke, Belgium.
Cocker, W., 130, Union Street, Aberdeen.
Cook, T. H., Mr., The Royal Gardens, Sandringham, Norfolk.
Cooling, W. F., Mr., 11, Northgate Street, Bath.
Coomber, T., Mr., The Hendre Gardens, Monmouth.
Cordonnier, A., Monsieur, Grapperies du Nord, Bailleul (Nord), France.
Correvon, H., Monsieur, Jardin d'Acclimatation, Geneva, Switzerland.
Crane, D. B., Mr., 4, Woodview Terrace, Archway Road, Highgate, N.
Crawshay, de Barri, Mr., Rosefield, Sevenoaks.
Croibier, J. B., Monsieur, 301, Route de Vienne, Moulin-à-Vent-les-Lyon, France.
Crom, Jules Hye de, Monsieur, Ghent, Belgium.
Cromwell, B., Mr., Cleveley Gardens, Allerton, Liverpool
Croux, G., Monsieur, Chatenay (Seine), France.
Crump, W., Mr., Madresfield Court Gardens, Malvern.
Cure, J. B., Monsieur, 72, Route de Châtillon, Malakoff. Paris.
Curtis, C. H., Mr., 2, Adelaide Road, Brentford, Middlesex.
Cuthbertson, W., Mr., 5, Durham Road, Portobello, N.B.
Darlington, H. R., Mr., Park House, Potter's Bar.
Davis, J., Mr., Glebelands Gardens, South Woodford.
Dean, A., Mr., 62, Richmond Road, Kingston-on-Thames.
Dickson, A., Mr., Royal Irish Nurseries, Newtownards, Co. Down.
Dickson, H., Mr., Royal Nurseries, Belfast.
Dietrich, C., Monsieur, Château de Val-Duchesse, Auderghem, Brussels.
Divers, W. H., Mr., Belvoir Castle Gardens, Grantham.
Dixon, C., Mr., Holland House Gardens, Kensington.
Doe, J., Mr., Rufford Abbey Gardens, Ellerton, Notts.
Druery, C. T., Mr., 11, Shaa Road, Acton.
Dupré, Victor, Monsieur, Brussels.
Duquesnoy, Maurice, Monsieur, Brussels.
Dye, A., Mr., Tring Park Gardens, Tring.
Farquhar, J., Messrs. J. and R. Farquhar & Sons, St. Market Street, Boston, U.S.A.
Fatzer, H., Monsieur, Quessy par Tergnier (Aisne), France
Fielder, C. R., Mr., Warley Place Gardens, Great Warley.
Fitch, F., Mr., Balls Park Gardens, Hertford.
Fyfe, W., Mr., Lockinge Park Gardens, Wantage.
Germiny, M. Le Cte. Georges de, 8, Rue Paul Baudry, Paris
Gibbs, V., The Hon., Aldenham House, Elstree, Herts.
Gibson, J., Mr., Welbeck Abbey Gardens, Worksop.
Gilman, E., Mr., Ingestre Gardens, Stafford.
Goatley, J., Mr., Sutton Place Gardens, Guildford, Surrey.
Goodacre, J. H., Mr., Elvaston Castle Gardens, Derby.
Gordon, G., Mr., Endsleigh, Priory Park, Kew.
Graire, H., Monsieur, Rue St. Fuscien, Amiens, France.
Grandfield, J., Mr., Hayes Place Gardens, Hayes, Kent.
Green, J., Mr., Norfolk Nurseries, East Dereham.
Green, C. B., Mr., Linden Villa, Argyle Road, Swanage.
Grosjean, L., Monsieur, 1, Rue, Brialmont, Brussels, Belgium.
Grubb, A., Mr., Porters Park Gardens, Shenley, Herts.
Guillot, P., Monsieur, Rosiériste, Lyon.
Guttridge, J. J., Mr., Curator of Parks, Liverpool.
Hall, A. D., Mr., The Laboratory, Harpenden, Herts.
Hanbury, F. J., Mr., Brockhurst, East Grinstead.
Harrow, R., Mr., Botanic Gardens, Edinburgh.
Heede, George Van den, Monsieur, 111, Rue de Faubourg de Roubaix, Lille (Nord), France.
Hemptinne, Le Comte J. de, Chateau Steppe Stede, St. Denis, Westrem, Belgium.
Hill, Gurney H., Mr., Rose Grower, Richmond, Indiana.
Hill, J. E., Mr., Barrowfield Nursery, Lower Edmonton.
Hudson, J., Mr., Gunnersbury House Gardens, Acton.
Hurst, C. E., Esq., Burbage Grove, Hinckley.
Iggulden, W., Mr., North View, Frome, Somerset.
Inglis, D., Mr., Drumlanrig Gardens, Thornhill, N.B.
Jacob, Joseph, Rev., Whitwell Rectory, Whitchurch, Salop.
James, W. J., Mr., Woodside, Farnham Royal, Slough.
Jeffries, W. J., Mr., Royal Nurseries, Cirencester.
Jenkins, E. H., Mr., Queen's Road Nursery, Hampton Hill, Middlesex.
Jennings, F., Mr., Chatsworth Gardens, Chesterfield, Derbyshire.
Jennings, J., Mr., Ascott Gardens, Leighton Buzzard.
Jones, Conway, Mr., Blenheim House, Hucclecote, Gloucester.
Jones, T., Mr., Bryn, Penylan, Ruabon.
Jordan, F., Mr., Warter Priory Gardens, York.
Ker, R., Mr., Basnet Street, Liverpool.
Knowles, P. O., Mr., Friar Park Gardens, Henley-on-Thames.
Krelage, E. H., Heer, Blomhof, Haarlem, Holland.
Lambeau, Firmin, Monsieur, 39, Rue Fosse-aux-Loups, Brussels, Belgium.
Lambert, Peter, Herr, Trêves, Germany.
Lemoine, E., Monsieur, Nurseryman, Nancy, France.
Letts, C. H., Mr., Aske, Richmond, Yorks.
Lévêque, Pierre, Monsieur, Nurseryman, Rue du Liégat, 69, Ivry-sur-Seine, France.
Lindsell, E. B., Mr., Bearton, Hitchin.
Looymans, Heer, Oudenbosch, Holland.
Low, Stuart H., Mr., Bush Hill Park, Enfield.
Lunt, T., Mr., Keir Gardens, Dunblane, Perth.
Lynch, R. I., Mr., Botanic Gardens, Cambridge.
Lyne, J., Mr., Foxbury Gardens, Chislehurst.
Mackellar, A., Mr., Royal Gardens, Windsor.
Markham, H., Mr., Wrotham Park Gardens, Barnet.
Maron, C., Monsieur, Brunoy (Seine et Oise), France.
Marshall, W., Mr., Auchinraith, Bexley.
Mawley, E., Mr., Rosebank, Berkhamsted.
May, H. B., Mr., and Floral Committee, The Plas, Chingford.
McHattie, J. W., Mr., Public Parks Office, City Chambers, Edinburgh.
McLeod, J. F., Mr., Dover House Gardens, Roehampton.
Mease, Mr., The Gardens, Downside, Leatherhead.
Metcalfe, A. W., Mr., Luton Hoo Park Gardens, Luton, Beds.
Miles, G. T., Mr., Wycombe Abbey Gardens, High Wycombe, Bucks.
Molyneux, E., Mr., Swanmore Gardens, Bishop's Waltham.
Molyneux, H. E., Mr., 11, Portland Street, Southampton.
Moore, C., Mr., Euclid Avenue, Hackensack, U.S. America.
Moore, G. F., Mr., Charwar, Bourton-on-the-Water, Glos.
Morse, L. C., Mr., Seed Grower, San Francisco.
Morter, W. H., Mr., Parks Department, Birmingham.
Mortimer, S., Mr., Rowledge, Farnham, Surrey.
Moser, Monsieur, Versailles, France.
Mount, G., Mr., Exotic and Rose Nurseries, Canterbury.
Myers, W. H., Mr., Swanmore House, Bishop's Waltham.
Nanot, Jules, Monsieur, Directeur, Ecole Nationale d'Horticulture, 4, Rue Hardy, Versailles, France.
Nonin, A., Monsieur, 20, Avenue de Paris, Chatillon-sous-Bagneux (Seine), France.
Nutting, T., Mr., Childwickbury Gardens, St. Albans, Herts.
O'Brien, J., Mr., Marian, Harrow-on-the-Hill.
Orpen, C. G., Mr., Hillside, West Bergholt, Colchester.
Page, C., Mr., Dropmore Gardens, Maidenhead.
Page, C., Monsieur, Jardinier en chef, Château de Boudran par Nangis (Seine et Marne), France.
Page, W. H., Mr., Tangley Nursery, Hampton.
Page-Roberts, F., Rev., Strathfieldsaye, Mortimer, Berks.
Paskett, A. T., Mr., Burrswood Gardens, Groombridge.
Paul, A. W., Mr., Royal Nurseries, Waltham Cross.
Paul, G. L., Mr., The Old Nurseries, Cheshunt, Herts.
Paul, G., Mr., The Old Nurseries, Cheshunt.
Pearson, Duncan, Mr., Chilwell Nurseries, Lowdham, Notts.
Pearson, R. Hooper, Mr., Braewyn, Earlsfield Road, Wandsworth.
Peeters, A. A., Monsieur, Laeken, Brussels.

FIG. 168.—ROYAL INTERNATIONAL HORTICULTURAL EXHIBITION.

(Bronze statuette presented by the National Society of Horticulture of France.)

Pemberton, J. H., Rev., The Round House, Havering-atte-Bower
Pernet-Ducher, Monsieur, Venissieux-les-Lyon, France.
Pettigrew, W. W., Mr., South Park, Cardiff.
Pfitzer, W., Herr, 74, Militärstrasse, Stuttgart, Germany.
Piper, T. W., Mr., The Nurseries, Uckfield.
Pope, W., Mr., Welford Park Gardens, Newbury.
Poupart, W., Mr., Marsh Farm, Twickenham.
Pré, V. du, Monsieur, 8, Boulevard du Régent, Brussels, Belgium.
Prichard, Maurice, Mr., Riverslea Nursery, Christchurch, Hants.
Prime, H., Mr., Hatfield House Gardens, Herts.
Prince, A. E., Mr., The Nurseries, Longworth, Berks.
Pynaert, C., Monsieur, Digue de Brabant, 85, Ghent, Belgium.
Reynolds, G., Mr., Gunnersbury Park Gardens, Acton.
Rivoire, P., Monsieur, 16, Rue d'Algérie, Lyon, France.
Rollit, Albert K., Sir, St. Annes, Chertsey.
Sallier, J., Monsieur, 9, Rue Delaizement, Neuilly, Paris.
Salomon, R., Monsieur, Viticulteur, Thomery (Seine et Marne), France.
Sander, F., Mr., Bruges, Belgium.
Schneider, G., Mr., 3, Meredyth Road, Barnes, S.W.
Schwartz, M. C., Monsieur, Chateau de Ferrières, Ferrières-en-Brie, Seine et Marne, France.
Searle, A. R., Mr., Castle Ashby Gardens, Northampton.
Seidel, Herr, Laubegast, Dresden, Germany.
Shackle, J. B., Rev., St. Anne's Vicarage, Dropmore, Maidenhead.
Shea, C. E., Mr., The Elms, Foots Cray, Kent.
Sherwood, N. N., Mr., Dunedin, Streatham Hill, S.W.
Shill, Mr., The Dell Gardens, Englefield Green.

* This list is the best obtainable at the time we go to press, but there may be some slight modifications made later.

Siebert, Herr, Palmen Garten, Frankfort-on-the-Main, Germany.
Smet, Firmin de, Monsieur, Vindenhoute, Ghent, Belgium.
Smet-Kraus, Arthur de, Monsieur, Hoeylaert, Brussels, Belgium.
Smet, Romain de, Monsieur, Ledeburg, Ghent, Belgium.
Smith, J. R., Mr., Bedgebury Park Gardens, Goudhurst.
Smith, W. H., Mr., West Dean Park Gardens, Chichester.
Smith, W., Mr., Lambton Castle Gardens, Fence Houses, Durham.
Soupert, Monsieur, Rose Grower, Luxembourg.
Speed, W., Mr., Penrhyn Castle Gardens, Bangor.
Stanton, J., Mr., Park Place, Henley-on-Thames.
Summers, G., Mr., Sandbeck Park Gardens, Rotherham, Yorkshire.
Thatcher, Mr., Arnold Arboretum, Harvard University, Jamaica Plain, Mass., U.S.A.
Thomson, D., Mr., 113, George Street, Edinburgh.
Thomson, J., Mr., Knighton Frith, Leicester.
Thomson, W., Mr., Walton Grange, Stone, Staffs.
Thwaites, R., Mr., 23, Christchurch Road, Streatham.
Troyanowsky, J., Dr., Maison Loukine, No. 11, Skatertny p. Powarskaia, Moscow, Russia.
Truffaut, A., Monsieur, 42, Rue des Chantiers, Versailles, France.
Turner, A., Mr., Royal Nurseries, Slough.
Upjohn, W., Mr., Worsley Gardens, Worsley, Lancashire.
Valvassori, Monsieur, Director, School of Horticulture, Florence, Italy.
Van Waveren, G. H., Herr, Leeuwenstein Nurseries, Hillegom, Holland.
Veitch, P. C. M., Mr., Royal Nurseries, New North Road, Exeter.
Vilmorin, Philippe de, Monsieur, 66, Rue Boissière, Paris, France.

FIG. 169.—ROYAL INTERNATIONAL HORTICULTURAL EXHIBITION.
(Cup presented by Yorkshire.)

Vincke-Dujardin, G., Monsieur, Scheepsdale, Bruges, Belgium.
Von Solemacher, Herr Baron, President, Pomological Society, Bonn, Germany.
Vuylsteke, C., Monsieur, Loochristi, Ghent, Belgium.
Wallace, R., Mr., Kilnfield Nurseries, Colchester.
Wallace, W. E., Mr., Eaton Bray, Dunstable, Beds.
Wartel, Monsieur, Société Anonyme Horticole Gantoise Ghent, Belgium.
Waterman, R. G., Mr., Woolton, Liverpool.
Webster, A. D., Mr., Park Superintendent, Regent's Park N.W.
Webster, C., Mr., Gordon Castle Gardens, Fochabers, N.B
Wellesley, F. A., Mr., Honey Potts, Westfield, Woking.
Weston, J. G., Mr., Eastwell Park Gardens, Ashford, Kent.
White, W. H., Mr., Burford Lodge Gardens, Dorking.
Whitton, J., Mr., Parks Department, City Chambers, Glasgow.
Whytock, J., Mr., The Palace Gardens, Dalkeith, N.B.
Wilke, J. T., Heer, Curator of Botanic Gardens, Rotterdam, Holland.
Williams, J. C., Mr., Caerhays Castle, St. Austell, Cornwall.
Wilson, Gurney, Mr., Glenthorne, Haywards Heath.
Woodward, G., Mr., Barham Court Gardens, Teston, Maidstone.
Worsley, A., Mr., Mandeville House, Isleworth.
Wright, H., Mr., 32, Dault Road, Wandsworth.
Wythes, George, Mr., Maryville, Chart Road, Folkestone.

NON-COMPETITIVE JURORS.

Under canvas

Ames, Oakes, Mr., 96, Ames Buildings, Boston, U.S.A.
Bartholomew, A. C., Mr., Parkhouse, Reading.
Beckett, E., Mr., Aldenham House Gardens, Elstree.
Bennett, W., Mr., Rangemore Gardens, Burton-on-Trent.
Beranek, C., Monsieur, Horticulteur, 8, Rue de l'Hermitage, Versailles, France.
Black, A., Mr., Carton Park Gardens, Maynooth, Ireland.
Blair, P., Mr., Trentham Gardens, Staffs.
Brown, J., Mr., Knockbrex, Kirkcudbright, N.B
Candler, T. H., Mr., Wittington Hall Gardens, Marlow.
Challis, T., Mr., Wilton House Gardens, Salisbury.
Chapman, A., Mr., Westonbirt Gardens, Tetbury, Glos.
Clutton-Brock, A., Mr., Farncombe, Godalming.
Cooke, W. H., Mr., Kingston Hall Gardens, Derby.
Cox, J., Mr., Havering Park Gardens, Romford.
Cranfield, W. B., Mr., East Lodge, Enfield Chase, Enfield.
Cutbush, H. J., Mr., Highgate Nurseries, London, N.
Cuthbert, G. H., Mr., Southgate.
Cypher, J. J., Mr., Queen's Road Nursery, Cheltenham.
Davidson, G. D., Mr., Westwich Gardens, Norwich.
Debrie, G., Monsieur, 10, Rue Royale, Paris.
Détriché, C., Monsieur, Route des Ponts-de-Cé, Angers, France.
Farrer, R., Mr., Ingleborough, Lancaster.
Gentil, Louis, Monsieur, Secretary, Société Royale de Flore, Botanic Gardens, Brussels.
Gilson, H., Monsieur, 8, Parvis Notre Dame, Laeken, Belgium.
Graaff, Jan De, Heer, Nurseryman, Leyden, Holland.
Gravereau, A., Monsieur, Neauphle-le-Chateau (Seine-et-Oise), France.
Hales, W., Mr., Curator, Chelsea Botanic Gardens, Chelsea.
Hoog, J. M. C., Heer, care of C. G. van Tubergen, Jnr., Haarlem, Holland.
Howe, W., Mr., Park Hill Gardens, Streatham.
Jackman, A. G., Mr., The Nurseries, Woking, Surrey.
Kempshall, H., Mr., Abbotsbury Castle Gardens, Dorchester.
Kuniz, Karl, Herr, Garteninspector, der Baronent von Rothschildien, Hohe Warte, Vienna, XXX, Austria.
Lee, W. R., Mr., Plumpton Hall, Heywood, Lancashire.
MacLaren, H. D., The Hon., Bodnant, Talycafn, R.S.O.
Malcolm, A., Mr., South View, Duns, N.B.
Marlow, W. J., Mr., Garden Superintendent, Hampton Court Palace, Middlesex.
Mattock, J. R., Mr., The Nursery, New Headington, Oxford.
Moorman, J. W., Mr., 33, Wetherell Road, South Hackney, N.E.
Mottet, S., Monsieur, 7, Rue de Paris, Verrières le Buisson (S. et O.), France.
Neubert, W., Herr, Wandsbek, Hamburg, Germany.
Nix, C. G. A., Mr., Tilgate Forest Lodge, Crawley, Sussex.
Nomblot-Bruneau, Monsieur, Bourg la Reine (Seine), France.
O'Brien, J., Mr., Marian, Harrow-on-the-Hill.
Odell, J. W., Mr., Grove Farm, Stanmore ,Middlesex.
Opoix, Pierre O., Monsieur, Chef des Jardins du Luxembourg, 64, Boulevard St. Michel, Paris.
Pearson, C. E., Mr., Hillcrest, Lowdham, Notts.
Peters, Major, Westwich, Norwich.
Pinguet-Guindon, Monsieur, La Tranchée, St. Symphorien, Tours, France.
Prior, W. D., Mr., The Nurseries, Colchester.
Reuthe, G., Mr., Sunnycroft, Crown Lane, Bromley, Kent.
Rivers, H. Somers, Mr., Sawbridgeworth.
Smet, Arthur de, Monsieur, Nurseryman, Ledeberg, Ghent, Belgium.
Stevenson, T., Mr., Woburn Place Gardens, Addlestone.
Turton, T., Mr., The Castle Gardens, Sherborne, Dorset.
Vert, James, Mr., Audley End Gardens, Saffron Walden
Ward, H. W., Mr., Nurseries, Rayleigh, Essex.
Ware, W. T., Mr., Inglascombe Nurseries, Bath.
Watkins, A., Mr., 12, Tavistock Street, Covent Garden.
Watson, W., Mr., Royal Gardens, Kew.
Wilson, Gurney, Mr., Glenthorne, Hayward's Heath.
Witte, E. T., Heer, Curator Botanic Garden, Leyden, Holland.
Wright, W. P., Mr., The Grey House, Lyminge, Kent.
Young, A., Mr., Witley Court Gardens, Worcester.

OUTDOOR GROUPS AND SUNDRIES.

Allsop, A. J., Mr., Superintendent of Parks, Leeds.
Backhouse, J., Mr., Holgate, York.
Basham, J., Mr., Fairoak, Bassaleg, Newport, Mon.
Blake, H. W., Mr., Clandon Park Gardens, Guildford.
Clayton, H. J., Mr., Wharfe Bank, Ulleskelf, York.
Cook, W. A., Mr., Leonardslee Gardens, Horsham.
Cornford, J., Mr., Quex Park Gardens, Birchington, Kent.
Elwes, H. J., Mr., Colesborne, Cheltenham.
Goaring, W., Mr., Elmdene Gardens, Lewes.
Humphreys, T., Mr., Botanic Gardens, Edgbaston, Birmingham.
Iceton, W., Mr., Granard Gardens, Putney Park Lane, Putney, S.W.
Keeble, F., Professor, University College, Reading.
Llewelyn, J. T. D., Sir, Bart., Penllergaer, Swansea.
Lucas, C. J., Mr., Warnham Court, Horsham.
Naylor, Mr. H., The Gardens, The Pleasaunce, Cromer.
Negus, R., Mr., The Lawn, Rydens Avenue, Walton-on-Thames.
Notcutt, R. C., Mr., The Nursery, Woodbridge, Suffolk.
Perkins, F., Mr., Handsworth, Queen's Park Parade, Northampton.
Pettigrew, H. A., Mr., St. Fagan's Castle Gardens, Cardiff.
Rochford, Joseph, Mr., The Nursery, Turnford, Broxbourne.
Rogers, J., Mr., The Lodge, Battersea Park, S.W.
Ruys, B., Heer, Moerheim Nurseries, Dedemsvaart, Holland.
Sanders, R. C., Mr., Halton Gardens, Tring.
Smith, T., Mr., Dicksons, Ltd., Chester.
Spath, Helmut L., Herr Dr., Baumschulenweg, Berlin.
Stevenson, J. B., Mr., The Parks and Gardens Superintendent, Bournemouth.
Tissot, J. C., Monsieur, 7, Rue de Louvre, Paris.
Truffaut, G., Monsieur, 90 bis, Avenue de Paris, Versailles, France.
Turner, T. W., Mr., Royal Hospital Gardens, Chelsea.
Vacherot, J., Monsieur, 12, Rue Carnot, Billancourt (Seine), France.
Warren, W. H., Mr., Aston Clinton Gardens, Tring, Herts.
Waterer, F. G., Mr., American Nursery, Bagshot.
Wheeler, A., Mr., Apley Park Gardens, Bridgenorth, Shropshire.
Williams, P. D., Mr., Lanarth House, St. Keverne, R.S.O., Cornwall.

SCIENTIFIC AND EDUCATIONAL JURORS.

Buyssens, A., Monsieur, 20, Rue des Thérésiennes, Vilvorde, Belgium.
Cogniaux, Monsieur, Genappe, Brabant, Belgium.
Henry, L., Monsieur, 57, Rue Cuvier, Paris, France.
Lauche, W., Herr Dr., Mahrisch, Eisgrub, Mahren, Germany.
Ritzema Bos, Professor, Wageningen, Holland.
Wittmack, Professor, 42, Invalidenstrasse, Berlin.

ACTING COMMITTEES.

ADVISORY COMMITTEE.

Fowler, J. Gurney (Chairman).
Beckett, E., V.M.H.
Colman, Sir Jeremiah Bart., J.P., D.L., V.M.H.
May, H. B., V.M.H.
Rollit, Sir Albert Kaye, LL.D., D.C.L.
Veitch, H. J., V.M.H.
Wilks, Rev. W., M.A.
Pearson, R. Hooper.
Greenwood, H. J., J.P., L.C.C.
Ingram, G. J.
Acland, Rt. Hon. A. H. Dyke, P.C.

SCHEDULE COMMITTEE.

Veitch, H. J., V.M.H. (Chairman).
Beckett, E., V.M.H.
Fielder, C. R., V.M.H.
Paul, G., V.M.H.
Turner, A.
Wilks, Rev. W., M.A.
Hudson, J., V.M.H.

FINANCE COMMITTEE.

Colman, Sir Jeremiah, Bart., J.P., D.L., V.M.H. (Chairman).
Fowler, J. Gurney.
Hanbury, F. J., F.L.S.
Kingsmill, A.
Sherwood, N. N., V.M.H
White, E.
Ingram, G. J. (Secretary).

SEATING AND GENERAL ARRANGEMENT COMMITTEE.

Fowler, J. Gurney.
White, Edward.
Ingram, G. J.
Greenwood, H. J., J.P., L.C.C.

SHOW AND SITE COMMITTEE.

May, H. B., V.M.H. (Chairman).
Barnes, N. F.
Green, J.
Jackman, A. G.
Mackellar, A., V.M.H.
Payne, C. Harman.
Paul, G., V.M.H.
Rivers, T. A. H.
Rollit, Sir Albert Kaye, LL.D., D.C.L.
Veitch, H. J., F.I.S., V.M.H.
Wallace, R. W.

FIG. 170.—ROYAL INTERNATIONAL HORTICULTURAL EXHIBITION.
(Gold cup presented by the *Daily Mail* for the best new Rose.)

SPACING COMMITTEE.

Veitch, H. J., V.M.H. (Chairman).
Thomas, Owen, V.M.H.
May, H. B., V.M.H.
Hudson, J., V.M.H.
Wright, S. T.
White, E.

SCIENCE AND EDUCATION COMMITTEE.

CHAIRMAN.
The Rt. Hon. A. H. Dyke Acland.

HON. SECRETARY.
Fred. J. Chittenden.

Professor R. H. Biffen, M.A.
Professor I. Bayley Balfour, D.Sc., F.R.S., V.M.H.
W. Bateson, M.A., D.Sc., F.R.S., V.M.H.
E. A. Bowles, M.A., F.E.S.
Sir Thomas H. Elliott, K.C.B.
Professor J. B. Farmer, D.Sc., F.R.S.
Anderson Graham.
George Gordon, V.M.H.
Sir H. Rider Haggard.
A. D. Hall, M.A., F.R.S.
Sir Everard im Thurn, K.C.M.G., LL.D.
Dr. Daydon Jackson.
Professor Frederick Keeble, D.Sc.
Donald McDonald.
William Marshall, V.M.H.
Sir Frederick W. Moore, M.A.
Sir Daniel Morris, K.C.M.G., M.A., D.Sc.
Spencer U. Pickering, M.A., F.R.S.
Lt.-Col. D. Prain, C.I.E., F.R.S.
Dr. A. B. Rendle, M.A., F.L.S., F.R.S.
T. A. H. Rivers.
A. G. L. Rogers.
E. S. Salmon.
A. W. Sutton, V.M.H.
Professor W. Somerville, D.Sc.
F. V. Theobald, M.A., F.E.S.
H. J. Veitch, V.M.H.
Professor S. Vines, D.Sc., F.R.S
Rev. W. Wilks, M.A.

MARKETS.

COVENT GARDEN, May 15.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—EDS.]

Cut Flowers, &c.: Average Wholesale Prices.

	s.d.	s.d.
Anemones St. Brigid, dz. bnchs.:		
— all colours ...	2 0	2 6
Arums (Richardias)	2 0	—
Bouvardia, per dz. bunches ...	6 0	7 0
Carnations, p. doz. blooms, best American var.	1 6	1 9
— smaller, per doz. bunches	10 0	15 0
— Carola, crimson, extra large	2 6	3 0
— Malmaisons, p. doz. blooms ...	9 0	12 0
Cornflower, per dz. bunches ...	3 0	—
Eucharis, per doz.	2 0	2 6
Gardenias, per box of 15 and 18 blooms... ...	1 6	3 0
Gladiolus Blushing Bride, per doz. bunches ...	9 0	10 0
— Bride, white ...	10 0	12 0
— Peach Blossom	10 0	12 0
Gypsophila, p. dz. bunches:		
— white	3 0	4 0
— pink	3 0	4 0
Iceland Poppies, p. dz. bunches	3 0	4 0
Iris (Spanish), per doz. bunches:		
— white, mauve, yellow and blue	8 0	12 0
Ixia, scarlet, per dz. bunches ...	1 6	1 9
Lapagerias, white, per dozen ...	2 0	2 6
Lilium auratum, per bunch ...	4 0	5 0
— longiflorum, per doz., long	1 6	2 0
— — short ...	1 6	2 0
— lancifolium alba, long ...	2 0	2 6
— — short ...	1 6	2 0
— speciosum rubrum, per doz., long	1 9	2 0
— — short ...	0 9	1 0
Lily of the Valley, pr. dz. bnchs.:		
— extra special ...	15 0	18 0
— special... ...	10 0	12 0
— ordinary ...	8 0	—

	s.d.	s.d.
Marguerite, per doz. bunches:		
— Yellow... ...	1 6	2 0
Mignonette, per doz. bunches...	4 0	5 0
Myosotis (Forget-me-not), p. dz. bunches ...	3 0	4 0
Narcissus, per doz. bunches:		
— double, white	1 6	2 0
Orchids, Cattleya, per doz. ...	9 0	10 0
— Odontoglossum crispum ...	2 0	2 6
Pæonies, per doz. blooms:		
— white	2 0	—
— pink	0 6	0 8
— red	0 6	0 8
Pelargoniums, per dozen bunches ...	4 0	5 0
— Double Scarlet	4 0	6 0
Pyretheum, pr. dz. bunches:		
— white	2 6	3 0
— coloured ...	2 0	3 0
Roses, 12 blooms,		
— Bridesmaid,	1 0	1 6
— C. Mermet ...	1 0	1 6
— Frau Karl Druschki ...	1 6	2 6
— General Jacqueminot ...	1 0	1 3
— Liberty ...	2 0	3 0
— Madame A. Chateney ...	1 6	3 0
— Niphetos ...	1 0	1 6
— Richmond ...	1 0	2 6
— Sunrise ...	1 0	1 6
— President Carnot	1 6	2 6
— Lady Roberts	1 0	1 6
— Lady Hillingdon	1 0	1 6
— Franz Deegan	1 0	1 6
— Kaiserine ...	1 0	2 0
Spiræa (Astilbe) japonica, per doz. bunches	4 0	5 0
Statice, mauve, per doz. bunches...	4 0	5 0
Stephanotis (72 pips)	2 0	2 6
Sweet Peas, pr. dz. bunches:		
— coloured ...	4 0	6 0

Cut Foliage, &c.: Average Wholesale Prices.

	s.d.	s.d.
Adiantum Fern (Maidenhair), best, dz. bnchs.	6 0	7 0
Agrostis (Fairy Grass), per dz. bunches ...	2 0	4 0
Asparagus plumosus, long trails, pr. ½doz.	1 6	2 0
— medium, doz. bunches ...	12 0	18 0
— Sprengeri ...	10 0	12 0
Carnation foliage, doz. bunches...	4 0	—

	s.d.	s.d.
Croton foliage, various, per dozen bunches ...	12 0	15 0
Cycas leaves, artificial, per doz.	3 0	12 0
Eulalia japonica, per bunch ...	1 0	1 6
Moss, per gross ...	6 0	—
Myrtle, dz. bchs. (English), small-leaved...	6 0	—
— French ...	1 0	—
Smilax, per bunch of 6 trails ...	1 6	—

Plants in Pots, &c.: Average Wholesale Prices.

	s.d.	s.d.
Acacia lineata, 48's, per dozen ...	18 0	21 0
Aralia Sieboldii, p. dozen	6 0	7 0
Araucaria excelsa, per dozen ...	18 0	21 0
Asparagus plumosus nanus, p.dz.	10 0	12 0
— Sprengeri ...	8 0	9 0
Aspidistra, p. dz., green	21 0	30 0
— variegated ...	30 0	60 0
Boronia megastigma, 48's, p. dz.	21 0	24 0
Cinerarias, pr. dz.	8 0	9 0
Cocos Weddeliana, per dozen:		
— 60's	6 0	12 0
— larger, each ...	2 6	10 6
Coleus, per doz. ...	4 0	5 0
Croton, per dozen	18 0	30 0
Cyperus alternifolius, per doz.	5 0	6 0
— laxus, per doz.	4 0	5 0
Dracæna, green, per dozen ...	10 0	12 0
Ericas, per dozen:		
— Willmorei, 48's	15 0	18 0
— persoluta ...	27 0	30 0

	s.d.	s.d.
Ferns, in thumbs, per 100... ...	8 0	12 0
— in small and large 60's ...	12 0	20 0
— in 48's, doz. ...	6 0	—
— choicer, sorts per doz. ...	8 0	12 0
— in 32's, per doz.	10 0	18 0
Ficus elastica, per dozen	9 0	12 0
Fuchsias, per doz.	8 0	9 0
Geonoma gracilis, 60's, per dozen	6 0	8 0
— larger, each ...	2 6	7 6
Heliotropes ...	6 0	8 0
Hydrangeas, white, 48's, per dozen	18 0	21 0
— pink	10 0	15 0
— blue, each ...	2 0	5 0
Kentia Belmoreana, per dozen	5 0	42 0
— Fosteriana, 60's, per dozen	4 0	6 0
— larger, per dozen	18 0	60 0
Latania borbonica, per dozen ...	12 0	30 0
Lilium longiflorum per dozen ...	15 0	18 0

Plants in Pots, &c.: Average Wholesale Prices *(Cont.).*

	s.d.	s.d.
Lilium longiflorum, per dozen	15 0	18 0
— lancifolium rubrum in pts., per dozen ...	15 0	18 0
— lancifolium alba	15 0	18 0
Lily of the Valley	21 0	24 0
Marguerites, white, per dozen ...	8 0	10 0
Mignonette, 48's, per dozen ...	6 0	8 0

	s.d.	s.d.
Pandanus Veitchii, per dozen ...	36 0	48 0
Pelargoniums, per dozen	9 0	12 0
— Ivy-leaved ...	7 0	9 0
Phœnix rupicola, each	2 6	21 0
Rhodanthi, per dz. pots	5 0	6 0
Spiræa japonica, per dozen pots	10 0	12 0
— pink	10 0	12 0
Stocks, white, pink and red ...	6 0	8 0

Fruit: Average Wholesale Prices.

	s.d.	s.d.
Apples:		
— Californian Newtowns, pr. case	4 0	7 0
— Oregon (Newtowns) p. case	10 0	11 0
— Tasmanian per case ...	7 0	10 6
— Australian per case	7 0	10 6
Apricots, French per box ...	0 10	1 3
Bananas, bunch:		
— Doubles ...	10 0	12 0
— No. 1	8 0	10 0
— Extra	10 0	12 0
— Giant	14 0	18 0
— Loose, p. doz.	0 6	1 0
— Red coloured...	5 6	6 6
— Jamaica Giants, per ton ...	£10	£12
— Jamaica Ordinary, per box (9 doz.) ...	4 0	5 0
Cherries, French, ½ sieve... ...	8 6	9 6
— per box ...	1 3	2 0
Cranberries, per case (30 qts.)...	10 0	11 0
— Cape Cod, per case (30 quarts)	9 6	—
Dates (Tunis) doz. boxes	4 6	5 6
Figs, Guernsey, pr. doz.	6 0	18 0
Gooseberries, per peck	2 3	3 0
— ½ bushel ...	5 0	6 0
Grape Fruit, case:		
— 96's	14 0	20 0
— 80's		
— 64's		
— 54's		
Grapes, Australian, per case ...	12 0	25 0
— English (new) per lb.	1 6	4 0
— Canon Hall ...	3 0	5 0

	s.d.	s.d.
Grapes:		
— Muscats ...	3 0	8 0
Per dozen lbs.	4 0	6 0
— (Cape) per case White	3 0	12 0
Lemons:		
— Messina, p.case	7 6	17 0
Limes, per case ...	4 0	—
Mangoes, per doz.	2 6	5 0
Melons (Guernsey)	1 3	2 6
— (English) ...	1 3	3 6
Nuts, Almonds, per bag	52 6	—
— Spanish, per sack	40 0	42 0
— Barcelona, bag	35 6	36 6
Nuts, Chestnuts, per bag ...	3 6	19 0
— Cocoanuts, 100	18 0	23 0
— English Cobs per lb.... ...	0 3	—
— Walnuts (Naples) kiln dried, cwt. cases	54 0	—
Nectarines, per dozen	8 0	30 0
Oranges:		
— Denia, case ...	17 6	33 0
— Jaffa, per case	12 0	—
— Blood, per case	8 0	9 0
— Bitter, per ½ chest	16 0	18 6
— Seville Sour ½ chest ...	15 0	18 0
Peaches (Belgian), per dozen ...	4 0	8 0
— English, dozen	6 0	24 0
Pears (Australian), per case ...	6 0	15 0
— (American) per barrel, 180 lbs.	25 0	26 0
— cases	7 0	—
Pineapples, St. Michael ...	4 0	4 6
Strawberries, p. lb.:		
— A quality ...	1 6	4 0
— B quality ...	0 9	1 3

Vegetables: Average Wholesale Prices.

	s.d.	s.d.
Artichokes (Globe), per dozen ...	2 0	2 6
Asparagus—		
— Toulouse ...	1 2	1 6
— Montauban ...	1 9	2 3
— Dijon	0 6	0 7
— Lauris ...	0 10	2 0
— (English) bndl.		
— Cambridge ...	0 9	1 9
— Worcester ...	1 4	6 0
Beans, Guernsey Dwarf, per lb.	0 10	1 3
— (English) p. lb.	0 10	1 3
— French, per packet, lb. ...	0 8	0 10
Beetroot, p. bshl.:		
— Long	2 0	2 6
Celeriac, per doz.	2 6	3 0
Cabbages (French) per dozen ...	1 3	2 0
— Cornish, per dozen	0 9	1 6
— Evesham, pots	4 0	4 6
Carrots (English), pr. doz. bun....	4 0	5 0
— (French) per dozen bundles	7 0	10 0
— per cwt. ...	4 0	6 0
— (washed) p. bag	6 0	70
Cauliflowers, per dozen	4 0	5 0
— (Cornish), per crate	12 0	15 0
Celery (washed), p. doz. bndls. ...	8 0	10 0
Chicory, per lb. ...	0 4	—
Cucumbers, p. doz.	1 6	2 6
Endive, per dozen	1 0	1 6
Greens (Spring), p. bag	4 0	4 6
Herbs (sweet), pkts., p. gross	7 0	—
Horseradish, 12 bundles ...	14 0	16 0

	s.d.	s.d.
Leeks, per doz. ...	2 6	3 0
Lettuce (French), per doz. ...	3 6	4 0
— (English) p. dz.	1 6	2 6
Mint, per dozen bunches ...	2 0	3 0
Mushrooms, cultivated, p. lb. ...	0 10	1 0
Mustard and Cress, per dozen punnets ...	1 0	—
Marrows, pr. dz. ...	3 0	6 0
Onions, (Spanish), per case ...	10 0	11 0
— Egyptian ...	6 0	7 0
— (Spring), per doz. bunches	2 0	3 0
Parsley, ½ sieve ...	1 6	2 0
— per doz. bun.	2 6	3 0
Peas (French) per pad	4 0	6 0
— per packet ...	0 6	—
— (Guernsey), lb.	0 8	1 0
— (English) p. lb.	0 8	1 0
Radishes (English), per dozen ...	1 0	1 3
— (French) p. dz.	1 0	1 3
— (Jersey) long...	0 4	0 6
Rhubarb, forced, per 12 bundles	0 9	1 0
— Outdoor, p. dz	2 0	2 6
Spinach, pr. bshl.	3 6	4 0
Seakale, p. punnet	1 0	1 3
— ½ bushel ...	1 6	2 0
Tomatos (Canary Islands), per bundle... ...	18 0	22 0
— Guernsey, lb.	6 0	8 0
— English, lb. ...	8 0	9 0
Turnips (English), per dz. bunches	3 0	4 0
— (French), pr. dz.	8 0	9 0
Watercress, p. dz. bunches ...	0 4	0 6

REMARKS.—Supplies of English and Channel Island hothouse Grapes are increasing, the varieties now including Muscat of Alexandria and Canon Hall. Black Hamburgh and Gros Colmar Grapes; also Peaches and Nectarines are arriving from Belgium. Cape Grapes are apparently finishing. English-grown Peaches are available in moderate quantities, whilst Nectarines are expected to arrive daily. Forced Strawberries are a plentiful supply. Consignments of French and Spanish Cherries in boxes and half-sieve baskets have increased considerably during the week. English and Channel Island Melons and Figs are much more plentiful and are meeting with a better demand. Australian and Tasmanian Apples and Pears are arriving in a much better condition; quantities are to hand this week per s.s. "Runic," also about 48,000 cases per s.s. "Essex," the estimated quantities being 100,000 cases. Apples consist principally of dessert varieties. There is a fairly heavy supply of green Gooseberries, which show improvement in both quality and size. English and Channel Island Tomatos are daily becoming more plentiful, and the fruits show a marked improvement in quality. There are limited supplies of Teneriffe Tomatos, which arrive in good condition. Abundant supplies of Asparagus are arriving from all sources, some of the samples being extra fine; the bundles are obtainable at very moderate prices. Forced vegetables, including Marrows, are plentiful, and meet with a better demand. The supplies of outdoor vegetables have increased, but prices have been well maintained. *E. H. R., Covent Garden, May 15, 1912.*

Potatos.

	per cwt. s.d.	s.d.
Lincolns—		
Up-to-Date ...	3 6	4 0
King Edward ...	3 3	4 0
Northern Star ...	2 9	3 0
Evergoods ...	2 9	3 0

	per cwt. s.d.	s.d.
Lincolns—		
Maincrops ...	3 3	4 0
Blacklands ...	2 3	2 6
Dunbars—		
Up-to-Date ...	4 6	5 0
Maincrop ...	5 0	5 3

New Potatos.

Teneriffe ...	10 0	12 0	Jerseys 11 6 12 6
Algerian ...	11 0	12 0	St. Malos 11 0 11 6

Cherbourgs 10s.–11s. per cwt.

REMARKS.—Trade in old and new Potatos is very quiet and their prices are much lower. Old Potatos promise to realise very low prices at the end of the season. Stocks in London are very heavy. *Edward J. Newborn, Covent Garden and St. Pancras, May 14, 1912.*

GARDENING APPOINTMENTS.

[*Correspondents are requested to write the names of persons and places as legibly as possible. No charge is made for these announcements, but if a small contribution is sent, to be placed in our collecting Box for the Gardeners' Orphan Fund, it will be thankfully received, and an acknowledgment made in these columns.*]

Mr. J. H. WALKER, for 14 years Gardener to the late JOHN LINTON, Esq., Stirtloe House, Buckden, Huntingdon, as Gardener at Halstead Hall, Oswestry, Shropshire.

Mr. GEORGE FIGGIS, for more than 8 years Gardener to the late E. REINACK, Esq., White Hill, Bletchingley, Surrey, as Gardener to the Duchess of WELLINGTON, West Green House, Winchfield, Hampshire.

Mr. T. L. ALLISON, for the past 10½ years Gardener to the late Lord AMHERST, and the present Baroness AMHERST of HACKNEY, Didlington Hall, Stokeferry, Norfolk, as Gardener to Lord St. OSWALD, Nostell Priory, Wakefield, Yorkshire.

Mr. WM. SCOTT, late of Newton Hall, Fifeshire, as Gardener at Strone House, Bridge of Cally, Perthshire.

Mr. W. HIBBERD, for the past 5 years Gardener to Lady ISABEL BLIGH, Fartherwell Hall, West Malling, as Gardener to Sir MURLAND EVANS, Hillcroft, Orpington, Kent.

Mr. A. J. BETTS, for the past 2½ years gardener to Colonel LOWE, C.B., at Burlingham House, Norwich, as Gardener to C. M. CUMMINGS, Esq., at Lydwicke, Slinfold, Horsham.

Mr. ALEXANDER WATT, as gardener to A. E. F. MORISON, Esq., at Mountblairy Gardens, near Turriff, Aberdeenshire. Mr. WATT's name was printed incorrectly in the last issue.

DEBATING SOCIETY.

STIRLING & DISTRICT HORTICULTURAL.—The last meeting of the present session previous to the summer excursions was held in Stirling on the 7th inst.; Mr. Jas. Johnston presided. The lecturer for the evening was Mr. W. G. Pirie, gardener at Dalhousie Castle, his subject being "The Narcissus." The history, hybridisation, diseases, insect pests, naturalisation, varieties suitable for different purposes, and newer varieties, were all dealt with by Mr. Pirie. The cultural remarks were the record of Mr. Pirie's experience and practice; his employer, C. W. Cowan, Esq., has been for many years a prominent specialist in Narcissi. The exhibits were Magnolia grandiflora, cut from the open; Cineraria stellata; Hæmanthus natalensis; Anemone sulphurea; and variegated Honesty in flower. Mr. Pirie exhibited specimens of seedling Narcissi.

CATALOGUES RECEIVED.

WM. PAUL & SON, Waltham Cross, Herts.—New Roses; Plants for Spring Planting.

GEO. COOLING & SONS, Bath—Roses in Pots and Bedding Plants.

ARTHUR S. RITCHIE & CO., 51 & 53, High Street, Belfast—Bedding Plants; Garden Requisites and Bee Appliances.

TILLEY BROS., 133, London Road, Brighton—Bedding Plants.

WM. WATSON & SONS, Clontarf Nurseries, Dublin—Bedding Plants.

JOHN JEFFERIES & SON, Royal Nurseries, Cirencester—Bedding Plants.

JAMES VEITCH & SONS, LTD., Chelsea—Fruit Trees in Pots; New Chinese Plants, also Syringas.

COLONIAL.

F. COOPER, LTD., Corner Willis Street, Wellington, New Zealand—Seeds.

FOREIGN.

H. DEN OUDEN & SON, Boskoop, Holland—Nursery Stock,

THE WEATHER.

The Following Summary Record of the weather throughout the British Islands, for the week ending May 11, is furnished from the Meteorological Office:—

GENERAL OBSERVATIONS.

The *weather*, although generally fair and dry over the south-eastern quarter of England, was less settled than for a considerable time past. Occasional rain was experienced in all districts; thunderstorms or thunder occurred in various parts of Scotland on the 7th and 8th, at Clacton-on-Sea on the 9th, at Hastings on the 10th, and at Guernsey on the 11th. Much fog prevailed round our south and west coasts; in the western parts of the Channel it was almost continuous. During the disturbed weather of Saturday a remarkable increase of temperature, amounting to 20°, was observed during a kite ascent which was made at midday from Brighton. At the surface of the ground the thermometer registered 55° F.; while at a height of 3,000 feet it rose to 75° F.

The *temperature* was considerably above the average, the excess amounting to about 8° in England N.E. and the midland counties, and to as many as 9° in England E. At many of the northern stations the highest readings occurred on Tuesday or Wednesday, but over the country generally they were observed on Friday or Saturday, when the thermometer exceeded 75° in many English districts, and reached 81° in the midland counties, and 82° in England E., as well as at Greenwich. In Scotland N. and E., England N.W. and Ireland N. the thermometer did not touch 70°, and in Scotland W. it did not reach 65°. The lowest readings were observed generally on Sunday or Monday, but in Ireland and some neighbouring parts of Great Britain they occurred on Friday, the values ranging from 34° in Scotland N. and E. to 45° in England S.E. and S.W. and Ireland S., and to 47° in the English Channel. The lowest readings on the surface of the grass were 25° at Crathes, 27° at Birmingham and 30° at Buxton. At a depth both of 1 foot and 4 feet the temperature of the soil remained above the average.

The *rainfall* was considerably in excess of the normal in Scotland N., and slightly in excess in Scotland E. and W. and England S.W. In all other districts it was again deficient; at many places in the east of England the total quantity amounted to less than 0·05.

The *bright sunshine* was much less than the average, especially in the western districts, where the mean daily duration amounted in many places to less than two hours. The percentage of the possible duration ranged from 32 in Scotland E. and 31 in England E. to only 10 in Ireland N. and 8 in England S.W.

THE WEATHER IN WEST HERTS.

Week ending May 15.

The warmest week as yet this year.—Since the present month began there has been but one cold day, and but two cold nights. The past week was the warmest as yet this year, and on the hottest day the temperature in the thermometer screen rose to 77°—a very high reading for so early in the month. On the one cold night the exposed thermometer registered 1° of frost. As was the case in May last year, we have passed through the almost constantly recurring cold period in May (9 to 14) without any cold weather, if we except the last night of the period, when the lowest reading in the thermometer screen was 5° colder than the average minimum temperature for that night. The ground still continues warm for the time of year, being 4° warmer at 2 feet deep, and 5° warmer at 1 foot deep, than is seasonable. Rain fell on three days, but to the total depth of less than one-tenth of an inch. In fact, the aggregate rainfall for the last seven weeks amounts to less than three-quarters of an inch—equivalent to 3½ gallons on each square yard of surface. There has been no percolation through either of the soil gauges for over five weeks. The sun shone on an average for 6¼ hours a day, or for three-quarters of an hour a day longer than is usual at the same period in May. Calms and light airs have alone prevailed during the week, and the direction of those light airs was extremely variable. The mean amount of moisture in the air at three o'clock in the afternoon fell short of a seasonable quantity for that hour by 4 per cent. A selected bush of the Hawthorn came first into blossom on the 10th inst., which is 12 days earlier than its average date of first flowering in the previous 21 years, and earlier than in any of those years since 1893, or for 19 years. *E. M., Berkhamsted, May 15, 1912.*

Pigeon Manure.—The Spring number of *Pigeons Illustrated* contains an interesting article on the use and value of pigeon manure in the garden. The writer of the article, Mr. C. A. House, recommends this manure for general, though sparing use in the garden. He recommends that it be well trenched in the ground in the autumn, or if the soil be light, the manure should be applied as a top-dressing in spring. If collected dry, it may be stored for use in bags without becoming offensive. Unfortunately, sawdust is often used in pigeon lofts, and in such cases care must be taken to remove the latter whilst collecting the manure.

TRADE NOTICE.

F. CASE (RUMNEY), LTD.

The above-named company has been registered with a capital of £1,000 in £1 shares. Business: Market gardeners and nurserymen. Private company. Office: The Gardens, Rumney, Monmouthshire.

LAW NOTE.

LOSSES ON A NURSERY BUSINESS.

At the London Bankruptcy Court on Friday last the public examination was appointed to be held of Richard Carthew Middleton, residing at "Hawkhurst," Mounthill Road, Finchley, and carrying on business in partnership with another at the North Enfield Nursery, Enfield, against whom a receiving order was made on the petition of a creditor, the act of bankruptcy being that the debtor failed to comply with the requirements of a bankruptcy notice duly served upon him. Upon the case being called on for hearing the official receiver stated that the debtor had not yet completed his statement of affairs. The liabilities amounted to something like £30,000, and it would take the accountants a little while longer to complete the accounts. The debtor alleged his failure to have been caused through losses in connection with Messrs. R. C. Middleton & Co., underwriters, to liability in respect of goods supplied to a company, and money paid by him some two years ago to a partner, also to losses on the nursery business. The examination was ordered to be adjourned for a month.

ANSWERS TO CORRESPONDENTS.

Black Italian Poplar Dying: *J. P.* There is no evidence of any disease due to fungi or insects in the specimen you send. The injury is, no doubt, due to last season's drought.

Composite Exhibits at Flower Shows: *W. T. A., South Africa.* We are quite unable to say whether the prize should have been awarded to the Ferns included in a miscellaneous group, owing to the fact that you have not sent us a copy of the schedule. It is customary at horticultural shows for the exhibits in a class to be staged separately. But this practice is not invariable, and at International Shows on the Continent, for instance, we have frequently found that a large group of plants contributed by an exhibitor was composed of plants of several types, each type being entered for an award in a separate class. You will observe that it is impossible to determine what should have been done in your case without knowing the exact terms of the schedule, and the practice at previous shows held under the auspices of the same society.

Cucumbers Diseased: *Vines.* The injury to the plants is caused by Botrytis cinerea. If the fruits are small, spray the plants with the Bordeaux-mixture. If they are half-grown, use liver of sulphur.

Grapes Diseased: *W. E. B.* The Grapes are attacked with Grape Rot or Anthracnose (Gloeosporium ampelophagum), which infests the shoots, leaves and fruit, and may be detected first by greyish spots bordered by a dark line appearing on the leaves. Flowers of sulphur may be dusted on to the leaves and shoots at intervals of 10 days for so long as the disease spreads. On the second application a small quantity of quicklime should be mixed with the sulphur, and the amount of lime should be increased on every successive occasion until the proportions of lime and sulphur are nearly equal, but always having just a little more sulphur than lime. Wash the branches thoroughly in winter with a solution of sulphate of iron. Employ rich stable manures very sparingly. Diseased leaves, shoots or fruits should be removed and burnt.

Grubs Destroying Plants in a Greenhouse: *W. E.* The insects destroying your plants are weevils. Both the larvæ and the perfect insect are very destructive to plants, and it is difficult to kill them without causing injury to the latter. If the plants are turned out occasionally from the pots and all larvæ visible picked out with a pointed stick and killed, this may be sufficient. If this treatment does not prove effective the best plan is to shake the roots entirely free from the soil and larvæ, repotting the plants in a fresh, uncontaminated compost. Another way of killing the grubs is to turn the roots out of the pots, and spray the soil and roots with carbon bisulphide. It is necessary after this to destroy the perfect insects, in order to prevent more eggs being laid. Weevils feed chiefly at night, and fall to the ground when suddenly disturbed. You should group the plants together in the daytime on a large greased or sticky paper, then, when entering at night, holding a bright light, the weevils will fall on the sticky paper on tapping the pots or shaking the plants. Another method is to fumigate the house late at night with hydrocyanic acid gas. They may also be trapped with pieces of vegetable, placed just below the surface of the soil.

Names of Fruits: *Lich.* Hormead's Pearmain.

Names of Plants: *R. G.* 1, Cupressus pisifera plumosa; 2, C. pisifera plumosa var; 3, Juniperus communis; 4, Thuya orientalis aurea; 5, Diervilla "Abel Carriere"; 6, T. occidentalis; 7, T. plicata (T. gigantea); 8, Libocedrus decurrens; 9, Thuya orientalis; 10, Cupressus Lawsoniana; 11, Juniperus virginiana; 12, Picea Morinda.—*T. W.* 1, Spiræa prunifolia flore-plena; 2, Syringa persica; 3, Viburnum Opulus var. sterile.—*A. J. L.* 1, Asystasia bella; 2, Elæagnus multiflora; 3, Prunus Padus; 4, Cercis Siliquastrum; 5, Staphylea pinnata.—*W. G. Selwyn.* 1, Calycanthus glauca; 2, Phlomis fruticosa; 3, Thuya orientalis aurea; 4, Artemisia Stelleriana; 5, Symphoricarpus orbiculatus; 6, Ilex Perado.—*E. A. H.* 1, Epimedium alpinum; 2, E. pinnatum; 3, Rubus arcticus; 4, Symphytum tuberosum; 5, Omphalodes verna.—*M. E.* 1, Cistus monspeliensis; 2, not recognised: 3 and 4, both forms of Camassia esculenta.—*J. W. T.* Chorozema ilicifolia.—*Old Subscriber.* Paulownia imperialis.—*F. P. H.* 1, Odontoglossum Adrianæ; 2, Masdevallia Harryana lilacina; 3, Cypripedium Lawrenceanum; 4, Encephalartos Altensteinii.—*W. P. R.* So far as can be determined without flowers the Orchids are: 1, Oncidium Cavendishianum; 2, Gongora species; 3, Epidendrum fragrans; 4, Cœlia Baueriana; 5, Farfugium grande.—*R. T.* 1, Dendrobium striatum; 2, Dendrobium crumenatum; 3, Masdevallia trichæte.—*F. A.* 1, Pteris longifolia; 2, Adiantum hispidulum; 3, A. formosum; 4, Pteris tremula.

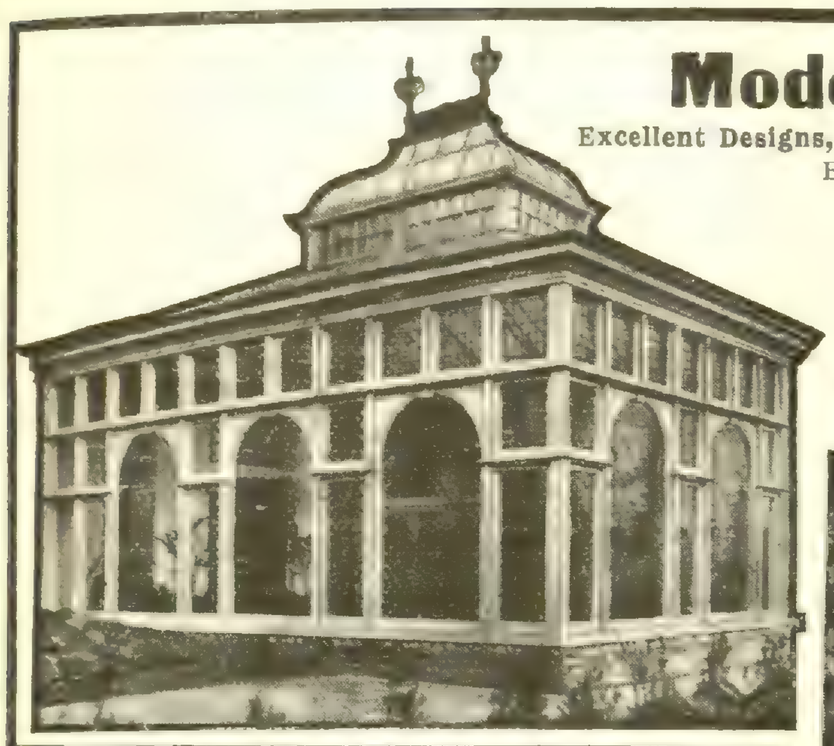
Pear Trees Casting Their Fruit: *J. W. B.* The insect which is injuring the young Pears is the Pear midge (Diplosis pyrivora). Pick off all the injured fruits, and next winter remove 2 or 3 inches of the surface soil beneath the tree, and replace it by fresh soil mixed with a small quantity of kainit.

Vines Diseased: *X. Y. Z.* The fungus attacking your vines is Plasmopara viticola. The bunches should be sprayed with liver of sulphur three times a week at a strength of ½ oz. in two gallons of water.

Visitor: In reply to your enquiry for the names of a few of the leading trade growers of Grapes, Tomatos, Cucumbers, &c., in the neighbourhood of London, the following occur to us:—Messrs. Thos. Rochford, Turnford Hall, Broxbourne; Messrs. P. Ladds and Messrs. Myatt, both of Swanley Junction; Mr. Peter Kay, Finchley; Messrs. Poupart, Twickenham; and Mr. Mott, Barnet. See an article in this week's issue with regard to the other points of your letter.

Woodlice in Glasshouses: *B. B.* Traps may be made to catch this pest by hollowing out pieces of Potato, Turnip, &c., and placing these hollow-side downwards. If the baits are examined every morning it will be found that they contain woodlice, which must be killed, afterwards replacing the baits. Another method of killing woodlice is by placing baits which may be poisoned with Paris green or white arsenic. There are also other effective poisons to be obtained on the market. Steiner's "Vermin Paste" is recommended by Mr. H. W. Ward, who has used it in his nursery at Rayleigh, and who strongly recommends it to others. The paste should be mixed with Barley-meal or middlings and set on pieces of glass, wood or tin, and then placed in the haunts of the woodlice. This means has been found sufficient to eradicate the pest in a week or ten days.

Communications Received.—H. W.—R. G.—U. C. R.—H. P.—R. D. G.—H. F. Z.—F. E.—Wokingham—R. P. B.—J. M. & Son—R. B. J.—C. H. P.—G. F.—A. R.—E. P. H.—Gatdener—G. W.—Shrubs—G. C.—T. E S.—A. G.—A. M. C. V., Dedemsvaart—E. H. W.—W. A. C.—H. J. W.—F. H. N.—F. B.—F. W. P.—W. B. H.—C. Y. & H.—F. W. C.—J. W. B.—A. D.—T. L.—J. S.—A. S. M.—S. J. T. (Thanks for 1s. for R.G.O.F. box)—H. B.—J. E.—R. G. H.



Modern Glasshouses

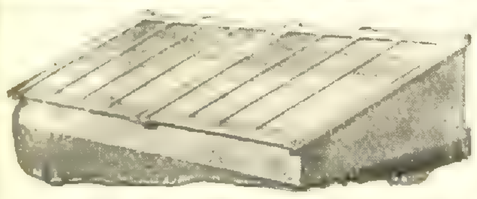
Excellent Designs, Faultless Construction, Unrivalled Durability.

ENQUIRIES INVITED FOR

Conservatories,
Peach Houses,
Vineries, etc., etc.

GARDEN FRAMES

IN GREAT VARIETY ALWAYS IN STOCK.
SEND FOR LATEST CATALOGUES FREE.



HEATING APPARATUS
Installed in Country Houses, Horticultural & Public Buildings

No. 77. **VIOLET FRAME** *as illustrated.*
6 ft. by 4 ft. **£1 15 0**
9 ft. by 4 ft. **£2 7 6**

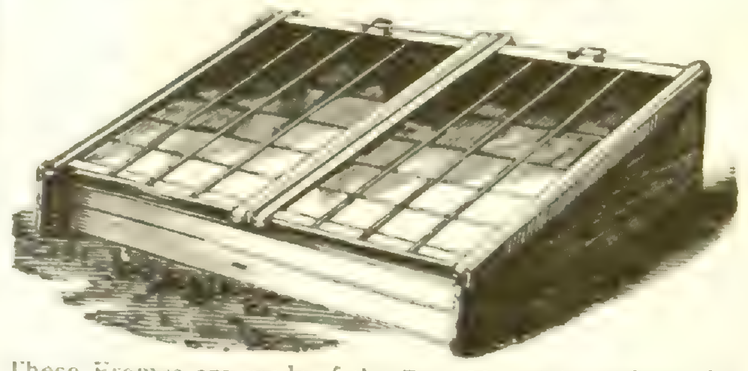
AMATEUR GREENHOUSE. No. 49a.
10 ft. by 8 ft. **£11 10 0**
Glazed at our works, 21 oz. glass. Painted three coats.

Carriage Paid on all Orders of 40/- value to most goods stations in England and Wales.

BOULTON & PAUL, Ltd., NORWICH.

Portable Cucumber Frames.

OUR WELL-KNOWN MAKE.



These Frames are made of the Best Materials, and can be put together and taken apart in a few minutes by any one. Sizes and Prices, Glazed and Painted :—

			£	s.	d.
1-Light,	4 ft. by 6 ft.	CASH PRICES, CARRIAGE PAID.	2	0	0
2 ,,	8 ft. by 6 ft.		3	0	0
3 ,,	12 ft. by 6 ft.		4	2	6
4 ,,	16 ft. by 6 ft.		5	5	0
5 ,,	20 ft. by 6 ft.		6	7	6
6 ,,	24 ft. by 6 ft.		7	10	0

LARGER SIZES AT PROPORTIONATE PRICES.

R. HALLIDAY & CO.,

ROYAL HORTICULTURAL WORKS,
Middleton, Manchester.

BENTLEY'S WEED DESTROYERS

are the most powerful, produce the most permanent effects, and have the largest sales of any Weed Destroyer manufactured.

1 to 50 (Liquid): 3 galls., **10/-**; 6 galls., **18/-**; 12 galls., **£1 13**; 20 galls., **£2 7 6**; 40 galls., **£4 10.**
1 to 80 (Liquid): 3 galls., **14/6**; 6 galls., **£1 6**; 12 galls., **£2 5**; 24 galls., **£4 7 6.**

BENTLEY'S COMPOUND LIQUID QUASSIA EXTRACT. (The Original.)

An infallible non-poisonous destroyer of Aphis in all its forms.

20 to 40 galls., **3/6**; 10 galls., **3/7**; 5 galls., **3/8** per gallon. 1 gall., **4/2**; ½-gall., **2/6**; 1 quart, **1/6**; 1 pint, **1/-**

BENTLEY'S SWEET PEA MANURE.

The only Fertilizer in the World which has helped to grow Sweet Peas worth £1,000 a bunch.

5 cwts., **£4 10**; 1 cwt., **£1**; ½ cwt., **12/-**; 28 lbs., **7/-**
Tins, 2/- and **6d.** each.

BENTLEY'S VITALIZER.

A complete all-round Fruit, Plant and Vegetable Manure.

1 ton, **£15 5 0**; 10 cwts. **£7 15 0**; 5 cwts., **£4**; 1 cwt., **17/-**; ½ cwt., **9/6**; 28 lbs., **5/6.**
Tins, 2/- and **6d.** each.

Carriage paid on 5/- orders and upwards.

Bentley's General Horticultural Specialities

(Royal International Horticultural Exhibition, Sundries Section).

Sole Manufacturers:

JOSEPH BENTLEY, Ltd., Chemical Works, Barrow-on-Humber, HULL.

PARISIAN {Wood Lath} BLINDS

MOST DURABLE OUTSIDE SHADING.

SEND FOR ESTIMATE.

SUPPLIED ONLY BY

W. RICHARDSON & Co.,
HORTICULTURAL WORKS,
DARLINGTON.

GARDEN {From Stock} FRAMES

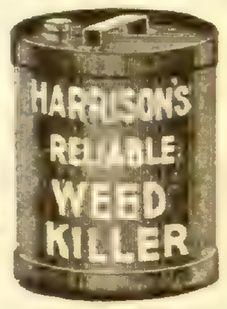
WEEDS

One application of **HARRISON'S Reliable WEED KILLER** will keep your Garden Paths, Carriage Drives, etc., free from weeds for at least 12 months. The best Killer for Daisy, Plantain and Dandelion in lawns. Brightens the Gravel. Immense Saving in Labour.

1 Gallon ..	2/8,	drum ..	9d.,	carriage ..	9d.	
2	,,	5/4	,,	1/3	,,	1/-
5	,,	12/-	,,	3/-	,,	paid.
10	,,	21/6	,,	5/-	,,	,,
40	,,	75/-	,,	5/-	,,	,,

Irish orders are not subject to these carriage terms, but are paid to any English port. Full price allowed for all drums and casks if returned in good condition carriage paid, within 2 months.

N.B.—In the prices of the above, please note that this Weed Killer mixes 1 to 50 of water, being *double* the ordinary strength. One gallon mixed with 50 gallons of water will cover an area of from 150 to 200 sq. yds. *effectively. There is no smell to this Weed Killer.*



Geo. W. HARRISON,
Horticultural Chemist,
READING.

ONCE TRIED, ALWAYS USED.

The 'PATTISSON' HORSE BOOTS

Fig. 1.

SIMPLEST! STRONGEST! MOST ECONOMICAL!
Soles of Best English Sole Leather (**Waterproofed**), with Motor Tyre Rubber Studs or Solid Rubber. Fig. 1 can be **Refitted repeatedly,** equal to New Boots, **Rubber Soles Strongly Recommended.**

USED IN THE ROYAL AND IN THOUSANDS OF THE PRINCIPAL GARDENS.

SILVER MEDAL
Royal Horticultural Society.

HUNDREDS OF TESTIMONIALS.
The "Field" says—"**As good as anything that could be devised.**"
Illustrated Price Lists from—

Fig. 2.

H. PATTISSON & CO., 4, Greyhound Lane, STREATHAM, S.W.

Exterminated by "LIVERPOOL" VIRUS

RATs

without danger to other animals and without smell from dead bodies. In tins ready prepared with the bait. Virus for Rats, **2/6** and **6/-**; for Mice, **1/6.** Of all Chemists.

Write for particulars to

EVANS SONS LESCHER & WEBB, Ltd.,
57, G.C., Hanover Street, LIVERPOOL.

MARK SMITH, Ltd.,
LOUTH, LINCS.
"PERFECT"
WEED KILLER
STRONGEST, CHEAPEST & BEST.

ROCK AND ALPINE GARDENING.

A Practical and up-to-date Guide to the making of Rock, Alpine Wall, Water and Bog Gardens. Well illustrated. Second Edition by H. HEMSLEY, price **1/2** post free from

THE PUBLISHER,
"Gardeners' Chronicle" Offices, 41, Wellington St., Covent Garden, London, W.C.

By Appointment.

Largest Manufacturers in the World

Established over 60 Years.

THE BEST AND CHEAPEST

SPECIAL POTS for Chrysanthemums, Roses, Vines, Clematis, Orchids, &c.

FANCY FERN PANS and BULB BOWLS
from **2d.** each.

ANY QUANTITY SUPPLIED, LARGE OR SMALL.

State quantity of each size required and have *Carriage Paid* quotation, *or write for* Price List Free to—

RICHARD SANKEY & SON, Ltd.,
Bulwell Potteries, NOTTINGHAM.

METAL ROSE and FRUIT TREE LABELS.
1/- dozen, 10/6 gross.

The Best and Cheapest Metal Label on the market.

A Customer writes:
"After five years use they are as good as the day we had them."

Samples post free.

WHITINGTON & SON,
Tekmar Works, Newbury.

GARDEN & TENNIS NETS

(Best Tanned only, Small Mesh).

50×8 yds., 17/-; 25×8 yds., 50×4 yds., 100×2 yds., 8/- each; 100×1 yd., 50×2 yds., 25×4 yds., 4/- each. Any size to order.

TENNIS NETTING (Corded), 25 × 2 yds., 6/6; 25×3 yds., 7/6; 25×4 yds., 8/6 each.

Prompt Delivery. Write for Price List and Testimonials.

L. WREN & SON,
Net Merchants, 139, High Street, Lowestoft

SUPPLIED TO HIS MAJESTY'S GOVERNMENT

• • • VALLS • • •

BEETLECUTE

The Great Exterminator of Beetles, Cockroaches, Ants, Woodlice, Crickets, etc.

Beetlecute is superior to every other preparation as an exterminator of the above insects in Private Houses, Gardens, Hothouses, Propagating Frames, etc.

A powder eagerly devoured by these pests causing them to shrivel up and disappear.

Non-Injurious to Foliage, Fruit and Flowers. Harmless to Human Beings & Domestic Animals.

In Tins, 6d., 1s. and 2s. 6d.

Proprietors—
VALLS & CO., 20, Little Britain, London, E.C.

Handbook of Tropical Gardening and Planting.

By H. F. MACMILLAN, Curator of the Royal Botanic Gardens, Peradeniya, Ceylon.

A fine record of progress in tropical agriculture and horticulture, and testifies not only to the fertility of Ceylon, but also to the resource of the author. The home-keeping reader will find much that is of interest in its rich and varied contents.

Nearly 200 illustrations. Post free, **12/-**

THE PUBLISHER,
"Gardeners' Chronicle" Offices, 41, Wellington St., Covent Garden, London, W.C.

DARLINGTON'S HANDBOOKS.

"Nothing better could be wished for."—*British Weekly*
"Far superior to ordinary guides."—*Daily Chronicle.*

Edited by RALPH DARLINGTON, F.R.G.S.

Visitors to London (and Residents) should use

DARLINGTON'S

"Very emphatically tops them all"—*Daily Graphic.*

LONDON AND ENVIRONS.

"A brilliant book."—*The Times.*
"Particularly good."—*Academy.*

By E. C. COOK and E. T. COOK, M.A.

5th Edition, Revised, **6/-**

24 Maps and Plans, 60 Illustrations.

"The best handbook to London ever issued."—*Liverpool Daily Post.*

60 Illus., Maps & Plans, 5/- **NORTH WALES.**

100 Illus., Maps & Plans, 5/- **DEVON & CORNWALL.**

50 Illus. Maps, 2/6 **N. Devon & N. Cornwall.**

50 Illus., Maps, 2/6 **S. Devon & S. Cornwall.**

Visitors to Edinburgh, Brighton, Eastbourne, Hastings, St. Leonards, Worthing, Bournemouth, Exeter, Torquay, Paignton, Exmouth, Sidmouth, Teignmouth, Dawlish, Plymouth, Dartmouth, Dartmoor, Exmoor, Falmouth, The Lizard, Penzance, Land's End, Scilly Isles, St. Ives Newquay, Tintagel, Clovelly, Ilfracombe, Lynton, Minehead, Bideford, Wye Valley, Severn Valley, Bath, Weston-super-Mare, Malvern, Hereford, Worcester, Gloucester, Cheltenham, Llandrindod Wells, Brecon, Ross, Tintern, Llangollen, Bala, Corwen, Aberystwyth, Towyn, Barmouth, Dolgelly, Harlech, Criccieth, Pwllheli, Llandudno, Rhyl, Conway, Colwyn Bay, Penmaenmawr, Llanfairfechan, Bangor, Carnarvon, Beddgelert, Snowdon, Festiniog, Trefriw, Bettws-y-coed, Norwich, Yarmouth, Lowestoft, Norfolk Broads, Isle of Wight, and Channel Islands should use

DARLINGTON'S HANDBOOKS, 1/- each.

Llangollen: DARLINGTON & Co. London: SIMPKINS.
Paris & New York: BRENTANO'S.

The Railway Bookstalls and all Booksellers.

Roses. By GEMEN AND BOURG

One of the best books for amateur or professional rose-growers ever published. Contains many illustrations of designs for rose gardens and borders, quite new to English readers, together with cultural notes, and much other valuable information. Post free, **1/6.**

THE PUBLISHER,
"Gardeners' Chronicle" Offices, 41, Wellington St., Covent Garden, London, W.C.

The Gardeners' Chronicle

SCALE OF CHARGES FOR ADVERTISEMENTS.

Advertisements intended for insertion in the next issue MUST reach THE PUBLISHER not later than

WEDNESDAY, 5 p.m.

	£	s.	d.
Ordinary Positions ... ... per page	10	10	0
Facing matter and Back page ... ,, ,,	12	12	0

Half and quarter pages, column and half column spaces, pro rata.

	£	s.	d.
4 line space, about 20 words, single column ...		3	0
Per inch, single column		7	0
Per inch, across 2 columns		14	0
Per inch, across 3 columns	1	1	0

SERIES DISCOUNTS.

For three insertions, 5%; thirteen, 10%; twenty-six, 15%; fifty-two, 20%

Front page (no display allowed) **1/-** per line space.

SITUATIONS WANTED.

26 words, **1s. 6d.**, and **6d.** for every additional **8** words or fewer.

These Advertisements must be prepaid, **AND APPLY ONLY TO GARDENERS, &c., OUT OF EMPLOYMENT.**

Advertisers may have replies to their advertisements addressed to the "GARDENERS' CHRONICLE" Office. A Box Office fee of 6d. is charged for each advertisement, and replies are forwarded post free at the end of each day.

The boxes for answers to advertisements are provided for the use of advertisers only, and no matter will be forwarded which is not, in the opinion of the Publisher, a bona-fide or specific answer to an advertisement. The boxes are not to be used for the distribution of printed or written announcements, or for the benefit of competing businesses. All advertisements and replies are accepted subject to the above conditions.

SUBSCRIPTIONS:—

THE UNITED KINGDOM ... ... **15/-** per annum.
ABROAD ... ... **17/6** "

Cheques and P.O.'s to be made payable to "GARDENERS' CHRONICLE, LTD."

41, WELLINGTON STREET, COVENT GARDEN, LONDON, W.C.

Telegrams "GARDCHRON, LONDON."
Telephone: GERRARD 1543.

SITUATIONS VACANT.

Four Lines 3s. (Head-line counted as Two), 6d. for each succeeding line.

PRIVATE.

THE BERMONDSEY BOROUGH COUNCIL invites Applications for the position of ASSISTANT GARDENER; the person appointed must undergo a satisfactory medical examination, and will be required to live in the borough; applicants must be thoroughly qualified to act as Assistant Gardener, and must have been accustomed to Public Garden Work, with experience in cultivation of Trees, Shrubs, and Flowers; wages 30s. per week, rising by two annual increments of 2s. 6d. to 35s. per week; applications on forms to be obtained from the undersigned, accompanied by copies of two testimonials, endorsed "GARDENER," should reach me not later than 12 noon on Saturday, the 18th day of May, 1912.

FREDK. RYALL,
Town Clerk.

Town Hall, Spa Road.
11th May, 1912.

WANTED, GARDENER (HEAD WORKING), who has had experience as Head, Inside and Out; good testimonials necessary.—Apply, stating wages, &c., to COL. ARKWRIGHT, Hatfield Place, Witham.

WANTED, GARDENER; well up in all branches, age about 25, single preferred, for Lee Green district; permanent; wages to start £1 per week.—Write, 61, Croxted Road, Dulwich.

WANTED, GARDENER; good all-round man; Single-handed; help when necessary; must be active and willing; comfortable four-roomed lodge. — Full particulars to CHARLES THACKRAH, Elm Grange, Nether Street, Church End, Finchley, N.

WANTED, a capable, experienced GARDENER; would have one or two men under him; cottage provided; state age, experience, wages required, and whether married and children.—Apply by letter to J B., Box 2145, care of C. Mitchell & Co., Ltd., 1, Snow Hill, London, E.C.

WANTED, strong, active MAN for Pleasure Ground; good Scythe hand; take duty; Church of England; 18s. and Bothy.—SHOEBRIDGE, Nursery Gardens, Douglas, I. of M.

WANTED, MAN (single) for Pleasure Grounds; well up in Rockery and Herbaceous Plants; must be well recommended; wages £1 to start; no Bothy.—Apply to C. HOWES, 39, Court Street, Faversham, Kent.

WANTED, tall, strong, active MAN for Kitchen and Flower Garden; 17s. per week and Bothy; age 21.—State height, &c., to J. OWLES, The Heys Gardens, Eastham, Cheshire.

WANTED, quick, active Man as SECOND of five for Inside; not under 25; good knowledge of Carnations and Chrysanthemums; wages 23s.—Address, HEAD GARDENER, "Farrants," Bickley, Kent.

WANTED, GARDENER (SECOND, INSIDE); age about 25; abstainer preferred; well up in Carnations, Chrysanthemums, Vines, Peaches, &c.—Apply, with full particulars and wages required, with or without Bothy, to HEAD GARDENER, Kingswood Warren, Surrey.

WANTED, GARDENER (SECOND of three) for Inside and Out; must be willing to Milk when on Sunday duty; about 25 years of age; wages 22s. per week.—Apply, GARDENER, Grove Lodge, Muswell Hill, N.

WANTED, GARDENER (UNDER) who understands Kitchen Garden, Conservatories, and Pleasure Grounds; a really good chance for an ambitious young man who wants to learn under a clever Head Gardener; wages 20s. per week; no Bothy.—Apply, B., 124, Wood Street, Cheapside, E.C.

WANTED, FOREMAN (INSIDE); not under 25; must be well up in Orchids, Carnations, Plants and Fruit Growing, House Table Decorations; wages £1 per week, Bothy, &c.; also a Young Man for Lawn, Kitchen Garden; not under 22; wages 16s., Bothy; cricketers preferred.—Apply, E. GOLDING, Tyringham House Gardens, Newport Pagnell, Bucks.

WANTED, FOREMAN (INSIDE); must be energetic and experienced in Plants and Fruit; take turn duty; wages 21s. per week and Bothy.—Full particulars to J. GOULD, The Gardens, Grayshott Hall, Haslemere, Surrey.

WANTED, experienced FOREMAN (INSIDE and OUT); active; well recommended; Bothy; 19s.—Apply, HEAD GARDENER, Ynys-y-Maengwyn, Towyn, Merioneth.

WANTED.—Can any Gardener recommend a good, reliable FOREMAN, to take charge of Glass; age about 24; height not under 5 ft. 10 in.; wages £1 per week, Bothy, milk, and vegetables.—R. H. NUDDS, The Gardens, Ewhurst Park, Basingstoke.

WANTED, intelligent Man as JOURNEYMAN (Leading), and to adapt himself to Decorating; wages 18s., Bothy.—F. C. STAINSBY, Brocklesby Park, Lincolnshire.

WANTED, JOURNEYMAN (INSIDE); Fruit and Flowers; good experience; 16s. per week and lodgings; state age and full particulars.—J. SPILSBURY, Clowance Gardens, Praze, S.O., Cornwall.

WANTED, JOURNEYMAN under Foreman; good Inside experience, including Decorating; must be smart and active; 16s. per week, Bothy and vegetables; cricketer and abstainer preferred; state age, height, and full particulars.—C. PAXTON, Branches Park, Cowlinge, Suffolk.

WANTED, at once, JOURNEYMAN for about three months, to take charge of a range of Fruit Houses; 18s. per week, Bothy and vegetables.—Apply, GARDENER, Oakley Court, Windsor.

WANTED, JOURNEYMAN for Pleasure Grounds chiefly; about 23; duty every third week; 16s., Bothy, &c.; state full particulars.—W. PROWTING, The Gardens, Reigate Priory, Surrey.

WANTED, JOURNEYMAN (OUTSIDE) for Pleasure Grounds; nobleman's place, Staffs.; 18s., Bothy, &c.; immediate.—STEWART & CO., 13, South St. Andrew Street, Edinburgh.

WANTED, JOURNEYMAN for Plant Houses; good experience; wages 16s. to 18s. per week; no Bothy.—Apply, GARDENER, Duncote Hall, Towcester.

WANTED, a JOURNEYMAN for the Houses; wages 17s. per week, Bothy, vegetables; also strong Lad; wages 12s. per week and Bothy.—Apply to CHAS. MATTHEWS, Zeal's House Gardens, Wilts.

WANTED, YOUNG MAN for Flower and Kitchen Garden and help Inside when required; 14s. per week, Bothy, vegetables.—Write, stating experience, ALLEN, Revesby Abbey, Boston, Lincolnshire.

WANTED, YOUNG MAN for Flower Garden and Pleasure Grounds; must be thoroughly experienced in Herbaceous Perennials and Hardy Plants in general; wages £1 a week and Bothy.—Apply by letter only to W. GILL, Oakfield Gardens, Wimbledon.

WANTED, for Pleasure Grounds, a strong, active Young Man about 22; experienced in Herbaceous Borders, Pony Mower, Scythe work, &c.; 17s. per week with Bothy; take duty.—Particulars to GEO. MILLER, Mount Clare Gardens, Roehampton, S.W.

WANTED, strong, active YOUNG MAN, not under 22, for Kitchen Garden, with good references; wages £1 1s.; no Bothy.—Full particulars to T. KING, The Gardens, Gadsden, Hayes, Kent.

WANTED at once, strong, experienced Young Man for Kitchen Garden and Lawns; seven kept; 16s. per week with lodgings.—Apply, E. GRIFFIN, Dunsmore Gardens, near Rugby.

WANTED, strong, active YOUNG MAN, about 21, chiefly for Kitchen Garden; duty and fires every third week; wages 14s. per week, Bothy, &c.—State height and experience to F. TOWNSEND, The Gardens, Grove Park, Kingsbury, N.W.

WANTED, for General Garden work, strong, active Young Man, not under 19; 15s. per week; age and experience.—DOWN, Basing Park Gardens, Alton, Hants.

WANTED, smart YOUNG MAN; experienced; Cows, Pigs and Poultry, and assist in Garden; wages 14s., Bothy, &c.—C. BOWYER, Lillingstone Dayrell, Buckingham.

WANTED, strong, willing YOUTH for Inside and Out, with some experience; 9s. to commence with; Bothy.—SILCOCK, Hollycombe Gardens, Liphook.

WANTED, YOUTH to work in the Garden and make himself generally useful; good character indispensable.—H. ROSS, Linden House, Highgate Road, N.W.

WANTED, COWMAN to private gentleman and assist in Garden; good berth; wages 24s.—R. RAPKIN, Upper Butts, Brentford, near London.

WANTED.—Can any Gentleman recommend MAN to take charge of electric plant, Tangye oil engine, house, garden and estate work under Head Gardener; good rough Carpenter.—Apply, giving full particulars, wages required, to LADY M. H., Kneesworth Hall, Royston, Herts.

TRADE.

WANTED, GENERAL NURSERY FOREMAN, to take entire supervision of a large Outdoor Nursery; must thoroughly understand the growing of Forest Trees, Ornamental Trees, Roses, &c., in all their details, and be able to handle labour to the best advantage; only capable, energetic men need apply.—Full particulars, stating age, experience, and salary expected, with copies of any references, to "NORTH," Box 7, 41, Wellington Street, Covent Garden, W.C.

WANTED, trustworthy Man as LANDSCAPE FOREMAN; used to the management of men; state age, wages and references from recent employers.—E. J. BATCHELOR & SONS, Harlow Heath Nursery, Harrogate.

WANTED, GROWER, for Inside Department in Market Nursery in the North of England; steady, reliable, competent Man; well up in growing Plants, Tomatos, Roses, &c.—T. Y., Box 3, 41, Wellington Street, Covent Garden, W.C.

WANTED, GROWER; single; experience in Tomatos, Chrysanthemums, Bedding Stuff, Ferns, Cucumbers, Bulb Forcing; state age, wages, references.—DAVIES, Nurseries, Hoylake, Cheshire.

WANTED, for small Market Nursery in Monmouthshire, energetic Man as GROWER (Inside); must thoroughly understand his duties, and be able to take charge and sell if required; must have high references as to ability and trustworthiness; liberal terms to suitable man.—S. G., Box 24, 41, Wellington Street, Covent Garden, W.C.

WANTED, First-rate MAN for Market Garden, Fruit, Flower, Indoor and Outdoor work; thorough practical knowledge and experience of growing, grading, and marketing; and ability to instruct lads in all branches essential.—Full particulars, salary, age, training, and past employment, to M. W., Box 18, 41, Wellington Street, Covent Garden, W.C.

WANTED, Cucumber Growing, some quick, intelligent MEN; used to Market work; 24s. week and overtime; London.—Full particulars to Z. A., Box 3, 41, Wellington Street, Covent Garden, W.C.

WANTED, GRAPE THINNERS; good hands.—Apply, P. R. MORSE, Witham, Essex.

WANTED, active MAN for General Nursery work (Inside); state age, experience, and wages required.—ST. GEORGE'S NURSERY CO., Harlington, Middlesex.

WANTED, SEASON HAND; principally Cucumbers.—Apply, J. STRATTON & SON, Hengrove Nursery, Whitchurch, Bristol.

WANTED, YOUNG MAN for Fern Department; must have had previous experience.—Age, and wages required, CLIBRANS, Altrincham.

WANTED, two YOUNG MEN for Ferns and Soft-wood.—Apply, HOLDRUP, Hillingdon Heath Nurseries, near Uxbridge.

WANTED, YOUNG MAN, about 20, for Bedding Plants, Cucumbers, Tomatos, and Chrysanthemums; experienced Potting and Watering.—State wages, with references, to WM. COLE, 161, Mayall Road, Herne Hill, S.E.

WANTED, YOUNG MAN for general Nursery work and Chrysanthemums.—State age, wages required, and experience to FRANK LEES, Florist, Reading.

WANTED, smart YOUNG MAN; one with some experience of Furnishing, and willing to make himself generally useful.—FLORIST, 7, Wellington Street, Strand, W.C.

WANTED, two or three YOUNG MEN; well up in Tomatos and Chrysanthemums.—Apply, stating age and wages required, to E. CURRY, The Nurseries, Whitehall Lane, Chingford.

WANTED, YOUNG MAN for Market Nursery; quick at Tying; good wages and railway fare paid.—J. E. CHARLTON, Pabo Nursery, Conway, N. Wales.

WANTED, two Young Men as NURSERY ASSISTANTS, with some experience in Knife-work and Packing; wages 23s. to 26s., according to qualifications.—Give age, particulars of training, testimonials, &c., to STORRIE & STORRIE, Fruit Tree Specialists, Glencarse, Perthshire.

V. N. GAUNTLETT & CO., LTD., have a Vacancy for two Improvers; applicants must have had previous experience with Shrubs, Trees, and Hardy Plants; one required for Herbaceous Department.—Apply, with copies of references, age and height, to JAPANESE NURSERIES, Chiddingfold, Surrey.

WANTED, HEAD SHOPMAN; Fruit, Flowers, Seeds, Bulbs, Sundries, Nursery Stock; first-class Florist and Window Dresser essential; wages 30s.—Apply, giving three references, to S. J., Box 5, 41, Wellington Street, Covent Garden, W.C.

WANTED, smart JUNIOR SHOPMAN; Seeds, Bulbs, Sundries.—Apply, stating age, height, experience, wages, &c., ARTHUR ROWLES, Seedsman, Oxford.

WANTED, smart JUNIOR ASSISTANT; one who has been accustomed to a brisk counter trade; state age, experience, and wages required; also references.—JOHN PERKINS & SON, 52, Market Square, Northampton.

WANTED, YOUNG LADY ASSISTANT; Book-keeper, Typist, &c.; state experience, age and salary.—E. J. BATCHELOR & SONS, Harlow Heath Nursery, Harrogate.

SITUATIONS WANTED.

Twenty-six words for 1/6, & 6d. for each succeeding Eight words or less.

Gardeners desiring their Advertisements repeated *must give full particulars, otherwise no notice will be taken of their communications. Name and address alone are insufficient.*

Gardeners writing to Advertisers of Vacant Situations are recommended to send them **copies** *of testimonials only, retaining the originals. On no account should they enter into communication with unknown correspondents who require a fee beforehand.*

Advertisers are cautioned against having Letters addressed to Initials at Post-offices, as all Letters so addressed are opened by the Postal authorities and returned to the Sender.

PRIVATE.

Gardeners, Farm Bailiffs, Foresters, &c.

DICKSONS, Royal Nurseries, Chester, are always in a position to RECOMMEND MEN of the highest respectability and thoroughly practical at their business. All particulars on application.

CLIBRANS, Nurserymen to H.M. the King, Altrincham, can recommend thoroughly practical, well experienced Men, of high character, as GARDENERS (Head or Under), FORESTERS, &c. Correspondence invited.

GARDENER (Head); thorough knowledge gained in first-class establishments, including Bowood, Deepdene, and Sandbeck; been nearly four years Head; employer given up place cause of leaving; excellent references; age 30; married; abstainer.—H. BEST, Vyne, Basingstoke.

GARDENER (Head, where more are kept); 16 years' experience all branches; age 31; can be highly recommended to any Lady or Gentleman.—H. SMITH, Moor Hall, Cookham, Berks.

LADY highly recommends her GARDENER (Head, where several are kept); practical experience in all departments; age 36; married.—A. BENNETT, care of Lady Hickman Wightwick, Wolverhampton.

E. MARKHAM, Bishopsgate, Englefield Green, Surrey, for the past five years Head Gardener to Lady Marcus Beresford, seeks similar situation in a well-kept garden where a thoroughly experienced man in all branches is required; excellent credentials; age 34.

GARDENER.—Lieut.-Col. STANYFORTH will be pleased to recommend present Foreman as HEAD, where three or more are kept; life experience all branches.—Apply, W. WANDBY, Kirk Hammerton Hall, York.

CHARLES WALDSTEIN, Esq., of Newton Hall, Cambridge, highly recommends his GARDENER (Head); honest, sober and trustworthy; very efficient in dealing with Flowers and Vegetables; age 37; married, no children.

COLONEL McCALMONT, C.B., wishes to recommend the GARDENER (Head) of his mother (the late Mrs. Thos. McCalmont, of Highfield); first-class Gardener; 15 years excellent character; married, no young children.—Apply to T. MANKELOW, Gardener's Lodge, Highfield, Southampton.

GARDENER (Head) and ORCHID GROWER; age 32; life experience in first-class trade and private establishments; thoroughly qualified in all branches; excellent references; married when suited.—WOOD, 3, Victor Cottages, Lewes Road, Lindfield, Sussex.

GARDENER (Head or good Single-handed with help); 16 years' practical experience in different branches of gardening, both Inside and Out, gained in good places; age 29; single.—Apply, E. OGLE, 23, Approach Road, Victoria Park, London, N.E.

GARDENER (Head or good Single-handed with help); experienced Inside and Out; good references; age 46; single.—G. BURGESS, 17, Eversleigh Road, Lavender Hill, London, S.W.

GARDENER (Head, or good Single-handed); life experience in all branches; thoroughly understands Fruit, Flowers, Vines, Vegetables, House and Table Decoration; age 30; married, one child; abstainer; three years present place as Head.—MEAD, 75, Crown Street, Peterborough. (No circulars.)

GARDENER (Head or good Single-handed); life experience; age 34; married, one child (aged eight); two years' excellent reference and eight years previous.—BRIGHT, 41, Leslie Road, Dorking.

GARDENER (Head or thorough Second); life experience in all branches; six years last situation; age 29; married when suited.—W. WAITE, 121, Taunton Road, Lee, S.E.

GARDENER (Head Working); thoroughly experienced in all branches Inside and Out; highly recommended; married, no family.—T. ELLIS, Tinnivelli, Caterham Valley, Surrey.

GARDENER (Head Working); life experience in all branches; Land and Stock if required; disengaged; 8 months' and 12¼ years' good character; age 42; three children, youngest nine years.—F. COLES, 5, Chestnut Road, Twickenham.

GARDENER (Head Working); life experience in good establishments; seven years present and eight years at Worsley Old Hall, Manchester, as Head; good testimonials; married, no family; wife good cook.—JAMES BURROWS, Box, Minchinhampton, Gloucestershire.

GENTLEMAN highly recommends GARDENER (Head Working, where three or more are kept); thoroughly trustworthy and experienced man; age 35; married, four children; 5½ years present situation; disengaged when suited.—D. H. D., Box 10, 41, Wellington Street, Covent Garden, W.C.

GARDENER (Head Working where two or more are kept); 15 years' experience in all branches Inside and Out; age 29; highly recommended.—P. PARELEY, Stone Lodge, Harrow Weald Park, Harrow Weald, Middlesex.

GARDENER (Head Working, where three or four are kept); life experience Orchids, Stoves, Vines, Cucumbers, Flower and Kitchen Garden, Land and Stock; leaving through place being let; age 40; married, no family.—DOWNHAM, Queensmere Road, Wimbledon Park.

GARDENER (Head Working); life experience in good establishments; excellent references; take charge of electric light if required; age 36; married, no family; abstainer.—J. B., Box 13, 41, Wellington Street, Covent Garden, W.C.

GARDENER (Head Working) seeks Situation in private place, where whole or surplus crops are marketed; 12 years' good private experience; four years' trade.—P., Box 15, 41, Wellington Street, Covent Garden, W.C.

GARDENER (Head Working).—Mr. H. G. BULL, Breakspears, highly recommends C. Harbert as above; well versed in Cultivation of Flowers, Fruit, and Vegetables; practical experience; age 30.—Breakspears Gardens, Uxbridge, Middlesex.

GARDENER (Head Working of two); life experience, Inside and Out; 10½ years in present place; leaving through employer going abroad; highly recommended; age 39; married, one child, age 13.—CHILD, Weston-by-Welland, Market Harborough.

LADY highly recommends her late GARDENER (Head Working, where three or more are kept); Scotch; life experience Inside and Out, including Orchids; 20 years as Head in good establishments; three years here; married, no family; leaving through estate being sold.—R. BEGG, Redenham Park, near Andover, Hants.

GARDENER (Head Working) seeks Situation where one or two others are kept; experienced Inside and Out; good references; age 28; single.—FORSTER, 15, Castledine Road, Anerley.

GARDENER (Head Working, where more are kept); 25 years practical experience in all branches, Inside and Out; Orchids, Vines, Peaches, Cucumbers, Melons, Stove and Greenhouse Plants and Herbaceous Borders; thoroughly reliable; highly recommended; married, without encumbrance.—F. WOODHOUSE, Hadlow Down, Buxted, Sussex.

GARDENER (Head Working, where two or more are kept); life experience Inside and Out; Fruit, Flowers, Vegetables, Vines, &c.; married, no family.—BLAGBURN, Sherwood Farm, Mitcham.

F. C. STAINSBY, Head Gardener, Brocklesby Park, Lincolnshire, recommends very excellent man as GARDENER (Head Working); 15 years' all-round experience; age 29; married; at liberty any time.

GARDENER (Head Working); life experience in all branches, Inside and Out; can manage electric installation; age 34; married, no family; abstainer.—W. BERRETT, 48, Southwood Lane, Highgate, N.

GARDENER (Head Working).—W. ROWSON, Falkland Park Gardens, South Norwood Hill, recommends his FOREMAN (Fruit and Kitchen Garden), H. Emmerson, as above; previously 5½ years Foreman (Inside); age 31.

GARDENER (Head Working where several are kept); life experience Inside and Out; married; disengaged when suited.—WILLIAM WARREN, 37, Albion Terrace, Albion Road, Hounslow, Middlesex.

GARDENER (Head Working); 18 years excellent reference from last place; thoroughly experienced in all branches Inside and Out.—A. BOOKER, 39, Shirlock Road, Hampstead.

GARDENER (Head Working); life experience Inside and Out; Fruit, Flowers, Vegetables; two years present place; 11 years previous good reference; age 40.—LAKER, Cricket View, Horley, Surrey.

GARDENER (Head Working); age 40; thorough knowledge of Orchids; 8½ years last situation; left through death.—H. CHUMBLEY, 6, Harcourt Terrace, Downs Road, Enfield.

GARDENER (Head Working) requires Situation where three or more are kept; life experience in all branches; age 30; married, no family.—A. E. MOSS, Westlington, Dinton, Aylesbury.

GARDENER (Head Working, where two or three are kept); life experience in all branches; can manage electric installation; good references; age 38; married.—STEPHENS, Lisvane, Cardiff.

DOWAGER LADY ST. OSWALD highly recommends G. Payne as GARDENER (Head Working); age 40; strong; married, one child; understands Stove and Greenhouse Plants, and Kitchen and Flower Gardens; hard-working and excellent character.—Address, G. PAYNE, 66, North Road, Sleaford, Lincolnshire.

GARDENER (Head Working or good Single-handed); 19 years' excellent references; age 38; married, one child; disengaged.—W. ELLIS, 27, Spa Hill, Upper Norwood.

SITUATION required as LEAD on Pleasure Grounds and Kitchen Garden; used to Horse Mowers; good knowledge of Shrubs, Roses, Herbaceous Borders; 12 years' experience; age 26; single; abstainer.—W. GROVE, Swinley Park, Ascot.

MR. PETTIT, Lamport Hall Gardens, wishes to recommend E. Woodfield for Kitchen Garden and Pleasure Grounds; age 28; married; two years' reference; seven previous; leaving through no fault.—E. WOODFIELD, Lamport Hall Gardens, Northampton.

GARDENER can highly recommend Victor Page, age 19, for Kitchen or Pleasure Grounds; 4½ years present situation.—Wisteria Cottage, Cookham Dean, Berks.

GARDENER and WIFE (as LAUNDRESS); both experienced; age 35 and no family; well recommended.—W. BROOKS, Alveley, Bridgnorth, Shropshire.

SWEET PEA SPECIALIST, with general knowledge of Gardening, seeks Engagement, either private or commercial.—D. S., Box 3, 41, Wellington Street, Covent Garden, W.C.

GARDENER (good Single-handed or with help); life experience Inside and Out; good references; two years present place; age 36; married, one child.—W. LUFF, Elm Grange Lodge, Church End, Finchley.

GARDENER (good Single-handed) seeks Situation; good all-round experience; married, no family; home county preferred.—J. POVEY, The Gardens, Brock Hill Cottage, Bracknell.

GARDENER (Single-handed or with help); experienced in all branches; age 39; married, no family; good references.—GARDENER, Sandon Cottage, Sandon, Chelmsford. (No circulars.)

GARDENER (Single-handed or with help given); 10 years' practical experience Inside and Out; age 25; single.—T. ELLIS, Rose View, Betley, Staffs.

GARDENER (Single-handed); highly recommended; practical experience in Kitchen Garden and Pleasure Grounds; strong and active; age 27; single.—M. K., Box 6, 41, Wellington Street, Covent Garden, W.C.

GARDENER (Single-handed); experienced in Flowers, Fruit, Vegetables; three years' good character; age 35; married when suited.—W. CONLING, 2, Newland Villas, Salcombe Road, Newbury.

GARDENER (Single-handed or where two are kept); eight years' experience in Flowers, Vegetables, and Pleasure Grounds; five years last place; good testimonials; age 22; abstainer.—GEORGE DUFFELL, 2, Orchard Road, Dorking.

GARDENER (Single-handed or with help); life experience Inside and Out; highly recommended; age 27; abstainer; married when suited.—H. JOHNSON, Arkley Copse, Arkley, High Barnet.

GARDENER (Second or Single-handed); Herbaceous Borders, &c.; age 27; 11 years' experience.—A. FLITTON, 34, Tucker Street, Watford, Herts.

GARDENER (Second, Inside and Out); three years present place, five previous; age 23; leaving through place let.—G. MANNING, 114, Brookwood Road, Southfields, S.W.

GARDENER (Second); 13 years' practical experience Inside and Out; good references; age 27; height 5 ft. 11 in.—E. SLOSS, 1, Bourne Cottages, Gander Green Lane, Cheam, Surrey.

GARDENER (Second) seeks Situation; well up in Plant and Fruit Growing, Stove and Greenhouse; age 27; single; disengaged.—MARSHALL, The Lodge, Great Finborough, near Stowmarket, Suffolk.

MR. R. LEWIS would be pleased to recommend J. Symons as SECOND (Inside and Out); three years present place; age 28; single.—The Gardens, Bystock, Exmouth.

MR. KEMP, Hazel Hall Gardens, Peaslake, Guildford, wishes to highly recommend R. Beesley as SECOND (Inside and Out); age 26; two years here as Second.

GARDENER (Under) seeks Situation; LEADING HAND in Kitchen Garden or Single-handed place; good experience; well recommended; age 27.—O. DYER, Ettington, near Stratford-on-Avon.

GARDENER (Under, Inside); age 19; three years' experience; good references; Bothy preferred.—W. ALDERMAN, 1, Middle Road, Roxeth, Harrow-on-the-Hill, Middlesex.

GARDENER (Under) seeks Situation Inside or Out; able to take duty; good character; South preferred.—J. ELLIS, Woodside Villa, Laughton, Shortgate, Sussex. (No circulars.)

GARDENER (Under) seeks a Situation as IMPROVER (Inside and Out); six years' excellent reference; age 19 years.—ERNEST PULLEN, Higham-on-the-Hill, near Nuneaton.

GARDENER or MARRIED FOREMAN.—Mr. GILES, Head Gardener to F. D. Godman, Esq., South Lodge, Horsham, will be pleased to recommend Young Man as above; age 29; life experience all branches; first-class gardens, including Tring Park; thoroughly recommended.—Apply, BOVINGTON, as above.

FOREMAN (Working) or GARDENER (Head); highest references.—T. ROGERS (formerly of Whittlesea), St Gerard, Majellas Terrace, Ballin Temple, Cork.

EXHIBITION SUPPLEMENT.

THE GARDENERS' CHRONICLE

ESTABLISHED 1841

No. 3726

No. 1,326.—Vol. LI. {THIRD SERIES.} SATURDAY, MAY 25, 1912. {Registered as a Newspaper. WITH SUPPLEMENT.} {PRICE 3d. POST-FREE, 3½d.

SUBSCRIPTION—Inland, 15/-; Foreign, 17/6 [22fr. 10c.] [$4 26c.] per annum. Entered at the New York Post Office as second-class matter.

Postal Address—41, Wellington Street, Covent Garden, W.C. Telegraphic Address—"Gardchron, London." Telephone—Gerrard, 1543.

☞ **For CONTENTS see page 347.**

WEBBS' WALLFLOWERS.
The finest strains in existence.
WEBBS' Canary Bird (golden-yellow).
WEBBS' Ruby Gem (ruby-violet).
WEBBS' Vulcan (deep velvety crimson).
WEBBS' Eastern Queen (salmon shaded).
WEBBS' Universal (single mixed).
WEBBS' Double (mixed; very fine).
Each, 1s. per packet, post free.
WEBBS' Kinver Favourite (blood-red).
WEBBS' Primrose Dame (primrose).
WEBBS' Belvoir Castle (yellow).
Each, 6d. per packet, post free.

WEBB & SONS, The King's Seedsmen, WORDSLEY, STOURBRIDGE.

THE Popularity of "XL ALL" Specialities increases every year. All gardeners proclaim that nothing equals these celebrated preparations. "XL ALL" NICOTINE VAPORISING COMPOUND, the gardeners' favourite Fumigant, both Liquid and Cake. "XL ALL" NICOTINE INSECTICIDE WASH for Syringing, Dipping and Dressing Fruit Trees and Plants; Mealy Bug, Scale, etc., cannot exist where this is used. "XL ALL" INSECTICIDE WASH B (*sine* Nicotine), best non-poisonous Wash on the Market. No licence required to sell this. Other preparations of great renown are:—"XL ALL" WEED KILLER, "XL ALL" FERTILISER, "XL ALL" ROSE MANURE. Richards' GREEN SUNSHADE, finest powder shading on the market, 1s. packet, does 100 feet of glass. Don't forget to ask your Nurseryman or Seedsman for my small pink list.—G. H. RICHARDS, Manufacturer, 234, Borough High Street, London, S.E.

WM. DUNCAN TUCKER & SONS, Ltd., 27, Cannon Street, London, E.C.; Works, Tottenham. Conservatories, Winter Gardens, Vineries, Peach-houses, Portable Buildings, etc. Catalogue gratis.

FRUITING VINES IN POTS.—Muscat of Alexandria, and leading Market varieties. We make Vines a speciality.
G. COLEMAN, The Vineries, Burgess Hill, Sussex.

IRON & WIRE FENCING for GARDENS, Tree Guards, Gates, Arches, Espaliers, Rose Stakes, and Ornamental Garden Iron and Wire Work of every description. Send for Illustrated Catalogue, free.
BOULTON & PAUL, Ltd., Manufacturers, Norwich.

ALPINES & HERBACEOUS PLANTS, —Himalayan and other rare Rhododendrons, rare Shrubs, Construction of Rockeries. Catalogues ready.
G. REUTHE, Keston, Kent.

Roses and Herbaceous Plants.
GUNN & SONS were awarded the 25 Guinea Challenge Cup in each collection at the Leamington Show. Up-to-date List for each now ready. Address: Olton, Warwickshire.

WALTERS & CO., Morland Rd., Croydon, Makers of Lath Roller Greenhouse Blinds; Pinoleums, Scrim, Tiffany; also Garden Trellis, Arches, Rose Trainers, of best designs. New Catalogue 1912, free.

CHOICEST WALLFLOWERS.—Dicksons selected Dark Blood Red, Dicksons Golden Beauty, Primrose Dame, Eastern Queen, Ruby Gem, Golden Monarch, Vulcan, and Harbinger—all distinct and beautiful varieties, per packet 6d. and 1s., post free.
DICKSONS, Royal Seed Warehouses, Chester.

GREENHOUSE PAINTING & GLAZING "Vitrolite" superior to White Lead Paint, 9/- per gall. "Plastine" supersedes Putty, 16/- per cwt. Full particulars from W. CARSON & SONS, Grove Works, Battersea. Agents throughout the country.

SUTTON'S FIRE KING WALLFLOWER Vivid orange, a new and beautiful colour in this favourite spring flower.
Per packet, 1s. 6d.

W. G. BURSTOW, Esq., Curator, Wallasey U.D. Council, writes:—"Your Fire King Wallflower is a great success here. It has been eulogised by our local press, and rightly described as a new departure. We grow over 4,000 of all the leading varieties.

Post free.

SUTTON & SONS, The King's Seedsmen, READING.

GARDEN PESTS.—Cross's "Clubicide" is the Gardeners' Insurance against damage by Eelworm, Wireworm, Slugs, Maggot, and all Disease Germs and Insect Pests. Kills all harmful Bacteria, reinvigorates the soil, stimulates plant life. In 1s. flasks and ½-gall. and 1 gall. drums. From all Seedsmen.
Sole Manufrs.: A. CROSS & SONS, Ltd., Glasgow.

Sow Now.
BATH'S EMPRESS PANSIES, as grown for the Royal Gardens at Frogmore. The richest and largest-flowered strain of Pansies extant. Per packet, 2s. 6d. and 1s. 6d., post free for cash.
(Dept. A), R. H. BATH, Ltd., The Floral Farms, Wisbech.

COOPS, COOPS, for the season. The Keeper's Coop. Best on the market, 5s. 6d. each; 60s. per dozen, carriage paid. Runs, 2s. 6d. each extra. Send for list, showing numerous other designs.
BOULTON & PAUL, Ltd., Rose Lane Works, Norwich.

GISHURST COMPOUND is harmless in use; its soluble Sulphur, &c., has for 40 years cured Blights and Fungus on Plants, and is good for washing unhealthy dogs. Gishurstine keeps boots dry in all weathers; they will polish. Good for Harness.
Wholesale from—
PRICE'S PATENT CANDLE CO. LTD., London.

BARR'S SEEDS FOR MAY AND JUNE SOWING.—Finest strains of Antirrhinums, Aquilegias, Campanulas, Canterbury Bells, Calceolarias, Cinerarias, Delphiniums, Hollyhocks, Lupins, Pansies, Primulas, Stocks, Wallflowers, etc. Special list post free.
BARR & SONS, 11, 12 & 13, King St., Covent Garden, London.

SELECT YOUR ALPINES IN FLOWER. —A large collection, in pots, also Aquatics for present planting. Visitors cordially welcomed.—THE GUILDFORD HARDY PLANT NURSERY, Guildford.

BUNYARD'S CATALOGUES, free on application.
BORDER CARNATIONS, 50 varieties.
ROSES AND OTHER CLIMBERS, in Pots.
HERBACEOUS AND AQUATIC PLANTS for present planting.

GEORGE BUNYARD & CO., LTD., Royal Nurseries, Maidstone. Established 1796.

HARRISON'S "RELIABLE" WEED KILLER.—Best and cheapest. See p. xv. this issue.

AUTO SHREDS FUMIGANT kills Leaf-mining maggot, insects in greenhouses, frames. For 1,000 cubic feet, 6d.; 10,000, 3s. 6d. No apparatus.
WM. DARLINGTON & SONS, Patentees, Hackney, N.E.

LAXTON'S STRAWBERRIES. — New Catalogue now ready, with particulars of three fine improvements for 1912, including the new "Queen," a gem of the first water, a glorified British Queen. Full particulars on application.
LAXTON BROTHERS, Bedford.

For Advertisement Charges see page xvi.

Now is the time to plant
KELWAY'S GAILLARDIAS, which are among the most brilliant and the most easily grown of the hardy herbaceous perennials; they give abundant bloom in the same year that they are planted, and blossom profusely from June to November. The flowers are on long stems, and last in water for a fortnight. Choice named collections, 12s. a dozen. From pots. Carriage and packing free for remittance with order.—KELWAY & SON, The Royal Horticulturists, Langport, Somerset.

Now is the time to plant
KELWAY'S NEWEST GLADIOLI. These new Gladioli are a revelation. They should be planted by all who want glowing effect of colour in their beds and borders, and flowers for the house in July, August and September. We recommend trial of a selection of our "Cream of the World" collection of named varieties, flowering bulbs, for instance, one dozen for 9s.; per 100, £3 10s. Other choice collections, 30s. and 45s. per 100. Full descriptive list on application. Carriage free for remittance with order.—KELWAY & SON, The Royal Horticulturists, Langport, Somerset.

THE MODERN HERBACEOUS BORDER.—Full particulars and prices of Kelway Borders packed, arranged for planting, to flower in tasteful schemes of colour, from—KELWAY & SON, The Royal Horticulturists, Langport, Somerset. From ——, Esq., ——, Exmouth. "I have safely received the plants, which, owing to your excellent packing, arrived in perfect condition. For your exceptionally generous treatment in the matter of the Pyrethrums and Gaillardias, please accept the thanks of . . . . . ."

OSMUNDA for Orchids.—Consignments arrive fortnightly. 2s. 6d. per bushel; per bag, 8s. 6d.
SANDER & SONS, St. Albans.

LISSADELL ALPINE & HERBACEOUS PLANTS.—Write for our new illustrated and enlarged List, containing many beautiful novelties at moderate prices. Also List of Seeds collected from above in 1911.
J. A. COOPER, Lissadell (No. 2), Sligo, Ireland.

New Phloxes.
GUNN & SONS were Awarded a Silver Cup at the Great Show at Olympia. New Lists now ready. Address: Olton, Warwickshire.

BEGONIA GLOIRE DE LORRAINE, old variety, also Rothschild var. and Turnford Hall, well-rooted young plants, 2s. 6d. doz., 50 for 6s., 10s. 6d. per 100; The King, 3s. 6d. doz., 50 for 12s.; carriage paid for cash.—H. DUDDERIDGE, The Dorset Nurseries, Blandford.

CUTHBERT'S SPECIALITE MUSHROOM SPAWN.—NEW SPAWN NOW READY. We continue to receive the most gratifying testimonials as to the productiveness and good quality of our Spawn. Per bushel, 5s.—R. AND G. CUTHBERT, Seed and Bulb Merchants, Southgate, Middlesex.

MARGUERITES (Coronation); best for bedding, in 60's, 2s. 6d. doz., in 54's, 4s. 6d. doz.; Queen Alexandra, in 54's, 6s. doz.; Etoile d'Or (yellow), in 54's, 6s. doz.; Mrs. Sander, in flower, in 48's, 9s. per doz.—WALSHAW & SON, Scarborough.

ECHEVERIA, for Bedding, 5s. per 100; packed free for cash.—J. GREEN, Reliance Nurseries, March.

NEW GERANIUM, Salmon Paul Crampel, 1s. 6d. each, 15s. per dozen; unrivalled for showy bedding.—KELLAWAY & CO., St. John's Nursery, Blackheath.

SALES BY AUCTION.

International Horticultural Exhibition, 1912.

MESSRS.

PROTHEROE & MORRIS

beg to announce that they will be holding a very important series of

Special Sales of Orchids

DURING THE ENSUING WEEK, short particulars of which are given below. All these Sales will take place at the

CENTRAL AUCTION ROOMS,

67 & 68, Cheapside, London, E.C.,

upon the dates named, commencing at **ONE** o'clock each day. The Auctioneers will be pleased to forward Catalogues of these Sales, post free, upon application.

Tuesday next, May 28th.—By order of the executors of the late N. C. Cookson, Esq., Oakwood, Wylam-on-Tyne. A selection of choice Orchids from this celebrated collection, including many fine Odontoglossums, rare Cypripediums, Cattleyas, etc., together with a number of valuable plants from the well-known collection of M. Jules Hye de Crom, of Vinderhaute-lez-Gand.

Wednesday next, May 29th.—By order of Messrs. Sander & Sons, of St. Albans. Important sale of a choice selection of rare and valuable plants from these renowned growers, including examples of the finest Cattleyas, Lælio-Cattleyas, Cypripediums and Odontoglossums. All being in a fine healthy condition.

Thursday next, May 30th.—By order of R. Brooman White, Esq., Arddarroch, Garelochhead, being the sale of the first portion of this famous collection, including a number of the choicest forms of Odontoglossum crispum, a large quantity of hybrid Odontoglossums of finest parentage, etc., etc.

Friday next, May 31st.—By order of R. G. Thwaites, Esq., of Chessington, Streatham, 150 lots of choicest hybrids, including Odontiodas, Cattleyas, Lælio and Sophro-Cattleyas, in vigorous health, from this renowned collection, which has specialised in the raising of the very finest seedlings.

By order of Wm. Thom, Junr., Esq., of Athol House, Blackburn, 100 lots of choice Cypripediums from this well-known collection. Together with many other rare and valuable plants from various sources.

Auction Rooms and Estate Offices—

67 & 68, Cheapside, London, E.C.

Telephone—Bank 867 (2 lines).
Telegrams—"Promptuary, London."

Wednesday next, May 29th, at 1.30 o'Clock.

Japanese Liliums, Begonias, Gloxinias, Lily of Valley, Iris, Carnations, &c., Liliums Nepalense and Sulphureum; Hyacinthus candicans, double white French Ranunculus, Gladiolus, hybrids of Childsii, Gandavensis, Meadowvale, and America Bedding Begonia Worthiana, Tropæolum tuberosum, Watsonia Ardernei, Davallia bullata balls and designs.

At 3.30 o'Clock,

100 lots of Ornamental and Decorative Palms and Plants, Dracænas, Standard Bays, &c., from Belgium, Stove and Greenhouse and Bedding Plants.

MESSRS. PROTHEROE & MORRIS will SELL the above by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C. On view morning of Sale and Catalogues had.

Enfield Highway, Middlesex.

AT LOW RESERVES.

The compact FREEHOLD PROPERTY, DURANTS ARBOUR NURSERIES, with 42 greenhouses, about 5,200 feet run of glass, fitted with hot-water piping heated by 10 boilers. Engine, pumps, 2 aermotors, reservoir, stabling, 4-roomed bungalow. Part of land planted with fruit trees, 15 greenhouses planted with vines. Area about 8¼ acres. To be sold as a going concern with possession.

MESSRS. PROTHEROE & MORRIS will offer the above by AUCTION at the Mart, Tokenhouse Yard, London, E.C., on FRIDAY, 14th June, at two o'clock. Particulars of H. B. Wedlake, Esq., Solicitor, London and South Western Bank Chambers, Finsbury Park, N., and of the Auctioneers, 67 and 68, Cheapside, E.C.

BUSINESSES FOR SALE, &c.

MESSRS. PROTHEROE & MORRIS Horticultural Auctioneers, 67 and 68, Cheapside, London, E.C., will be pleased to forward particulars of either of the following properties:—

By order of the Executors of Thomas Childs, deceased.

The well-known MARKET NURSERIES AT NEW ELTHAM. To be sold as a whole or in two lots, as follows:—

Lot 1.—Freehold Nursery, area about 5 acres, with 41 greenhouses, in all 3,954 feet run of glass, with heating apparatus, range of buildings and sheds. Important frontages of over 1,000 feet.

Lot 2.—Freehold Nursery. Area 2¼ acres, with 21 greenhouses, in all 2,931 feet run of glass, with heating apparatus and useful trade buildings.

Stock by arrangement. The late Mr. Child was well known as a market grower, and the opportunity is thus afforded of acquiring well-equipped properties as going concerns with the advantage of early possession.

MIDDLESEX.—Capital FREEHOLD NURSERY, total area 4½ acres; nine greenhouses and buildings; price £1,500 or would be divided into three lots.

STAFFORDSHIRE.—Important ORCHID NURSERY to be LET or SOLD; area 1¼ acres; 12 Orchid houses; two dwelling houses and outbuildings; widespread trade in cut bloom; stock of nearly 20,000 plants.

MUST BE SOLD. — FREEHOLD NURSERY on main G.E.R.; 12 miles from Southend; 550 ft. run of glass in capital condition and three acres of land; water supply from mains; price £500.

IN a popular residential town in Berkshire, old-established NURSERY and FLORIST'S BUSINESS; 12 greenhouses, total area 7¼ acres; commodious shop on main road and eight-roomed dwelling-house; good trade done; moderate rent; price £1,150.

FOR SALE, a well-equipped NURSERY and FLORIST BUSINESS, situated in a busy neighbourhood, within easy reach of the London markets; good local trade; established 30 years; dwelling house on the nursery; price, including valuable lease, growing crops, outbuildings, 10 glasshouses, frames, lights, &c., and goodwill, £1,500; exceptional opportunity for a person wishing to secure a pleasant ready-money business.—For particulars, write to ESSEX, Box 22, 41, Wellington Street, Covent Garden, W.C.

NURSERY FOR SALE; 1 acre, 300 feet glass; orchard; good cash connection; close to rail; villa residence; retiring.—F. CROOK, Botley Nursery, Hants.

FOR SALE, Freehold, THE NURSERIES, Clacton-on-Sea, about 400 feet of glass-houses, heated and well stocked; fine dwelling-house in main road; best position in town; adjoining two new developing estates; 19 years same hands; price low; nearly three-fourths can remain.—SPENCER, Nurseryman, Clacton-on-Sea.

FOR SALE, as going concern, old-established NURSERYMAN'S and FLORIST'S BUSINESS; 16 greenhouses; shop main road; largest Nursery ground inside Bristol City.—C. O., Box 2, 41, Wellington Street, Covent Garden, W.C.

W. A. GARAWAY, Deceased.

FOR SALE,

the old-established BUSINESS of

JAMES GARAWAY & CO.

NURSERY 35 acres at Keynsham;

SEED, BULB & FLOWER BUSINESS at Clifton, Bristol.

Immediate possession at valuation.

Apply, F. J. TARR & SONS, Solicitors, Bristol; or JAMES GARAWAY & CO., Nurserymen, Bristol.

PROPERTY FOR SALE.

FOR SALE, 2½ acres of land, south aspect, suitable for small nursery; 15 minutes from main line station, 12 miles from Brighton.—Apply, E. J. KENT, Builder, Haywards Heath.

BUSINESSES TO LET.

UNIQUE Opportunity for Beginner.—NURSERY TO LET. About 500 ft. run glass, good dwelling-house, bungalow, stables, pigsties, about five acres in all of good arable land. Possession in September; arrangements can be made for freehold. Every facility will be given to intending purchaser to prepare his own stock. Incoming by valuation, which will be very low. Near good market. Rent £60.—H. A., Box 1, 41, Wellington Street, Covent Garden, W.C.

BUSINESSES WANTED.

WANTED, NURSERY JOBBING BUSINESS.—Full particulars to A. EDWARD, 39, Shirlock Road, Hampstead.

PARTNERSHIPS.

WANTED, experienced GARDENER with capital, £80 to £100, to mate with Advertiser in a good going Nursery; plenty of glass.—SOUTH, Box 12, 41, Wellington Street, Covent Garden, W.C.

GENTLEMAN, with 20 years' practical experience in nursery trade, wishes to take over Management with view of Partnership; excellent references.—D., Box 10, 41, Wellington Street, Covent Garden, W.C.

PUBLISHERS' NOTICES.

Present-Day Gardening.

Edited by R. HOOPER PEARSON, Managing Editor of the GARDENERS' CHRONICLE. Now Ready. Post free, **1/9** each.

Numerous Beautifully Coloured Plates are contained in Each Volume.

1—**SWEET PEAS.** By HORACE J. WRIGHT, late Secretary and Chairman of the National Sweet Pea Society. With Chapter on "Sweet Peas for Exhibition," by THOS. STEVENSON.

2.—**PANSIES, VIOLAS, AND VIOLETS.** By WILLIAM CUTHBERTSON, J.P., and R. HOOPER PEARSON.

3.—**DAFFODILS.** By the Rev. J. JACOB.

4.—**ORCHIDS.** By JAMES O'BRIEN, V.M.H., Secretary of the Orchid Committee of the Royal Horticultural Society.

5.—**ROOT & STEM VEGETABLES.** By ALEXANDER DEAN, V.M.H., Chairman of the National Vegetable Society.

6.—**CARNATIONS & PINKS.** By T. H. COOK, Head Gardener at Sandringham; JAMES DOUGLAS, V.M.H., and J. F. McLEOD, Head Gardener to Mr. Pierpont Morgan. Contains 8 full-page coloured plates.

7.—**RHODODENDRONS & AZALEAS.** By W. WATSON, with preface by Sir F. W. MOORE, M.A. (the first popular volume published on this subject). Contains 8 full-page coloured plates.

8.—**LILIES.** By A. GROVE, F.L.S., with preface by H. J. ELWES, F.R.S. Contains 8 coloured plates.

9.—**APPLES & PEARS.** By GEORGE BUNYARD, V.M.H. Contains 8 coloured plates.

10.—**ROSES.** By H. R. DARLINGTON, with 8 full-page coloured plates. A double volume, price **2/10**, post free. Special presentation edition, with beautiful cover design, in cloth gilt, gilt top, price **3/10**, post free.

11.—**IRISES.** By W. R. DYKES, M.A., with preface by PROF. BAYLEY BALFOUR. 8 full-page coloured plates.

12.—**ANNUALS, HARDY AND HALF-HARDY.** By C. H. CURTIS, with 8 coloured plates. **1/9.**

THE PUBLISHER,

"Gardeners' Chronicle" Offices, 41, Wellington St., Covent Garden, London, W.C.

NOTICES.

THE RHODODENDRONS planted in Rotten Row, Hyde Park, are supplied by ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey. Kindly note Christian name and address.

EXHIBITIONS.

HANLEY PARK, STAFFORDSHIRE

JULY 3rd & 4th, 1912.

SIXTEENTH GREAT

Annual Floral Fete

£500 IN PRIZES.

SILVER CUPS, GOLD AND SILVER MEDALS.

SILVER CHALLENGE CUP, VALUE £10 10s.

offered for "Trade Exhibit" (for particulars, see page 7 in Schedule).

Valuable Special Prizes offered by the principal firms in England.

Schedules post free on application to WM. POULSON, Secretary, Town Hall, Hanley.

THE
Gardeners' Chronicle
No. 1,326.—SATURDAY, May 25, 1912.

CONTENTS.

Androsace Henryi ...	354	Orchids, a sale of ...	356
Carson, Mr. D.	353	Orchids in 1866 and 1912	348
Chelsea Hospital, history of	353	Parks, the cost of London's	353
Clianthus Dampieri ...	356	Pear midge, the... ...	356
Cox, Mr. Tom	353	Plants, new or noteworthy—	
"Finger and toe," the treatment of	354	Cotyledon racemosa...	348
Garden stuff, the use of, 200 years ago	356	Rock gardens, development in	355
Horticultural produce, the importation of, in U.S.A.	354	Royal International Horticultural Exhibition, 352, 357 and Supplementary pages.	
Horticulturists, the training of	353	Schizocodon soldanelloides	348
Insect stings, a remedy for	353	Seeds and plants imported into America...	354
International Horticultural Exhibition, 1866, reminiscences of the...	347	Sunflower, the red ...	353
Lewisia Howellii ...	349	Tasmanian fruit-growing industry, the ...	353
Nepenthes, a new species of...	353	Week's work, the—	
Obituary—		Flower garden, the ...	350
Burton, F. M.... ...	358	Fruits under glass ...	350
Farquharson, Mrs. Marian Sarah ...	358	Hardy fruit garden, the	351
Smith, Charles ...	358	Kitchen garden, the...	350
Ontario, co-operative fruit associations in ...	354	Orchid houses, the ...	351
		Plants under glass ...	351
		"Who's Who" of the Exhibition ...	Supp. ii.

ILLUSTRATIONS.

Alocasia Micholitziana... ... ... Supp. xvi.
Androsace Henryi 354
Brasso-Cattleya Digbyano "Westonbirt variety" Supp. vii.
Ceratolobus Forgetiana ... ... Supp. xv.
Cox, Mr. Tom, portrait of 353
Dendrobium Apollo albens ... ... Supp. viii.
Directors of the Royal International Exhibition, portraits of the (Supplementary Illustration)
Henslow, Mr. T. G., portrait of ... ... Supp. iv.
Japanese garden shown by Messrs. James Carter and Co. ... ... Supp. xiii.
Lælio-Cattleya Canhamiana ... ... Supp. vi.
Lælio-Cattleya Gladiator ... ... Supp. ix.
Lælio-Cattleya Salome ... ... Supp. x.
Lewisia Howellii 349
Schizocodon soldanelloides... 348
Stove plants exhibited by Messrs. James Veitch and Sons, at the International Exhibition ... ... Supp. v.
Thomas, Mr. Owen, portrait of ... ... Supp. iv.
Wright, Mr. S. T., portrait of ... ... Supp. iv.

THE "INTERNATIONAL" OF 1866.

PERSONAL REMINISCENCES.

IT is difficult to describe the mingled feelings with which I have regarded the preparations for the International Exhibition—they have awakened so many old, long-dormant memories of the International Show of 1866.

In those days, the journey to London to see a great exhibition was an all-important event in the life of a young gardener, long anticipated and remembered for many a year. The day of my first visit to the 1866 show is still fresh in my mind—the long wait outside the gates for the opening, the expectant crowd, the little stir of excitement when two tall visitors were pointed out as the Thomson brothers, of Scottish fame (William Thomson, of Dalkeith, and David Thomson, of Archerfield). These thoroughly competent and successful men were then at the zenith of their careers. They were both on the jury, and I well remember my awe and admiration of these experts in the profession in which I was a humble beginner.

At last the gates were opened, and the crowd streamed in, I among it. The general effect of grouping and arrangement was extremely good, and I was breathless with admiration. Flowering plants were very strongly represented, and some of the specimens excelled, in their own genre, anything we see at the present day. There were specimen pot Roses from Charles Turner and William Paul (the "Company" was not then in existence under the latter name), and from Mr. Paul, of Cheshunt. I trust that all these three firms are represented at the present show; but they will not exhibit the immense specimens which were then all the rage. Mr. Charles Turner was also showing huge plants of Azalea, and so were Messrs. Veitch, of Chelsea—and both exhibited splendid examples of cultivation. When I had feasted my eyes on them, I turned to the Pelargonium section, and gazed with delight at the 1st prize group of 10 varieties, staged by Mr. Bailey, gardener to T. T. Drake, of Shardeloes. Mr. Bailey's son, who had charge of these plants, was keenly enthusiastic about them, and I remember reading in the *Gardeners' Chronicle* his description of the plants. The 1st prize in the class for 12 varieties was won by Mr. Charles Turner—they were not quite so large as Mr. Bailey's, but very fine specimens all the same. The prize for "Fancies" was carried off by Mr. John Fraser, of Lea Bridge Road Nurseries, but Mr. Bailey held his own in the amateurs' class. I was not keenly interested in the other classes for soft-wooded greenhouse plants, but the specimen hard-wooded stove and greenhouse plants kept me enthralled. Here Mr. Thomas Baines was pre-eminent in the large amateurs' class; he was then gardener to H. L. Micholls, of Bowdon. Amongst other plants, I remember fine specimens of Heaths, Ixoras, Azaleas, Acrophyllum venosum, and Boronia pinnata. Messrs. J. & C. Lee, of Hammersmith, won the 1st prize in the nurserymen's class; they showed a plant which was then only beginning to be known as a specimen, namely, Darwinia tulipifera, then called by the generic name Genetyllis. This I found extremely attractive. They also staged another plant which is very difficult to cultivate, Boronia serrulata, and good specimens of Dracophyllum gracile and Acrophyllum venosum. Mr. James Cypher, then gardener to Miss Savage, Tetbury Lodge, Cheltenham, was amongst the exhibitors, and it is interesting to note that the present firm at Cheltenham—J. Cypher & Sons—will be well to the fore this year. I stood for a long time admiring the specimens of fine foliage plants, especially the two beautiful groups arranged by Messrs. J. & C. Lee, in which Alocasia Lowii was conspicuous. Messrs. J. Veitch & Sons were showing Pandanus Veitchii, then quite a new plant. There was one plant of Codiæum pictum (or "Croton" as it was called), which I believe to be the same as one which I myself grew later on, and was able to exhibit.

The amateurs' classes excited keen competition. In the class for six varieties, no fewer than 12 competitors entered; but the finest plants were to be found in the class for 12 varieties, and here Mr. Baines was again 1st with a really remarkable collection. I well remember his beautiful plants of Theophrasta imperialis, Dasylirion acrotrichum, and Gleichenia speluncæ. Ferns, both hardy and exotic, were shown in considerable numbers, but I was not particularly interested in these plants. Three large specimens of Eucharis grandiflora held my attention for some time; these were shown by Mr. Howard, then gardener to J. Brand, of Balham. I had never seen any specimens so fine or so profusely flowered. Another group which took my fancy greatly was that of Mr. John Salter, of the Versailles Nursery, Hammersmith. It consisted of 50 plants of hardy variegated alpine and herbaceous plants, distinct. These were shown with a quantity of fresh, young foliage, as was then the custom, and they made a charming effect. Near this exhibit were the Orchids, which, I think, gave me more pleasure than any other section.

I had looked forward with the keenest expectation to seeing the Orchid exhibits. Just at this time, Mr. Robert Warner, of Chelmsford, was at the zenith of his fame as an Orchid grower, and his skill was well demonstrated on this occasion. His exhibit, which I remember quite well, was at the northern end of the long tent in which the Orchids were accommodated. He entered in the class for 50 kinds, and was the only competitor. There were some lovely specimens of Vanda tricolor, V. suavis, and V. insignis, with flowers and leafage—the latter down almost to the level of the pots—having every indication of perfect health.

There were also eight plants of Phalænopsis in five varieties, and of Cattleya Mossiæ 15 plants in 11 forms. I think it was these latter which left the most definite impression on my mind of all that fine exhibit.

Mr. William Marshall, whom I had already met at the Summer Show at Brighton, exhibited in the class for 10 kinds, and was placed 2nd.

The large marquee in which the Orchids were arranged was 500 feet long and only 40 feet wide, much too long and narrow to lend itself to artistic staging. The only arrangement possible was to bank up the flowers on each side, and leave a broad walk down the middle. The marquee was heated with hot-water pipes, a plan which is being followed this time. There were only four jurors for the Orchid classes. One was Professor Reichenbach, of Hamburg, whose many contributions to the *Gardeners' Chronicle* will be long remembered.

As the day on which I visited the show was one of the later ones, much of the perishable fruit and vegetable produce had been removed. I remember, however, some excellent pot vines shown by Lt.-Col. Lloyd, of Hawkhurst, whose gardener at that time was Mr. Record. Of vegetables, I recollect some remarkable exhibits of Cucumbers, and, incidentally, I may note in passing that in the class for a brace of Cucumbers there were no fewer than 44 entries.

As I have remarked before, the exhibition made a very deep impression upon me, and taught me a great deal. At that time I knew but few of the exhibitors—I have already mentioned Mr. Wm. Marshall, and I also knew Mr. B. S. Williams very well. Mr. Baines I did not meet until years afterwards, but the older readers of the *Gardeners' Chronicle* will remember him by his almost weekly contributions to its pages. Mr. Ben Peed was an old friend of mine—he was already at that time a celebrated gardener.

It is startling to think that Mr. Harry Veitch was a junior member of his firm, and that another youthful representative of horticulture was Mr. George Paul, of the Old Nurseries at Cheshunt. These gentlemen are still on the active list, and, indeed, foremost among those who have worked for the present exhibition. Time has dealt leniently with both, and I trust they may long be spared to the profession.

Looking back on the outstanding features of the last exhibition, we miss, to some extent, the fine examples of stove and greenhouse plants then shown. However, there can be no doubt that, in other directions, 1912 beats 1866; the honorary exhibits, which are a most interesting feature of the present exhibition, more than make up for them. *James Hudson.*

NEW OR NOTEWORTHY PLANTS.

COTYLEDON RACEMOSA, E. Mey.

This rare plant is now flowering in the Royal Botanic Gardens, Kew, probably for the first time in Europe. It was discovered by Drège about 80 years ago in Little Namaqualand, in the vicinity of the Orange River, and appears to have been only twice collected since, once near Oograbis Poort by Dr. Bolus (No. 9,546), and during the Percy Sladen Expedition to the Orange River in 1910 by Prof. Pearson (No. 6,196), who sent the plant, which is now in flower, to Kew. The whole plant is 8 inches high, with a stout succulent stem, bearing short branches thickly clothed with linear-lanceolate, fleshy leaves and terminating in a short raceme or panicle of erect white flowers.

As this species is very inaccurately described in the *Flora Capensis*, the following account from the living plant will be useful to future monographers:—

Plant 6 to 8 inches high. Main stem ⅝ inch thick, erect, branching at the upper part, glabrous, with a thin sub-membranous, greenish-brown bark, peeling off like skin; leafless. Branches 1 to 1½ inch long, densely leafy, perhaps deciduous after flowering, glabrous, green. Leaves crowded, alternate spreading, directed all ways, softly fleshy and flexible, ¾ to 2 inches long, 2½ to 5 lines broad, 1½ line thick, linear-lanceolate or narrowly oblanceolate, acute and often recurved at the apex, tapering to a sessile base (not sheathing, as described), channelled down the face, thinly pubescent with very fine, short, spreading hairs, light green, not at all glaucous. Peduncles terminal, solitary on each branch, 1½ to 2 inches long, erect, racemose, racemose-paniculate or rarely corymbose-paniculate at the upper half and with one or two very reduced leaves 2½ to 6 lines long on the lower half, glabrous throughout or thinly and inconspicuously pubescent on the lower part, tinted with dull purplish-brown. Bracts 1½ to 4½ lines long, linear-lanceolate, acute, resembling reduced leaves, or the smaller subulately tapering from a broad base, fleshy, becoming membranous when dried. Flowers erect. Pedicels 2 to 5 lines long, glabrous. Sepals 5, erect, 4 lines long, about equalling the corolla-tube, lanceolate-attenuate, very acute, glabrous, light green. Corolla five-lobed; tube 4 lines long, 2½ lines in diameter, pale green; lobes nearly 3 lines long, 2½ lines broad, broadly ovate, acute, recurved-spreading, white. Stamens 10, included, at first all collected around the styles, finally moving away and pressed close against the inside of the corolla tube; pollen yellow.

The movement of the stamens is doubtless to secure cross-fertilisation. The anthers open outwards, and are so closely packed around the stigmas, with their backs against the latter, that no pollen gets upon them, whilst an insect seeking the nectar would be certain to get its head or back well dusted with pollen. During this position the stigmas appear to be unreceptive, but when the stamens have discharged their pollen, they move away and are pressed close against the corolla-tube, their backs being turned towards the stigmas, which are now turned slightly outwards, and have their papillæ fully developed and receptive. Any insect already dusted with pollen from another flower, upon visiting a flower in the receptive condition could scarcely avoid contact with the stigmas and so would fertilise the flower. *N. E. Brown.*

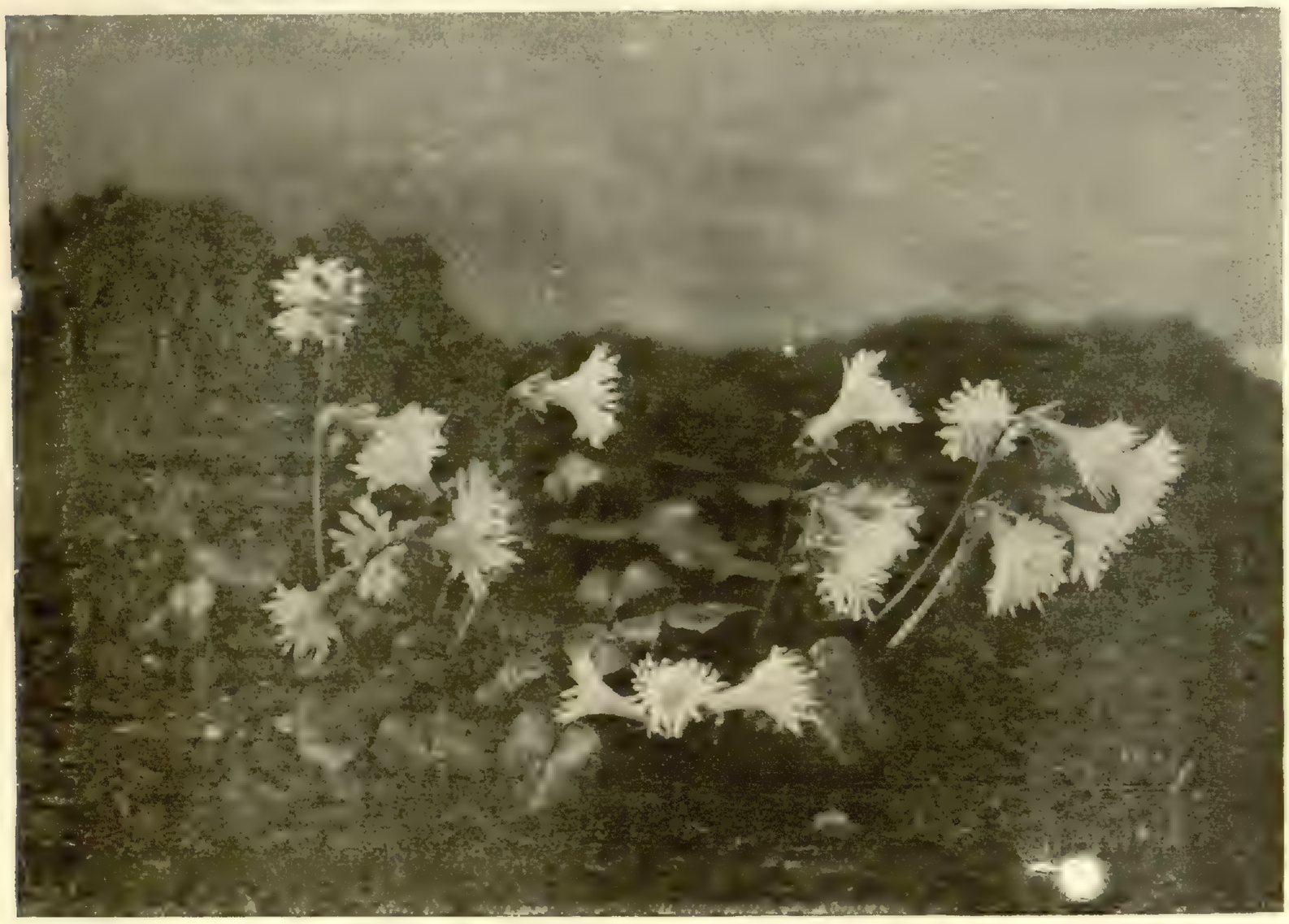


Fig. 171.—Schizocodon soldanelloides: flowers pink.

SCHIZOCODON SOLDANELLOIDES.

Ever since the introduction of this interesting plant (see fig. 171), about 20 years ago, by the late Capt. Torrens, of Boston Manor, Hayes, it has been one of the chief subjects of interest to lovers of hardy plants. Those who have been successful in its culture can thoroughly appreciate its beautiful, bronzy foliage and charming pink flowers, which are heavily fringed. The plant belongs to a small, though most interesting Natural Order, Diapensiaceæ, members of which are found in widely-separated countries—North America and Japan. Shortia is a well-known genus belonging to the Order. There are two species of Shortia in cultivation: one, S. galacifolia, only found in North Carolina; the other, S. uniflora, only found in Japan. There is also said to be a third species, not yet introduced, which is found in China. Another popular garden plant is the North American Galax-aphylla, with its large, beautifully-bronzed leaves, which are so much used in table decoration; while Diapensia lapponica, which gives its name to the Order, is an Arctic plant of prostrate habit, with pinky-white flowers. The last is a difficult plant to cultivate in the south.

Schizocodon soldanelloides is of tufted habit, with rounded leaves on petioles about 2 inches long, and the plant spreads by means of underground runners which produce rosettes of leaves at their extremities. The Soldanella-like flowers are produced in racemes of three or four, on stems about 3 or 4 inches in height. The plant requires the conditions and treatment which apply to Shortia, namely, a cool, peaty soil, in a sheltered position, protected from excessive sunshine and cold winds. It is an ideal plant for the Alpine house when grown in pots or pans, in a frame with a northern aspect, but it resents disturbance at the roots.

INTERNATIONAL SHOW.

ORCHIDS IN 1866 AND 1912.

Great events like International Exhibitions serve to indicate the course of progress which time has brought about in the special branches of horticulture. The full extent of that progress even the expert, who has been constantly in touch with the subject, fails to realise without comparing the plants representative of different epochs. To those who are among the things daily one novelty follows another seemingly in natural sequence, and the extent and value of the gains are scarcely realised.

But a review of the Orchids staged at the great International Horticultural Exhibition of 1866, with a passing glance at the display on the occasion of the Orchid Conference in 1885, and a knowledge of the subjects now available in 1912 tell of one of the most interesting phases of horticultural progress ever recorded.

The results of this progress may be summed up in a few words. The Orchids at the show of 1866 were species and varieties; those at the 1885 exhibition marked the turn of the tide in favour of the hybridist, whereas the display of this year places the hybrid Orchids in the majority, and demonstrates that by the aid of hybridisation the variety of form and colour attained has wrought a beneficial change, not only in the effect, but in the general interest of the Orchid section of modern horticultural exhibitions.

In 1866 the largest class was one for 50 exotic Orchids, of any kind, in flower, the prizes amounting to £55, and the only entry was that by Robert Warner, Esq., Broomfield, Chelmsford, his specimens being Aërides Fieldingii, A. virens, 11 varieties of Cattleya Mossiæ, C. Skinneri, Chysis lævis, C. Limminghei, Cypripedium barbatum (two varieties), C. hirsutissimum, C. Hookeræ, C. villosum, Dendrobium crepitatum, D. densiflorum, D. nobile, and two other Dendrobiums; Lælia purpurata, L. Schilleriana; Odontoglossum citrosmum, O. Karwinskii; Oncidium ampliatum majus, O. sphacelatum; Phaius Wallichii; Phalænopsis amabilis, two varieties of P. grandiflora, P. intermedia Porteri, P. Schilleriana; Trichopilia crispa (2 feet across and with many flowers); Vanda insignis, V. suavis, and three varieties of V. tricolor. That may be taken as a typical collection, and most of the species were to be found in the exhibits in other classes with, in one or other, Dendrobium formosum giganteum and some other Dendrobiums; Odontoglossum Pescatorei, O. nævium, O. cordatum; Lycaste Skinneri; Aërides odoratum, A. crispum; Cypripedium lævigatum, C. caudatum; Vanda teres; Saccolabium guttatum, S. curvifolium, and many other showy species. The plants were chiefly large and finely-grown specimens, and the principal exhibitors included Mr. Turner, of Leicester, Mr. Leaf, Streatham, Mrs. Tredwell, Norwood, Mr. Wentworth W. Buller, Exeter, Mr Cooper, London, Mr. Brand, Balham, the Duke of Northumberland, and Mr. W. Marshall (still chairman of the R.H.S. Floral Committee), also Messrs. Jas. Veitch & Sons, Mr. B. S. Williams, Mr. W. Bull, and other nurserymen.

Great interest was taken in Orchids in those years, and goodly numbers of fine species were in gardens, but the number available for exhibition on any date was necessarily limited.

Messrs. Jas. Veitch & Sons had already produced some fine hybrids—Calanthe Dominii, C. Veitchii; Cattleya Dominiana, C. hybrida, C. Manglesii, and a few others, but the only hybrid Orchids at the 1866 show probably were the two natural hybrids Lælio-Cattleya elegans and L.-C. Schilleriana, shown as Cattleya and Lælia.

Passing to the Orchid Exhibition and Conference of the Royal Horticultural Society in 1885—and be it remarked all these great events were held in the month of May—we find that great progress had been made in the meantime with respect to species and varieties of species, and that the first demonstration setting for the importance of the home-raised hybrid was provided. Of the species, 57 genera and about 350 species and varieties of species were staged. Cattleyas, Lælias, Odontoglossums, and Cypripediums formed the bulk of the exhibits. The first group of Masdevallias showed well the variety and beauty in this pretty genus. It was staged by Sir Trevor Lawrence, Bart., and included M. Chelsonii, and one or two other of the earlier hybrids of Masdevallia, some 48 species and varieties being represented. At this show what are called "botanical Orchids" commanded considerable attention, and the love for them still continues. Bulbophyllums, Brassias, the lesser Dendrobiums and Cirrhopetalums, were well in evidence, one of the most admired plants probably being the Luddemannia Lehmannii with two spikes, for which Sir Trevor Lawrence received a First-class Certificate. By 1885 the varieties of Odontoglossum crispum had established themselves firmly in gardens, their requirements being at last understood. The late Baron Schröder received First-class Certificates for two finely-blotched forms—Veitchii and Sanderianum, and the typical form shown as O. Alexandræ appeared in several collections, natural hybrids being also shown as O. c. Ruckerianum and O. excellens. Three species of Cochlioda, namely, rosea, sanguinea, and vulcanica were then available, but not the scarlet C. Noezliana. At that time no one had the slightest idea of the satisfactory part which the genus, and especially the last-named species, would play in the evolution of brilliant garden plants when mated with the different species of Odontoglossum. Miltonia vexillaria, then called Odontoglossum vexillarium, had been well known in gardens since 1873, but was still regarded as a very difficult plant to grow, and likely always to be rare. Nowadays those who, as at Westonbirt, understand its requirements have no trouble in producing great masses of it covered with bloom, and its hybrids, M. Bleuana and others, are even more amenable to cultivation than the species.

But the greatest event of the 1885 show, as the sequel proves, was the attention called to the question of raising hybrids. There was to be seen not only what had been done, but also some foreshadowing of what was to be accomplished. This section was well represented by Mr. Harry J. Veitch, who staged a small collection of hybrid Orchids in bloom and also Orchids in fruit, which were very interesting.

To sum up the case as between the years 1866 and 1912, so far as the species and varieties of species are concerned, it must be said that immense strides have been made, and even in the matter of variety in species we are in an exceptionally satisfactory position. The number of large-flowered Cattleyas has been doubled; the requirements of Odontoglossums have become thoroughly understood, so that the flowers which they produce under cultivation are quite equal to those which occur in their native habitat, whilst most of the other showy genera have been developed and popularised. Fashion in Orchids, as in all other classes of plants, has played its part, and the favourites of the olden time, such as Vandas, Aërides, and Saccolabiums, no longer occupy the place they did in the esteem of orchidists. The glory of the Masdevallias and Dendrobiums has also waned; but why, it is difficult to say, for they are equal to any in point of beauty.

Fig. 172.—Lewisia Howellii: flowers buff-yellow, streaked with crimson.

Since 1885 especially, the hybrid Orchids have been paramount in the estimation of orchidists, and the reason is evident. The variety of form and colour obtainable by hybridisation is practically inexhaustible, and, although all combinations are not desirable from the florists' point of view, or profitable commercially, yet cross-breeding offers the best prospects of good results for the clever and thoughtful operator. To glance at a few of the beautiful subjects which the hybridist has raised since 1885, we find that most of the showy genera have received his attention. For example, the union of Brassavola Digbyana with many of the showy Cattleyas and Lælias has produced a wonderful series of handsome and fragrant flowers, one section or another blooming nearly all the year round. This perennial blossoming is, indeed, one of the greatest benefits gained by the hybridist, who has succeeded in producing forms which flower in intermediate seasons, and especially in winter, when flowers are scarce.

The Cochliodas are among the most lovely of Orchids, their brilliant red or rosy-red flowers being unlike anything known before their production. Hybrid Cattleyas and Lælias and crosses with the scarlet Sophronitis are a host in themselves, all beautiful and easy to grow. One of the great points in this section is the production of new colours, such as yellow, bronzy-red, and various tints of Indian yellow and purple. Odontoglossums were very fractious at first, and it was said to be next to impossible to do much with them by hybridising, but now almost everyone has mastered them, and endless variety has resulted, the spotted forms rivalling the blotched varieties of O. crispum.

In the genus Cypripedium the most extensive and varied work has been done. The genus is such a favourite that some orchidists almost confine their attention to hybrid Cypripediums, and no matter how enthusiastic they may be, the yet unworked combinations give full assurance that their desire for novelties will continue to be supplied.

Dendrobiums also are represented by a large number of hybrids, and regarding the work of the hybridist generally it may be said that he has increased the supply, variety, colour, and duration of Orchids in a marvellous degree. *James O'Brien.*

LEWISIA HOWELLII.

Plants of the white-flowered L. oppositifolia have been grown in gardens as L. Howellii, but the former species is quite distinct, as indicated by its loose, spreading habit. The true L. Howellii (see fig. 172) was collected by Mr. Carl Purdy, California, who sent specimens to Kew in January, 1911. In the autumn, large consignments were received in this country, and plants in flower were exhibited by Mr. Prichard at the meeting of the Royal Horticultural Society on April 30. The best plant was a fine specimen carrying nine inflorescences, each with about 30 flowers, and it well deserved the Award of Merit bestowed on it. L. Howellii is found on the Moony Mountain, in Josephine County, Oregon, and is closely allied to the beautiful L. Cotyledon, which was illustrated in the *Gardeners' Chronicle*, May 30, 1908, fig. 151. It forms the same kind of rosette, but the leaves are narrower, and spathulate, with undulated or crisped margins. They are about 3 to 4 inches long, and about ½ inch broad at their widest parts, also very thick and fleshy. The flowers are 1 inch in diameter: the petals are of buff-yellow colour streaked with crimson or pink lines. The plant, potted in sandy loam, has survived the winter at Kew in a cold frame. Others planted out in the rock garden in sunny crevices and sheltered positions in the late autumn are equally healthy. L. Howellii is the eighth member of this attractive genus introduced into cultivation, all being natives of Western North America. *W. I.*

The Week's Work.

THE KITCHEN GARDEN.

By Edwin Beckett, Gardener to the Hon. Vicary Gibbs, Aldenham House, Hertfordshire.

French Beans.—To maintain a constant supply of this vegetable one or two cold frames should be devoted to their culture. The plants should be placed at a sufficient depth from the glass to allow them to make free growth, and every encouragement should be given them to grow freely from the commencement. Syringe them twice daily with tepid water, and close the frame early in the afternoon. Pinch out the points of the shoots early, and, when the plants are well established, provide a good mulching of manure from a spent Mushroom bed. A small sowing of French Beans may be made on a south border in the open. Ne Plus Ultra and Canadian Wonder are both excellent varieties for the purpose. Plants that are in full bearing, either growing in pots or planted out under glass, should be drenched thoroughly with water twice daily during fine weather to destroy red spider. Liberal applications of liquid manure should be applied frequently.

Tomatos.—Tomato plants have done remarkably well under glass, owing to the fine spring, and they are commencing to perfect their fruits. Immediately the latter show signs of colouring they should be removed, and allowed to finish ripening in a warm building. Plants in bearing should be fed liberally. Should dull weather prevail, keep the atmosphere as dry as possible, to prevent disease appearing, but admit air in fine weather. Another sowing of the best varieties should be made to furnish plants for fruiting in late summer.

Runner Beans.—Where trenches have been previously prepared for sowing Runner Beans, the last week in this month will be soon enough to set the seeds, as they soon germinate. Sow in double rows, allowing a distance of 10 inches between the rows and not less than 6 inches between each seed. Cover the Beans with the finest of the soil to a depth of 2 inches. When the sowing is completed, place a layer of finely-sifted cinder ashes along the rows to prevent damage by slugs. When the seeds have germinated, occasional dustings with fresh soot, applied early in the morning, will be beneficial.

Staking Runner Beans.—This is a matter of great importance: nothing looks more unsightly than stakes insufficiently strong to bear the crop. Staking is best done directly the Beans are planted, or, in the case of those sown directly in the ground, as soon as the leaves appear. I find nothing better for the purpose than long, stout Pea-sticks. They should be driven well into the ground in an upright position on either side of the row. Additional support may be furnished by stout poles inserted at every 10 yards, to which should be tightly stretched two or three rows of stout tar string. The poles and string will render damage from high winds and rains practically impossible.

Peas.—Peas grown in pots for an early supply will, if stood out-of-doors and made secure against strong winds, continue to provide a good supply of pods. They will require a considerable amount of water and plenty of liquid manure. If the pots are partially plunged, labour in watering will be minimised. Dwarf varieties growing in cold frames and raised from seed sown early in boxes will need attention in watering. Remove the lights entirely when the weather is warm; occasionally stir the surface of the soil and sprinkle it with artificial manure. Early Peas that are growing in south borders should be watered copiously and the ground between the rows mulched with long, stable litter. Make further sowings in trenches of good Marrowfat varieties for furnishing summer supplies, first steeping the seeds in a mixture of red lead and water mixed like paint to save them from attack by mice.

Lettuce.—Make small sowings of both Cos and Cabbage Lettuce, whichever is most in request. Water the seed-bed when the weather is dry, and, as soon as the seedlings are large enough, plant them in vacant positions in the garden. A line of black cotton stretched over the young plants will protect them from birds.

Leeks.—The later batches of Leeks should be planted without delay. They may be grown in trenches, as advised for plants of the earlier sowings; failing trenches, good Leeks may be obtained by boring holes in a piece of ground that has been well worked and enriched with farmyard manure, preferably in a shady position. Make the holes about 1 foot deep and sufficiently wide. Set one plant in each station at 1 foot apart, drop a little soil around the roots, and make the ground firm. Leeks intended for exhibition purposes should, during hot weather, be damped each evening. The blanching should be done as growth proceeds, raising the brown-paper collars and placing fine soil at the base of the plants.

FRUITS UNDER GLASS.

By E. Harriss, Fruit Foreman, The Royal Gardens, Windsor.

Late Strawberries in Pots.—Pot Strawberries require considerable attention at this time of year. If the plants can be grown in a house by themselves, it will be a great advantage. The house should, if possible, be fitted with canvas blinds, which should be lowered during the hottest part of the day. If blinds are not available, some other means of shading should be adopted. If the plants are growing on shelves they must be examined three or four times each day to ascertain if they require water. Furnish them with plenty of stimulating manures, and, if there is room on the surface of the pots to allow of top-dressings, it will be beneficial to the plants to apply a surfacing of rich materials, as the roots will have absorbed most of the food from the original soil. During very hot weather the plants should be sprayed three or four times each day. The floors and paths in the house should also be damped frequently. Late batches of Strawberries may be grown very well in cold frames, and if the pots are partially plunged it will save much labour in watering. Thin the fruits to 8 or 10 on each plant, and securely stake and tie each truss to prevent them becoming broken. The flowers should be removed from the young plants which were specially planted last autumn for supplying runners. Hoe the soil between the plants to destroy weeds, and afterwards mulch the ground with short litter. Should dry weather prevail for a considerable period the roots must be watered.

Autumn-fruiting Strawberries.—Some of the healthiest of the plants which have been forced under glass may be grown on for fruiting in the autumn. Remove all the old leaves, and, should there be evidence of red spider on the foliage, dip the plants in a strong solution of soft soap and sulphur. Shake out the roots, reducing the ball of soil so that they may be repotted in 7-inch pots. Pot them in a compost consisting of three-parts rich loam and one part spent manure from an old Mushroom bed, with a quantity of old mortar rubble. Place the pots on a layer of coal ashes in a sheltered position out-of-doors, and apply water with care until the roots have taken possession of the new soil. Syringe the leaves at both morning and afternoon of fine days, and spray them occasionally with the specific mentioned above to destroy red spider.

Tomatos.—Tomato plants with two or three trusses of fruits should be afforded a top dressing of loam and well-rotted manure in equal parts, mixed with a sprinkling of old mortar rubble or wood ashes. They should be generously fed with manures. Pot plants should be stopped when four or five trusses of fruit have set, as this number will be an ample crop for the plants to mature. The stopping will also enhance the swelling of the fruit. Remove the side growths and cut back some of the leaves to expose the fruits to the light. About the second week in June a batch of plants may be raised for supplying fruits in the late autumn. The plants should be grown as sturdily as possible, and, when established in their fruiting pots, placed outdoors in a sheltered situation, where they may remain until there is danger from frost. At that stage a number of fruits should have set, and the plants, if placed in a light, airy structure, will furnish Tomatos till the end of the year.

THE FLOWER GARDEN.

By J. G. Weston, Gardener to Lady Northcote, Eastwell Park, Kent.

Sweet Peas.—The latest batch of Sweet Peas raised in pots should be planted out-of-doors without delay. If considered necessary, a sowing may still be made in the open ground; these late-sown plants will give a succession of good blooms in the autumn when the earlier batches are past their best. The earlier plants should be staked if required. It is a good practice to put twiggy sticks around them at the time of planting. Supports of about 2 feet long will be sufficient for some time, and will not look so ungainly as the ordinary sticks for some weeks. Water the plants, and draw a little fine soil about them to act as a slight mulch. If the weather continues dry stir the soil around the early batches with a flat hoe, and place a mulch of short dung, or manure from a spent Mushroom bed, over the roots. Mignonette grown in association with Sweet Peas forms a pleasing combination, and there is no danger of the colours clashing, as with some of the brighter-coloured annuals.

Furnishing Garden Vases.—As these garden ornaments are of necessity somewhat prominent objects in the garden, it is important that they be furnished with strong, healthy plants at once. However well the flower-beds may appear, if the vases are not also well filled with healthy and attractive plants, there will be a decided falling off in the general appearance of the garden. Preparations for filling the vases should, therefore, be made at once, selecting suitable plants, so that no delay may occur when the season is sufficiently advanced to place tender plants out-of-doors. After making the selection the plants should be hardened gradually preparatory to their planting, for when placed at some distance from the ground they are exposed to injury from cold winds. The vases should be filled with a rich compost, consisting of loam, leaf-mould, and manure. If dung is not available, artificial manure should be incorporated with the soil. The soil should be pressed firmly about the roots. Not much water will be necessary at first; in fact, root waterings would be harmful, but the plants should be damped overhead on fine afternoons. When the plants are well established and growing freely, they will require plenty of water, especially on hot days because the receptacles do not hold much soil, and what there is will dry very quickly. Extreme root-dryness on a few occasions will cause the plants to become unhealthy, and it will then be a difficult matter to get them into a healthy condition again. About a month after they are planted, strong-rooting subjects of robust growth should be afforded artificial manure. We usually sift a few barrowfuls of light soil, and mix concentrated plant food with it, in the proportion of two 6-inch potfuls of the manure to each barrow load of soil. This mixture applied at intervals of two or three weeks will be of immense benefit, and will, if the directions as to watering are carried out, make the vases real ornaments to the garden. A mistake to be avoided is filling the vases with plants unsuitable for the position. The vases are often situated on a terrace, wall or balcony, and in positions fully exposed to the wind. In such cases employ the more hardy subjects, such as Pelargoniums and Marguerites, whilst Begonias, Fuchsias, and other tender-foliage plants, may be selected for the more sheltered parts. Sometimes flowers of certain shades are required as part of a colour scheme, whilst individual tastes must also be considered. There is a wide choice of plants to select from: for instance, both Zonal and Ivy-leaved Pelargoniums furnish great diversity of colours, and their habit of growth makes them peculiarly adapted for growing in vases. If the receptacles are sufficiently large to accommodate a number of plants, Ivy-leaved Pelargoniums may be placed in the centres and tied neatly to upright canes, and others of the same kind allowed to fall naturally over the sides. The growths of the two sets of plants will soon mingle, and give a pleasing effect. White Marguerites, and the soft-yellow Calceolaria amplexicaulis make a pleasing combination, especially in partially-shaded situations. Where colour is not the main consideration, well-shaped Cordylines may be used for the centres of the vases, and trailing Lobelias draped over the edges. Palms, such as the Fan Palm or

some of the hardier species of Phœnix, planted with Begonias, produce an uncommon effect; a shady position will be best for both these subjects.

Pentstemons and Antirrhinums.—Every effort should be made to get these subjects in their permanent quarters without delay. After clearing the beds of the spring-flowering plants, enrich the soil with manure. If the ground is dry, water the beds the night previous to planting. Both Pentstemons and Antirrhinums are splendid subjects for massing, and the best varieties give brilliant effects. The soil for Pentstemons should be manured liberally, and the plants will show by the length of their flower-spikes and continuity of blooming how they appreciate a cool deep root-run. Pentstemon G. Horne, Lady Forbes, Southgate Gem and Crimson Gem are all showy varieties, and there are other good sorts in nearly every shade of colour.

PLANTS UNDER GLASS.

By Thomas Stevenson, Gardener to E. Mocatta, Esq., Woburn Place, Addlestone, Surrey.

Table Plants.—Although fine foliage plants are not employed for table decoration to the same extent as formerly, they are nevertheless in occasional demand for the table and for exhibition purposes. Specimens in 4½-inch pots are large enough for general purposes. Evenness of growth should be considered, and to ensure this the plants should be allowed plenty of head-room, and turned round at least once a week. Codiæums (Crotons), when nicely established in 4½-inch pots (48's), should be placed on a shelf in full sunlight, or, if this is not convenient, suspended from the roof in such a position that the drainage water from them will not drip on to plants below. Small side growths should be removed as they appear, to encourage a free growth of the central shoots. Dracænas, Panax, and Pandanus are all suitable for use as table plants. In order to obtain the best results with these, they should be subjected to a little shade, which usually enhances the colour of most Dracænas, and variegation in Panax and Pandanus is much more pronounced when the plants are not exposed to the full sunshine. Small Palms, such as Geonoma, Cocos, Phœnix, and Kentia, revel in even more shade than Dracænas, and should, therefore, be fairly heavily shaded at all times. Lycopodium is suitable for covering the tops of the pots when the foliage plants are employed for decoration. The Lycopodium should be grown in separate small pots.

Chrysanthemums.—Great care is needed at this season of the year to keep Chrysanthemums in a good, growing condition. The removal of the plants from the frames to the open air is apt to give them a check, but this can be avoided if careful attention is devoted to watering and syringing. The plants will dry quickly during bright weather, especially when the pots are becoming well filled with roots. When it is not convenient to pot the plants which are most forward, a little manure water should be afforded them to keep them growing freely. I would advise preparations to be made for potting them without delay, especially if the grower intends to exhibit his blooms. Plants that are not well rooted often take to new soil more quickly than those that have been allowed to become potbound. A fairly porous compost is necessary at this potting, adding a moderate amount of lime rubble, wood ashes, bone-meal and well-decayed horse manure, which is better than artificial manures at this season. Good, firm wood is essential for the production of large blooms, and it is much easier to give artificial manure later on, either in the water or as a top-dressing. For the large-flowering Japanese varieties, pots 11½ inches in diameter (12's) should be used, but a size less will be large enough for the Incurved varieties. Crock the pots well, as this may save a lot of trouble in the event of a wet season. Pot firmly, leaving a space of 1½ to 2 inches to accommodate slight top-dressings later in the season. After they are potted, stand the plants quite close together for a fortnight, thoroughly soaking them with water the second or third day after potting. Even in showery weather this should be done, as nothing is more detrimental to the plants than to allow them to become dry after potting. The single and decorative varieties should also receive attention in potting as soon as the others are finished, giving them practically the same treatment, though it is seldom necessary to use pots larger than 9 inches across (16's), unless specimen plants are desired, in which case 12-inch pots may be employed. Plants of the later-rooted batches may not require transferring to their flowering pots until a week or two later, using 6 inch or 8½-inch (32's or 24's) pots for the single-stemmed plants, according to the size and character of the flowers.

Carnations.—Many plants of the Souvenir de la Malmaison varieties are in bloom, and to ensure them keeping well, a fair amount of shade and a dry atmosphere are necessary. Plants of later batches with blooms not yet showing colour may still be helped with a little liquid manure, or even a dressing or two of special Carnation fertiliser, but do not use too much of this latter manure, as it is liable to cause some of the blooms of the varieties to lose colour.

Winter and Perpetual-flowering Carnations.—The bulk of the spring crop of flowers from these plants will have been gathered by now, and where the room they occupy is required for other subjects, the plants may be removed to a spare piece of ground outside. If they are properly cared for, they will continue to bloom in the open for some time to come; if planted in a border they will require considerably less attention. Young plants of the earliest batches, if nicely established in 54 or 48-sized pots, may be removed to a cold frame, removing the lights in fine weather. When sufficient growth has been made, the points of the plants may be taken out to induce them to break freely. In some localities, certain varieties, such as Mrs. Burnett and Carola, should be grown under glass the whole season, thus ensuring their freedom from rust, a disease to which these two varieties are especially subject. Later batches should be repotted as the plants require increased room, and, if the stopping of the various batches is carried out on different dates, a good succession of bloom will be assured.

THE ORCHID HOUSES.

By J. Collier, Gardener to Sir Jeremiah Colman, Bart., Gatton Park, Surrey.

Cymbidiums. — The Cymbidiums, including C. Lowianum and its variety C. concolor, C. eburneum, C. erythrostylum, C giganteum and hybrids, such as Winnianum, Lowgrinum, Ballianum, Lady Colman, Holfordianum, and Colmaniæ, are amongst the most useful of Orchids and, generally, they are easy of cultivation. Plants of those named that have grown to a flowering stage should not be subjected to root disturbance until it is found to be necessary, as the plants flower freely and produce the finest flowers when the pots are well filled with roots. Specimens that have become so pot-bound that there is not sufficient space in the pot for the full development of the present season's growth, should be repotted. Cymbidiums are strong-rooting plants, and require rather larger pots than most Orchids. When repotting, afford the plants sufficient room to accommodate several seasons' growth. If the plants are so firmly rooted in their receptacles that they cannot be removed without causing injury to the roots, the pots should be broken, and removed in portions. Disentangle the roots as much as possible without breaking them, and pick out any of the old compost that is loose with a pointed stick. The pots should be provided with clean crocks for drainage purposes, to about one-quarter of their depth. Use a compost consisting of two-thirds good fibrous loam and one-third Osmunda fibre, cut up rather short, a little chopped Sphagnum-moss, with a liberal quantity of crushed crocks and silver sand, mixing the whole well together. Pot moderately firmly, working the compost between the roots and around the sides of the ball, finishing so that the surface of the soil is 1 inch below the rim of the receptacle. Specimens that have become bare of growth in their centres, and in an otherwise exhausted condition, should be broken up, and the portions potted singly in pots of a suitable size. Plants of C. insigne, C. Sanderi, and C. Hookerianum, should, if it is necessary, also be potted at this season. The work should be done in a similar manner as advised for the others, but the compost should consist of two-thirds Osmunda fibre and one-third good fibrous loam, with the other ingredients added. All these Cymbidiums grow well in the cool Odontoglossum house. The newly-potted plants should be afforded extra shade and very moderate supplies of water until the roots have become re-established. Syringe between the pots several times each day during the summer, and spray the plants overhead at least twice daily during fine weather. Well-established plants should be afforded abundant supplies of water at the roots. The foliage should be sponged frequently with a suitable insecticide, as a preventive against attacks of scale insects, which, when numerous, are very difficult to eradicate. C. tigrinum and C. devonianum should be grown in shallow pans, and suspended from the roof-rafters of the intermediate house. Seedling Cymbidiums should also be grown in an intermediate temperature, and afforded fresh rooting material frequently, and every encouragement given them to grow until they reach the flowering stage.

THE HARDY FRUIT GARDEN.

By F. Jordan, Gardener to Lady Nunburnholme, Warter Priory, Yorkshire.

Hardy Vines.—It is not too late to plant Vines out-of-doors. For preference they should be grown against an old brick wall or gable-end, as bricks are warmer than stone. Besides furnishing Grapes, out door Vines are very ornamental subjects, and are well worth cultivating for their decorative effect alone. They are at their best in old-established gardens, and indeed are seldom planted in modern gardens. Vines on walls are forward this season, and look promising. They will require early attention in disbudding, stopping and tying of the shoots. Commence disbudding as soon as it can be seen which shoots will produce the best bunches, and leave only one shoot to each spur, unless it is desired to furnish more wall space. Stop the shoots at the first joint beyond the bunch, and secure them as close to the wall as convenient, that they may receive as much warmth as possible. Frequent waterings may be required during dry weather, as the soil at the foot of a warm wall soon becomes dry, and liberal applications of liquid manure may be afforded at frequent intervals. Mildew is one of the worst pests that attack Vines in the open, and, when once the berries are affected with this disease, they may as well, if much disfigured, be cut off, as even after the mildew is killed its effects remain. Some form of sulphur should be applied as a preventive, but, should the mildew appear, there are several good specifics on the market, and these also contain sulphur in some form or another. Good varieties of hardy Vines are the old Dutch Sweetwater, Royal Muscadine (white), and Gammy Noir and Reine Olga (black varieties).

Cherries.—In most parts of the country sweet Cherries, such as Kentish and May Duke, also Morello, have set their fruits. Examine the trees carefully for the presence of black aphis and maggots. If the former pest be detected syringe the infested parts with some approved insecticide. Maggots will be found hidden away in curled leaves, which should be pinched off the trees and burned. Tie in the leading shoots, and pinch the young wood, if they are not required for extension, to form spurs. Cordon trees will require all the side shoots pinched, but the leaders must be allowed to extend unless the trees have reached their full limit. The foliage of the Cherry often turns a yellow colour at this season. Where this is noticed the trees should receive a good dressing of soot at the roots. The soot should be lightly forked into the soil, which should be well watered afterwards. One or two applications will generally cause the foliage to again assume its natural colour.

Morello Cherries. — The points of the shoots of these trees must be kept clean at all costs, or the shoots will become crippled, and may even die. The trees may be disbudded when they are well furnished, removing all back and foreright shoots, also any others that are not required for furnishing the trees. Pyramid and bush-trained trees do well in almost any position. In gardens where the trees lose the tips of the shoots in the manner indicated, it is a good plan to pinch in all the young growths to the fifth or sixth leaf. Few branches die when this practice is adopted, compared with those that are not pinched. Both the Morello and the sweet Cherries should be mulched with stable litter. A good syringing applied in the morning is of great assistance to the trees.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, *as well as specimens of plants for naming, should be addressed to the* **EDITORS, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Editors and Publisher.—*Our Correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the* PUBLISHER; *and that all communications intended for publication, or referring to the Literary department, and all plants to be named, should be directed to the* EDITORS. *The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.*

Special Notice to Correspondents.—*The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.*

Local News.—*Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Illustrations.—*The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c., but they cannot be responsible for loss or injury.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.*

APPOINTMENTS FOR THE ENSUING WEEK.

THURSDAY, MAY 30—
Manchester and North of England Orchid Soc. Ann. Meet.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—54·2°.

ACTUAL TEMPERATURES:—

LONDON.—*Wednesday, May 22* (6 P.M.): Max. 67°; Min. 55°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—*Thursday, May 23* (10 A.M.): Bar. 29·8°; Temp. 55°; *Weather*—Sunshine.

PROVINCES.—*Wednesday, May 22:* Max. 62° Norfolk; Min. 49° Newcastle-on-Tyne.

SALES FOR THE ENSUING WEEK.

TUESDAY—
Choice Orchids from the "Oakwood" collection, by order of the executors of N. C. Cookson, Esq., deceased, at 67 and 68, Cheapside, E.C., by Protheroe and Morris, at 1.

WEDNESDAY—
Rare Orchids, by order of Messrs. Sander and Sons, St. Albans, by Protheroe and Morris, at 67 and 68, Cheapside, E.C., at 1.

Hardy Bulbs and Liliums at 1.30; Palms and Plants at 3.30; at 67 and 68, Cheapside, E.C., by Protheroe and Morris.

THURSDAY—
Valuable Orchids, by order of R. Brooman White, Esq., at 67 and 68, Cheapside, E.C., by Protheroe and Morris, at 1.

FRIDAY—
Choice Hybrid Orchids, by order of R. G. Thwaites, Esq., also fine Cypripediums and other Orchids from various sources, at 67 and 68, Cheapside, E.C., by Protheroe and Morris, at 1.

The International Exhibition.

The Exhibition. The International Exhibition was opened on Wednesday, in the cool greyness of a typically-English spring morning, and from the moment of opening its success was assured. Even the staid and reminiscent juryman—intent on judgment—was lost in admiration of the amazing beauty of the exhibits. Their Majesties the King and Queen, during their prolonged tour of inspection, declared themselves delighted with what they saw, and, as the opening day drew on, all realised that they were witnessing a veritable triumph of horticulture. It is no exaggeration to say that the 1912 Exhibition will be for ever memorable in the annals of horticulture. For not only are the chief exhibits of an extraordinarily high order of excellence, but also the exhibition, as a whole, presents the most artistic display of flowers that has ever been seen in this country. More than once we have had occasion to deplore the lack of skill with which our British exhibits are sometimes staged; but it is now demonstrated beyond all doubt that the lack of artistic staging often seen on previous occasions has been in large measure due to the overcrowding consequent upon the confined space within which the exhibitions were held. The great tent, which covers several acres, provides a noble amplitude of space. Green walks surround the several displays, and allow of a real inspection, and not merely a hustled glance. The spacious paths, which run the full length of the great tent, provide innumerable vistas of singular charm and beauty. In thus providing the exhibitor with an ideal setting for his plants Mr. Edward White has rendered a signal service to us all, and has deserved and won universal encomium.

This is no place to deal in detail with the various exhibits; but we shall express the feelings of all horticulturists in congratulating Sir George Holford on winning the King's Cup. Nor in this connection may we refrain from noting with satisfaction the generous tribute which Sir George, in the course of a brief and happy speech at the jurors' lunch on Wednesday, paid to Mr. Alexander, to whose skill is due the magnificent collection of Orchids which gained the premier prize.

The exhibition of 1912 is memorable for yet another reason, to which we refer presently. Hence it is desirable to put on record—albeit briefly—the circumstances to which it owes its origin. As all know, despite the splendid exhibitions which are held annually under the auspices of the R.H.S., no International Horticultural Exhibition has been held in this country since 1866. Of recent years the feeling has been growing that well-nigh 50 years is too long a time to lapse between one International Exhibition and the next. None felt this more strongly than British horticulturists who, as exhibitors and members of juries, were called abroad from time to time to take part in foreign International Shows. These feelings, together with the suggestion of a British International Exhibition, were, we believe, first expressed publicly by Sir Daniel Morris and Mr. Hooper Pearson. Sir Daniel brought the proposal before the Council of the R.H.S., and we in this journal urged strongly the desirability of holding an International Exhibition. The proposals met with immediate and cordial acceptance, and on the instruction of the R.H.S. a strong committee was formed to give effect to the proposition. The members of this committee became subsequently the Directors of the Exhibition, and it is due to the gentlemen on the Directorate that the enterprise has been carried through to its happy issue. As was stated at the lunch to the jurors, the heavy work of organisation has been borne by many shoulders. Among the names specially mentioned in the speeches delivered at the function just referred to were those of the Chairman of the Directors, Mr. Gurney Fowler, Mr. Edward White, Mr. May, and that hale and universally-esteemed veteran, Mr. Harry Veitch.

But whilst all must join in the tribute of grateful thanks which is due—and more than due—to these gentlemen, it must not be forgotten that other of the Directors have worked with whole-hearted devotion on behalf of the Exhibition, and have played a vital part in ensuring its success.

However tempting and fitting it may be to indulge in retrospect, the present is too fraught with important possibilities for horticulture for us to dwell longer among the memories of the past. There is a great work to be done for horticulture. The educational house of horticulture must be put in order. Horticultural teaching and research have to be provided for on generous and broad lines. Therefore, though the Exhibition of 1912 were of importance in no other direction, it would be an event of signal moment because of the pronouncement made on the opening day by the Rt. Hon. Walter Runciman, President of the Board of Agriculture. Mr. Runciman and the Permanent Secretary of the Board of Agriculture, Sir Thomas Elliott, who showed their interest in the Exhibition and made a careful examination of the scientific exhibits, recognise that the time is ripe for action with respect to horticultural education and research. The President is now in a position to give effect to his appreciation of this fact, and announced on Wednesday that it is the intention of the Board to establish a Horticultural Branch of the Agricultural Department. That branch will undoubtedly take the lead in giving effect to the recommendations of the committees which have been studying the methods whereby horticulture may be aided. Horticulture has shown that it can help itself: it has achieved a great place among the industries of the nation. The leading exponents of the industry have shown that they can hold their own against all comers. The R.H.S. has proved itself alive not only to the interests, but also to the needs of horticultural art and science. Thus it is amply demonstrated that such a vigorous department of the world's work as that embraced by horticulture has won a right to State assistance. For these reasons we hail with profound satisfaction Mr. Runciman's announcement that help from the State is forthcoming.

Nothing remains to be added except to urge everyone—in his own interest—to visit and to re-visit the Exhibition. It is the world of horticulture in epitome. The magnificence of the floral and other exhibits are not the sole, although the most fascinating attraction. The show offers something for all: the lover of new plants will find innumerable specimens on which he may lavish his attention; the budding exhibitor may learn how to show his subjects; the man of science may learn much from the instructive displays to be found in the scientific part of the Exhibition; and those in search of a floral paradise will discover it at Chelsea.

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the Committees will be held in the Society's Hall, Vincent Square, Westminster, on Tuesday, June 4. At the 3 o'clock meeting of the Fellows, Prof. I. B. BALFOUR, F.R.S., V.M.H., will deliver the eighth Masters Memorial lecture, the subject being "Problems of Propagation."

HISTORY OF CHELSEA HOSPITAL.—In view of the Royal International Horticultural Exhibition, which is being held in the grounds of the Royal Hospital, Chelsea, an illustrated handbook relating to the history of the Hospital has been prepared. Any profits which may accrue from its sale will be used for the benefit of the pensioners.

TRAINING OF HORTICULTURISTS.—The North of England Horticultural Society held a conference at Newcastle on May 4. to discuss "Horticulture in Secondary Schools and the New Farm Institutes." A representative of the Board of Agriculture insisted on the need for instruction in ways of combating disease. He also impressed on the meeting the necessity for better packing, grading, choice of markets, bottling, and stocking. The Staff Inspector of Secondary Schools expressed the opinion that whilst neither the elementary nor the secondary schools could turn out professional gardeners, they could teach the general scientific principles of the practice of horticulture. The difficulties in the way of teaching rural science were, the inspector said, the lack of duly qualified teachers and the difficulty of justifying expenditure on the subject. The secretary of the society was of the opinion that there should be centres all over the country, "where people could go and see things." These centres should be under the care of horticultural experts, and not be reproductions of county council plots. One speaker, not a gardener, advocated the teaching of microscopical research work to gardeners, but Professor R. S. SETON, of the University of Leeds, thought horticulturists did not want to be bothered with microscopes, but to be so equipped as to find the essence and poetry of gardening. Professor GILCHRIST, who presided in the absence of Lord GREY, said he was convinced that farmers could not be turned out by agricultural colleges; they must be trained in commercial and not college farms, and he believed this was equally applicable to gardeners.

TASMANIAN FRUIT-GROWING INDUSTRY.—A special number of *The Weekly Courier*, Tasmania, issued on March 21 last, deals with the various phases of Tasmanian fruit culture in an interesting manner. The views of the orchards show large areas of bush trees regularly set out at wide distances, so as to permit the use of horse-drawn cultivators. Many of these Tasmanian Apple orchards are very extensive; an illustration is given of one which covers 280 acres and contains 34,500 trees.

THE COST OF LONDON'S PARKS.—The Parks and Open Spaces Committee of the London County Council estimate their expenditure during the coming year at £35,000 on capital account and £141,285 on rate and revenue accounts. The capital estimates, which amount to £10,000 more than the estimates for last year, contain provisions for a number of proposals not yet specifically approved by the Council, the largest items being £2,000 for laying out St. James's recreation ground, Ratcliff. There is a general provision of £20,000 for acquisitions and contributions not agreed on or completed at the end of last March. The estimates on rate account show an increase of £160 as compared with last year's estimates. Sums amounting to £890 in respect of proposals not yet approved by the Council have, however, been included as "provisional sums." The operations in respect of parks boating are estimated to result in a surplus balance for the year of £1,553, after paying all expenses. This surplus, added to the estimated balance of £665 brought forward, makes a total estimated surplus of £2,218, of which the Parks Committee propose that £1,500 should be regarded as transferable to the general county account, to be applied in relief of other parks expenditure chargeable on the general county rate, including facilities for recreation.

WORKING AT 89 YEARS OF AGE.—Mr. TOM COX, whose portrait we reproduce, is, although 89 years of age, still actively working as a nursery employé in Messrs. JOHN WATERER & SONS' establishment at Bagshot, Surrey. He was born at Bagshot Park, on November 1, 1823, and was for some years in the service of the late Duke of GLOUCESTER. In 1846, Mr. TOM COX commenced work at the American Nursery, Bagshot, where he has been employed ever since. He was well known in the Manchester district, where, for many years, he took charge of Messrs. WATERER'S special shows.

MR. TOM COX.
(A veteran nursery employé.)

A PARK SUPERINTENDENT'S PENSION.—At a meeting of the London County Council on May 7, the General Purposes Committee reported that the Parks and Open Spaces Committee had expressed to them the view that the retiring allowance out of the superannuation and provident fund receivable by Mr. D. CARSON, superintendent of Victoria Park, should be supplemented by a special grant. Mr. CARSON, who is 55 years of age, entered the service of L.C.C. in July, 1892, and rose from the position of labourer to that of superintendent. He was retired from March last, being medically certified as unfit for further duty. The committee considered this to be a case which might properly form the subject of a special allowance on the ground of breakdown at an early age, and also by reason of the fact that Mr. CARSON'S rate of pay has been on a rapidly rising scale. The allowance receivable from the superannuation and provident fund in such cases is very small in proportion to the amount of final salary. In this case, an official with 20 years' service and a final salary with emoluments of £244 10s. receives only £48 11s. 7d. a year. The committee recommended that an additional allowance of £20 a year be made, and the council agreed to the proposal.

THE RED SUNFLOWER.—Under this title Professor COCKERELL, of the University of Colorado, gives in the *Popular Science Monthly*, April, 1912, an extremely readable account of the origin of a red Sunflower. The plant in question (of the horticultural value of which it would be, at present, premature to speak) was found singly among a group of yellow Sunflowers, at Boulder, Colorado, and proved to belong to the prairie species, Helianthus lenticularis, which is held by some botanists to be a variety of H. annuus. Its ray florets were deeply suffused with chocolate-red, and the "sport" received the name of "coronatus," from a certain resemblance which the arrangement of its colours presents with those of the sun in eclipse. Since Sunflowers are self-sterile, the red sport was crossed with wild H. lenticularis, and with other varieties of H. annuus. The result of the cross Russian (yellow Sunflower × coronatus) was an F_1 generation, half the members of which were red, like the red parent, and half yellow, like the other parent, though the red colour was not uniformly distributed in the different flowers. It will be interesting to learn whether the plant thus described becomes the progenitor of a true breeding strain of red annual Sunflowers.

REMEDY FOR INSECT STINGS.—We have, from time to time, drawn attention to various palliatives for insect stings, such as the application of oil of Cloves, oil of Geranium, the homely blue-bag, Belladonna plaster, and rubbing the affected part with a freshly-cut Onion, but prevention is better than cure, although unfortunately most of the preventives recommended are too volatile to be efficacious. A simple yet reliable remedy is Sanitas Fluid, and this well known disinfectant is also valuable for allaying the irritation and inflammation which so often follows the sting of various insects.

APRICOT PASTE.—A recent Board of Trade *Report* on British trade in Syria gives some interesting particulars of the method of preserving Apricots. This fruit is produced so abundantly in Damascus, and in the valley of the Barada that, after local requirements have been met, there remains a large surplus, which is preserved by drying and by making into a paste. In paste-making the stones are removed, and, after being well kneaded, the pulp is spread on boards and placed in shady places to dry. The boards are made of a standard size, so that each sheet of paste, when dry, weighs about 2 okes (an oke equals 2.828 English lbs.). When thoroughly dry, these sheets of paste are rolled up and taken to the towns for sale. The paste is largely consumed in the country, and is also exported to Turkey, Egypt, &c., and so far afield as the United States of America. The highest quality, which is characterised by clear yellow colour and thinness of sheet, realises from 12½d. to 13¼d. per 5½ lbs. The annual production of Apricot paste is estimated at between 3,000 and 4,000 tons. The making of the paste has proved so profitable that many new gardens are being formed.

NEW SPECIES OF NEPENTHES.—Two new species of Nepenthes from the Philippines are described by Dr. MACFARLANE in *Contributions from the Botanical Laboratory of the University of Pennsylvania*, vol. iii., No. 3. The species in question, Nepenthes Merrilliana and N. truncata, are said by Dr. MACFARLANE to rival any of the forms known hitherto. In either case, the pitchers are upwards of 1 foot in depth.

Co-operative Fruit Associations in Ontario.—A recent publication of the Ontario Department of Agriculture, the *Bulletin of Economic and Social Intelligence*, published by the International Institute of Agriculture, gives some particulars relative to the co-operative fruit associations in Ontario. These may be divided roughly into three classes: (1) Apple associations, shipping mainly to distant markets; (2) general fruit associations, shipping to both home and distant markets; (3) small fruit associations, shipping mainly to home markets. As a typical example of an Apple-shipping association is mentioned the Fruit Forest Growers' Association, which is simple in form, having no shares; it depends for its working capital on the deposits of the buyers, who are required to pay into the bank a certain percentage of the price before the fruit is shipped and the remainder within so many days. The society pays to each member a certain price per barrel, reserving a little more than sufficient to pay expenses. At the annual meeting all remaining moneys are divided amongst the growers in proportion to the business done with the society. The average annual pack is about 7,000 barrels. A similar business is carried on by the Oshawa Fruit Growers' Association, which, however, is organized as a joint-stock company. The other Apple-shipping associations conform to one or other of these two types. Of the general fruit associations the Burlington Fruit Growers' Association is the oldest established. It is remarkable for its simplicity of form. It has neither constitution nor by-laws, but only a verbal agreement between the members. Nor has it any capital. Each grower packs his own fruit, and it is shipped under his own name and on its individual merits. A manager orders cars for shipment, directs growers when to deliver fruit, and pays over to each grower the price that each shipment of fruit has brought. For this he is paid a small commission. A different type of general fruit association is the St. Catherine's Cold Storage Company. In form this is a joint stock company, but it has worked steadily on co-operative lines. It has a mechanical cold storage plant valued at 13,000 dollars. Part of the capital was raised by shares and part by a mortgage on the property. The mortgage debt has, however, been paid off by the share capital subscribed by new members. The sales of fruit amount to about 75,000 dollars a year, and the society also supplies considerable quantities of agricultural requirements to its members. Yet another type of general fruit association is found in the Grimsby Co-operative Association, which consists of seven large fruit-growers, cultivating, in the aggregate, nearly 500 acres. The shares are held by the members in equal portions. The small fruit associations are nearly all local branches of the Ontario Fruit Association. The object of this Association is the advancement of fruit-growing interests, and it is not itself a trading body, but its branches tend to develop into co-operative societies both for the sale of fruit and the purchase of requirements.

Seeds and Plants Imported into America January 1–March 31, 1911.—The Bureau of Plant Industry publishes in *Bulletin* No. 233 another instalment of its valuable lists of promising seeds and fruits which have been imported recently into U.S.A. From Chinese Turkestan, Mr. F. N. Meyer has contributed many promising varieties of Grape suitable for cultivation for the table, a remarkable collection of Poplars, including the Desert Poplar (Populus euphraticus), cold-resisting Apricots, varieties of the Chinese Plum-Cherry (Prunus tomentosa) and many varieties of other fruits, such as Peaches, Nectarines, Plums, Apples and Oriental Pears. Among introduced trees, Talauma mutabilis, from Java, is mentioned on account of its gorgeous yellow flowers, and as offering to the hybridist an opportunity of attempting a cross between it and hardy Magnolias. All who are interested in plant breeding, and in attempts to improve plants in other ways, should consult the *Bulletin*, in which the details of these and many other plants of promise are given. As on previous occasions when this aspect of the activities of the Bureau of Plant Industry is under review, we are bound to express our admiration of the thorough-going way in which the Bureau conducts its explorations.

Fig. 174.—Androsace henryi: flowers white, flushed with purple.

The Importation of Horticultural Produce in U.S.A.—The permanent committee of Belgian horticulturists is seriously concerned with the effects of the rigorous laws which have been adopted recently in the United States with respect to the importation of nursery stock and other horticultural produce into the United States. The committee points out that not only are certificates of exemption from disease required from exporters by all the States of the Union, except Nebraska, Nevada, New Mexico, and N. Dakota, but that the officials who are charged with the work of inspection often deem it necessary to submit the imported goods to drastic treatment, as, for example, "pitylessly cyaniding" whole consignments. The committee cites several instances in which what would appear to be undue zeal on the part of inspectors has resulted in considerable loss to exporters. Having regard to the fact that one of the chief subjects for discussion at the Scientific Congress held this week in connection with the International Exhibition is this difficult question of restrictive legislation, we do not propose to dwell on the subject at the present time. Doubtless, when the subject is dealt with at the Congress the new American legislation will be brought under consideration.

The Treatment of "Finger and Toe."—The value of lime in combating this disease has long been known, and has been demonstrated again recently by Prof. Gilchrist at Cockle Park Farm, Northumberland. Mr. Walter Collinge, in a paper published in the *Journal* of the Land Agents' Society (x., May, 1911) recommends the following treatment for land known to be infected with the organism responsible for this disease of Turnips and other Cruciferous plants:—(1) the use of ground, unslaked lime (15 cwts. to the acre); (2) sulphuring the land after treatment with lime (5 cwts. to the acre).

ANDROSACE HENRYI.

This distinct and pretty species (see fig. 174) was named after Dr. Augustine Henry, who found it growing in mountain woods in Hupeh, at an elevation of 6,000 feet, in 1888. Seeds were received from the Arnold Arboretum in the spring of last year, being a portion of those collected in Central China by Mr. E. H. Wilson on his last journey in that country. They germinated freely, some being kept in pans in a cold frame, whilst others were planted out in the rock garden. The latter, although fully exposed, lived through the winter and flowered freely during April. Those plants, however, which received protection in a frame from the cold winds developed more luxuriant foliage, and produced larger heads of flowers on longer stems. If afforded a sunny, sheltered position, the plant should make an interesting and desirable addition to a family which contains several early-flowering and popular subjects suitable for the rock garden. A. Henryi belongs to a small section of the genus, the members of which are characterised by rounded leaves on long petioles; those of A. Henryi are about 6 inches long. The leaves are orbicular-reniform in shape, 2 to 3 inches in diameter, with irregularly-lobed and crenated margins. The scapes vary from 6 to 9 inches in length, and bear an umbel of white flowers faintly flushed with purple. The whole plant is slightly pubescent, but not sufficiently hairy to make it very susceptible to our damp and foggy winters. From present appearances, it will probably die after flowering, like many of the Chinese Primulas, but seeds which are ripening on the plants afford means of perpetuating the species. *W. I.*

DEVELOPMENT IN ROCK GARDENS SINCE THE LAST "INTERNATIONAL."

No western nation, it can fairly be said, has taken a more personal and persistent interest in flowers than the English. But together with this personal interest there joins, unfortunately, the typical British blindness to all the beauties of constructive art, with the consequence that, while the culture of Alpines in England has a long and august pedigree, the art of the rock garden has hardly even yet begun to exist. As to history, it has none.

Therefore, in any historical retrospect, it is fair to separate the two subjects, and to take a rather larger purview than that of 60 years, since thus it may be possible to make some guess at this radical separation between the growing of mountain plants and the craft of designing mountains on which to grow them. The two arts run, and have always run, in different currents, and so profound is the breach between them that even to this day it is not wholly obliterated.

The cultivation, enthusiastic and successful, of mountain plants dates back, indeed, to the gorgeous tyranny of the Tudors; the pages of Parkinson, in early Stuart days, may well humiliate the ambitious cultivator of our own time, who cherishes perfectly vain hopes of prodding the Floral Committee into wakefulness toward some believed novelty from "Alpine mountains cold." But all these treasures were, it seems, grown in borders or pots with deep suspicion. Of any natural setting there was no idea. And when, at last, the first notion of rockwork construction dawned upon the West, it came from a source and in a fashion that not only did not suggest any connection with European Alpines, but even seemed to preclude the use of them; and thus arose the disastrous separation of ideas.

For it was not till the close of the 17th century that the influence of China and Japan was set fairly flowing into the West; and even then it came through the utilitarian and unimaginative channel of the Dutch, conveying to us pots and pans and furniture, indeed: flooding the cabinets of Mary II, and threatening grotesqueries to upset the staid gardens of King William, but wholly divorced from the deep wisdom, the foundations of sense and harmony and reason that underlie the gardening code of China and Japan, and result, accordingly, in creations unsurpassable by man—the supreme and unquestionable perfection of gardening. None of these ideas was brought to us then; nor could we have understood them if they had been. Pagodas arrived, though, but without their reason; and without their reason also reminiscences of that wild Dolomitic scenery of Omi, which lives immortal as our notion of Chinese landscape, and as the motive in Japanese painting of the far-off Ashikaga Period. And thus our first conception of rockwork began at the wrong end, in weird and tortured agglomerations of pinnacles. These, on the one hand, had not the motive and meaning that they have in the East; and, on the other, gave the Western folk, very naturally, no idea of using them in connection with mountain plants. These hurtful horrors had their day and passed, but their influence held long, and still is not wholly dead. The average idea of a rockwork is too often traceable, in its efflorescence of spikes, to that remote tradition of a misunderstood ideal from the East.

We are now approaching modern times. All this while, no doubt, to a greater or less degree, the cultivation of Alpines continued, and Primula × pubescens persistently poured the bewildering multitude of its offspring upon an adoring world—all under the name of Auricula. But the sacred fire languished; knowledge of Alpines grew, indeed, but the idea of cultivating them was tainted by the typical 18th century terror of the places where they grow. People hated the mountains, and had no wish to build an art upon them. The very word "rockwork" still surviving ("rocaille") shows that if you indulged in the thing at all, it was as an exotic freak, a misinterpreted memory at third or fourth hand from the great traditions of the Ming and Manchu Emperors half a world away.

In all early notes on rock plants the feeling is clearly one of a pitying wonder that things so, on the whole, pretty should voluntarily choose to inhabit places so preposterous and disorderly. In one of the earliest, that of Linnæus, Alpines are hedged about with a sort of superstitious horror. Little attention is paid to their cultivation, which is held to be almost impossible, and the hills on which they dwell are "Heu loca felici non adeunda viro!"—Stony, steep, untidy, stormy, dreadful are the mountains—call no man happy who has to tread them. And what a distance have we trodden, indeed, from those times to our own, when an increasing number of respectable people finds increasing happiness upon the bland and flower-bedecked slopes of Baldo or the Mont Cenis. But to Linnæus and his time all this joy was stark horror. Even England contained such monsters of discomfort; was there not, in "Jorckshire, Ingleborugh"?

How has the change arisen? Is it possible that the leaven of China had long been working upon our Northern temperament, and leaped at last into efficiency by opening to us the psychological value of asymmetry, solitude, and the ever-changing hills? Be this as it may, the early years of last century, the re-modelling of Europe, up to the time of the Queen's marriage, were marked by a great romantic anti-formal movement which has its best monument in the character and words of Marianne Dashwood, precisely anticipating the character and words of the later Ruskinian revival and reaction against a no less dead and far more deadening tradition. But, unfortunately, Alpines had almost passed out of knowledge by the time of the 'thirties. An enquirer, in 1835, asks in Harrison's *Cabinet* for names of plants to put on a "rockwork" (ominous word!). He gets in reply a sad and jejune little list of common things. It contains three Saxifrages only, and these are granulata, hypnoides, and oppositifolia. Of the Euaeizoons, not one word or hint, though Wooster gives 1731 as the introduction date of S. Aizoon—a date, if it were true, that deserves to stand rather higher than that of the landing of Columbus, so far as the general happiness of the human race is concerned. But the date is not true: Parkinson knows Aizoon as well, or better, than any nurseryman of to-day.

Imagination staggers dazed through the Sahara of the mid-Victorian period. If the possibilities of man hold anything more dreadful, let us never be called to endure it. In England Alpines were more and more cultivated, and this is how—in a round mound consisting of close, successive rings of Sedum and Saxifrage, with a Yucca or some commanding feature at the top. The description is Verlot's, and he justly adds that the effect is nothing if not ungraceful. But he, and others, were at work; the horror of the hills had passed away for ever. The Alps were become happy playgrounds in the revulsion to naturalism that followed on the crash of the great revolutions. And the movement instantly brought a developing zeal for the mountain plants, and a quickly-growing knowledge of their real personalities. Wooster and Verlot began diffusing knowledge, and English gardeners, never to be wholly crushed by fashion, took eagerly again to the cultivation of Alpines. But to us who read of their labours to-day, there is something pathetically comic about their tone. Fear, intense fear, is the note of what they have to say. They look on Alpines with an eye of trembling suspicion; it is "possible" that Saxifraga longifolia may prove hardy, and their other cultural recommendations are in the same mournful key. Very, very few, according to Verlot, are the Alpines that can be grown in the open; the only two undoubted successes being Gentiana acaulis and Arabis albida. For the rest, pots, and special mixtures, and frames and fusses beyond end were considered to be absolutely essential. Wooster is not quite so lugubrious as this, but even he approaches the culture of rock plants always from the point of view that they are only safe in pots. Can one wonder that gardeners shrank away in affright, and that there came a vast slump in the cultivation of Alpines—even though, thanks to this very misapprehension, they were probably more scientific and more successful cultivators of individual specimens, because so much more frightened and fussy than we are to-day in our calm knowledge that most things can be grown quite well with a reasonable degree of care in fundamentals? And all this while "labyrinths" (whatever they may have been) and "rockworks" and monstrous cascades went on being built without, apparently, anybody's ever conceiving that they could be used to make Alpines happy, or Alpines to make them beautiful. Verlot has a plate of a waterfall at the Buttes Chaumont (with two ladies in the foreground, indistinguishable to all but the minutest inspection from the rockwork they are adorning) which almost attains the pinnacle of conceivable ugliness. My own great-grandfather made a "grotto" at Ingleborough, and beset it with spikes, and planted things of which a list remains. But it is the only thing of them that does. There was no connection yet between "rockwork" and rock plants.

The man who made that connection is, I suppose, Mr. Robinson. It is unnecessary to enlarge upon his services, and presumptuous to praise them. For evermore we have the rock garden made for its plants, and for evermore established is the certainty that eight out of ten Alpines are easier, hardier, heartier, less exacting, and far more repaying in any decent conditions of culture than all the gaudy annuals put together on which the Victorians expended their zeal and money. But we have not yet quite attained perfection. We all grow Alpines easily, and love them, and have rock-gardens in which we grow our plants, with much less care and much greater success than our timid and laborious predecessors, who killed their cats with kindness. We have other methods. But we have now too utterly forgotten the art of China. There is no scheme, unity or care about the artistic aspect of the "rockwork" itself; and I use that word advisedly. It stands for a good thing, if rightly understood. We do not *only* want a rockwork; but on the other hand we do not *only* want a series of mounded dogs' graves without design, on which to grow our Eritrichium, no matter how blazingly. It is our fate to rush at extremes; rock and no plants, or plants and no schemed rock. Our aim must certainly now be the growing of plants as well as we can; but we must lend far more of our taste and energy towards also making a "work" of our "rock"—a work of art, simple, apt and harmonious in its place, as the immemorial garden-craft of China can teach those who wish to learn. At present there is a veritable craze for rock-gardens, and a personal passion for knowing and consulting the personal tastes and circumstances of all the plants we grow; moraines, fantasies and fusses and Alpine delights of every sort are planned to suit our treasures. There is absolutely no notion of rule, design or proportion, though, in rock-garden building. Although it is obvious that the setting ought certainly to be beautiful enough to be worthy of the actors on the stage, and the actors of their setting, too: neither preponderating, but both combining to form a perfect harmony of beauty. A Chinese or Japanese garden set with European Alpines is my ideal; or rather a garden framed on rules of wisdom and design such as govern every artistic or utilitarian (the words have no separate connotation) action of the East.

As it is, we hump our stones indiscriminately. We study neither proportion nor arrangement. We think it enough, if we grow our plants well, that our stone should be piled anyhow. We have

not essentially advanced beyond Verlot's scheme, which was a mound of successive rings of stone, as irregular (i.e., spiky) in shape as you could manage, with "a sort of crest" crowning the summit. That, of course, is rich and ambitious. Pell-mell in little puddings is our general scheme; or else, if richer still, we run to the nearest nurseryman, and let him do his worst in the way of spikes and spires and tortured assortments of ugly rock. A yet further dream is to build a vast rock-work out of square blocks of Portland cement, or of convoluted slabs made of some artificial concoction, which has to be fried or otherwise cooked in the kitchen.

With the exception, however, of our rather weak indifference with regard to good design, it may be said that the art of the rock-garden is still advancing heartily among us. We have long seen the beauty of the hills and their inhabitants. We have learned by now how hardy, easy and happy are the latter in cultivation; so hardy and happy, indeed, as to offer a far better investment than most other plants, alike to the cultivator of large means and of small. Cheap they are to-day, and in number like the stars. Yearly becoming cheaper as the number of their lovers grows yearly by thousands. They are gradually getting known, too, by their proper names, despite the obscurantism of catalogues; and those names now slip without protest off even the least-instructed of fair tongues. Fair hands, too, have undertaken to gild the Lily and paint the Rose. New seedlings appear at each show, with more and more pompous names each time: and Saxifraga decipiens, from a mountain-fairy, is being diligently trained into a red-faced kitchenmaid. Alpines, in fact, have fairly become part of our national life, and their most earnest worshipper need only put in a caution lest in universal passion for novelty, and show, and glare, we may slip by degrees into a too-florist attitude. Already it is growing necessary to have an "Alpine" Committee; since it is notorious that true Alpines do not readily excite the sympathy of the Floral Committee, and many an owner of a "rock-garden" craves most for stretches of gorgeous Alyssum and Aubrietia. None the less, there is hope for all. Zeal leads to higher zeal; and a stuffed owl may share the Matterhorn with Eritrichium. All roads lead to the good Rome of real discerning love and sympathy with the "austere little people of the hills"; and by all those roads to that one goal it may gladly be said that almost all gardeners in England are pressing to-day. *Reginald Farrer.*

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

Clianthus Dampieri (see p. 294).—The only way to obtain satisfactory results with this plant is to graft it on Colutea arborescens (the Bladder Senna). The grafting should be carried out when both the stock and scion are in the seedling stages. The Colutea should be sown in July, about a week previous to the Clianthus, and both in a gentle heat. The Colutea should be potted in thumb-pots as soon as possible, and after being for a few days in a close frame it will be ready for grafting, which needs to be done before the plumule has developed more than one leaf. Cut the centre completely out in a downward direction through the hypocotyl with a very sharp knife or razor, retaining the cotyledons. It should be well done, or lateral buds will be troublesome. Both sides of the hypocotyl of the Clianthus should be carefully cut to form a tiny wedge, and inserted in the corresponding cut of the Colutea. Bind round with very fine matting, and place the plant in a warm case for a week, in the course of which time the stock and scion will unite. By the end of August the grafted plants will be ready for potting in small 60's, in which they may remain over the winter. The potting compost should be of an open texture and consist of fibrous loam and peat, with a little sand and charcoal. Watering must be done with care during the winter, as an excess of moisture may prove fatal. By the end of February the plants will be ready to place in baskets. The soil should be as before, but with more open and lumpy material to allow water to pass away freely. About the end of March the tops should be pinched, which will result in a profusion of side growths. The first flowers should be picked off for a few weeks to induce a plentiful growth, after which the plants produce their beautiful trusses of dark red flowers till late in the autumn. The plants should be kept all the time in a cool-house, free from draughts. They should be syringed overhead once or twice daily during hot weather. Thrip and red spider may prove troublesome and must be guarded against, especially during the winter. It is better to provide for a succession than retain old specimens, as the plants get shabby after the first year. The grafting operation requires a certain amount of patience, but well repays the trouble expended on it. *W. H. Judd.*

The Pear Midge.—Pear trees in this and other gardens of this district are badly attacked by the Pear midge (Diplosis pyrivora). Infested fruits may be easily detected now owing to their unusual size. The fly or midge makes its first appearance in April, about the time of the opening of the blossom. The female has a long egg tube, and the eggs are laid close upon the ovary of the flower. The maggots hatch and eat their way into the centre of the fruits; they are very minute. In the space of a few weeks the maggots develop to about 1-10th of an inch in length, and by about the beginning of June are ready to emerge from the fruits, drop to the ground, and remain buried until they pupate the following spring. No time should be lost in dealing with the infested trees, picking off all fruits attacked and burning them, gathering those that have dropped, and burning them, as these may contain maggots. Arsenical washes should be sprayed on the trees when the buds are perfectly dormant. A good remedy is to put Kainit on the ground at the rate of 4 ounces to the square yard as the larvæ is falling, making sure this is done before the larvæ become enshrouded in their silken cocoons, in which state they remain until pupating the following spring. Lime and soot may be spread on the ground in the summer time, and hoed in, with beneficial results. Trees that were treated in this manner last season are almost immune from attack this spring. *E. W. F., Henham Hall Gardens, Wangford, Suffolk.*

How Garden Stuff was Used 200 Years Ago.—The last published volume of the Scottish History Society* contains among other matters relating to horticulture a number of "Bills of Fare" which Lady Grisell Baillie noted down at dinner parties, and in these we get a good idea of the place vegetables and fruit had on the tables of the best society of the early Georgian period. The first is dated 1715 and the last 1728. We could hardly expect Pineapples to appear at dessert, but it is remarkable that neither Grapes, Peaches, Nectarines nor Melons are once mentioned, though they may have been in mixed dishes of fruit which are not distinguished by name. Asparagus was the most popular of all vegetables, of which the variety is as limited as of fruit. Two courses and dessert composed the dinner, all the dishes seeming to have been arranged on the table at once. Earl of Orkney's, Oct. 12, 1715: "Ham and spinach stacks, sallarly, and peas soup; aples, chestons, pears, peald walnuts." Duke of Roxburgh's, January 2: "Sparagrasse." Same fruits as above. General Erle's, May 10: "Hens wt colloflour, green peas, tartes." At Mr. Johnston's, May 26, 1718: "Beans and bacon, archocks, peas, tarts, strawberes, chirries, oranges." This gentleman was uncle to Lady Grisell's husband, and earlier in King William's time had been Secretary for Scotland. Bradley, Switzer, and others mention Secretary Johnston as a great patron of gardening. His garden was attached to Orleans House, his residence at Twickenham. August, at Earl of Sunderland's, there was with other dishes "Soup without anything in it," and "bottams of Raeteehocks." Her ladyship's attempts at spelling are not always successful! Princess of Wales's, July 20, 1720: "Bacon and beans, peas, beans, tart. Prince of Wales's, June 22: "Frensh beans." Earl of Carlisle's, November 20, 1722: "Shalot, bitrowes scorsonera, hertickhos would do better." The same, December 17: "Mushrooms, spinag, sallary, sparagrass." Lord Carlisle's gardens at Castle Howard were according to Switzer perhaps the finest in England. Same, March 28, 1725: "Kidney beans, asparagrass." Duke of Hamilton's, January 25, 1725: "Red cabbage, salary, asparagrass." Duke of Chandos's, April 25: "Hartichocs, spnch." Lord Mountjoy's, March 15, 1727: "All sorts of roots, asparagras, sallary, licks, etc. Desart: Franch plumb, apricoks, aples, frensh hgs, plumbs, pistache nuts, etc." Lord Halifax's, May 23, 1726: "Bacon and beans, pease, sparagras." Sir R. Walpole's, June 6, 1727: "Currant tart, peas stewd, hautichok sukers, Angeltoty." The "sukers" were probably Cardoons and "Angeltoty" Angelica. An "eparn in the middle" is only twice mentioned. Early in the century the Baillies took up residence at Mellerstain, where new gardens, an enclosed orchard, avenues, &c., were laid out. The fruit trees for the orchard were bought in London in 1715, and consisted of Peaches, Nectarines, Pears, &c., though this is not mentioned in this volume. The cost for 90 trees was £4 1s. 6d. Three hundred Lime trees were purchased at the same time, and with freight cost £5. In 1714 Thorns cost 10s. per 1,000, "Plains 1d. pr. pice," Elms, 15s. per 1,000, genus (Prunus avium), 4d. per 100, Firs, 12s. per 100, "Anemonys" were 4d. each, Ranunculus, 3d., Junquils, 1d., Tulips, 2d, in all £1 5s. having been disbursed for these. In 1718, 300 Horse "Chestons" cost 6s., and £1 5s. was paid for Chestons and Walnuts. Fir seeds were 12s., Lime seeds, 5s. 6d., and white Pease, 6d., each per lb. The financial transactions, of which the undernoted account is a specimen, do not lead one to envy those who lived in the good old times. It is headed "John Hope," who was gardener for only a brief period:—

"To his house rent, this besides his £4 of fie (wage)...	11	1½	
To him 5 sh.	5	0	
To him for Pringle's shoes	2	10	
To him by corn from Widow Wight	2	16	8
To him a stone wooll at 6s. 8d., more 8 sh.	14	8	
To him which clears his wages from Martimas, 1709, till Martimas, 1710			10

From which it appears that John Hope received in cash for his 12 months' labour of body and mind just 13s. 10d., and began the next year with 10d. to the good. The previous year he is debited with 8s. for bed, and at the end of the year received 8s. 2⅔d., the balance of the transactions. When residing in London there are disbursements for "greens to the parlour chimney, 1s. 6d.," that is, evergreens to ornament the grate, also small items for doing up the garden and for dressing the vine. There is a remarkable item on one occasion, viz., "Cheries at the Ball, 10s.," but as this was in Scots money it looks not so alarming for a lady to consume, the amount in sterling money being 10d. The only time a bouquet is mentioned is for a ball at Spa, the "Buckie" costing 12s. When her two daughters were married, one of the items in the account is for a garland, that for Grisell, who was afterwards well known as Lady Murray, costing 3s. "for ruband," while that for Rachel, who married Lord Binning, cost £1 1s. 6d. The entry is "For the Garland that is brock over the Brid's head." *R. P. Brotherston.*

Sale of Orchids.—In your issue of the 27th ult., you published a paragraph calling attention to the forthcoming sale of Orchids belonging to my late brother, H. J. Adams, of Roseneath, Enfield. The collection was, as you stated, a varied and comprehensive one, and although not containing varieties of the very highest merit, included many good and costly plants. The result, however, was very disappointing; the 2,370 plants realised only £303 7s. gross (expenses not deducted), which works out at an average of about 2s. 6d. per plant. One plant sold for £12 12s., and 49 realised only £1 to 6 guineas each, the remainder ranging from 19s. down to 2d. each, most of them bringing no more than the price of ordinary hardy herbaceous roots. *Fredk. C. Adams.*

* *The Household Book of Lady Grisell Baillie*, 1692–1733. Edinburgh, 1911.

THE INTERNATIONAL EXHIBITION.

VISIT OF THE KING AND QUEEN.

THE King and Queen, accompanied by Princess Mary, Princess Victoria, Princess Henry of Battenberg, Princess Christian, and Princess Mary Louise of Schleswig-Holstein, visited the International Horticultural Exhibition at Chelsea Hospital at 11.30 a.m. on Wednesday last.

The Royal party was received by the Duke of Portland and the Directors of the Exhibition. Among those present were the French, Russian, Japanese, Italian, Austrian and United States Ambassadors, and the Swedish, Netherlands, Belgian, Chilian, and other Ministers, the Duke and Duchess of Somerset, the Rt. Hon. Walter Runciman, President of the Board of Agriculture and others.

The King and Queen were attended by the Countess of Minto, Lord Willingdon, Sir Charles Cust, and Captain Hunloke. Their Majesties shook hands with the foreign diplomats and many other distinguished personages, and then made a tour of the exhibition.

On passing through the Dutch section, the Queen was presented with a bouquet of Lilacs, and before leaving her Majesty also graciously accepted a bouquet of Orchids.

Their Majesties were escorted round the exhibition by the Duke of Portland, Sir Geo. Holford, Mr. Gurney Fowler, Chairman of the Exhibition Committee, Sir Jeremiah Colman, Mr. Harry J. Veitch, Mr. Edward White, and others, including Sir Trevor Lawrence, Bart., Mr. and Mrs. Leopold de Rothschild.

DUKE OF PORTLAND'S RECEPTION.

On Tuesday evening the Duke and Duchess of Portland gave an "At Home" at 3, Grosvenor Square, to welcome the representatives of foreign countries and the Colonies. There was a very large gathering, and the guests spent a most delightful time amid beautiful flowers and charming music.

THE JUDGES' LUNCHEON.

After the departure of the King and Queen from the Exhibition on Wednesday, the judges were entertained to luncheon in a large marquee. The Duke of Portland presided, and the countries represented were Hungary, Austria, Belgium, Bulgaria, China, Chili, France, Guatemala, Holland, Luxembourg, Panama, Portugal, Russia, Sweden, Uruguay, Venezuela, Brazil, Columbia, Canada, British Columbia, New Brunswick, Prince Edward Island, South Australia, Queensland and New Zealand.

After luncheon, the President proposed the toast of "The King and Royal Family." He said they all realized the great honour his Majesty had conferred on that stupendous exhibition by the gracious manner in which he, accompanied by Queen Mary, had performed the opening ceremony. They felt nothing but loyalty and devotion for their Majesties. The President touchingly alluded to the great grief suffered by Queen Alexandra in her bereavements, and said they all extended to her Majesty their heartfelt and respectful sympathy in her great and grievous losses.

Mr. Runciman proposed "Success to the Royal International Horticultural Exhibition." He first extended to the visitors a cordial welcome, not only in the name of the Board of Directors of the Exhibition, but in the name of his Majesty's Government and the country as a whole. (Cheers.) They were greatly honoured by the visit of gentlemen of world-wide renown in the sphere of horticulture, who were a credit to their own country, and of whose achievements all were proud. Their presence contributed to the dignity and success of the exhibition, and he hoped they would find great pleasure and satisfaction in their visit. We in England, he said, were proud that of all international horticultural exhibitions this was the largest. (Cheers.) When we look back over the long period since 1866, he proceeded, when the last International Horticultural Exhibition was held here, we realise what an enormous advance has been made not only in horticultural work at home and abroad, but in the training of those who are chiefly responsible for the growth of flowers and fruit. This great Exhibition is large, not only in acreage, but in variety, and I am sure anyone who has seen this Exhibition will agree with me that there has never before been so much skill and artistic ability used on the display of flowers—an Exhibition which has met with the praise and approval of his Majesty himself. These achievements have been the result of long labour on the part of the Board of Directors and the officials, and especially of Mr. Gurney Fowler, who throughout two industrious years has been laboriously working for the success of this single week. The standards which have been reached in this Exhibition are only evidence of the great extent to which horticultural knowledge has developed even within the lifetime of the youngest of us, and that brings me to a point on which I wish to say something with regard to our horticultural work at home. In the long run, the success of gardens, whether they produce vegetables, fruit, or flowers, depends on the gardener, and, as in so many other walks of life, the personal element must be supreme. Here in England —I fear I do not know what you have achieved abroad in this respect—although we have diplomas of horticulture, there is not at present anything in the nature of a diploma in gardening for our gardeners. In so far as diplomas tend to raise the standard of knowledge and skill of our gardeners, that is a serious blot on our Horticultural Organization. A committee has recently been sitting under the Chairmanship of Mr. Arthur Dyke-Acland. The committee has made recommendations in regard to diplomas in gardening—recommendations with which, I may say, I am in full sympathy. Although it is not possible here—for this is neither the time nor the place to state what can be done in regard to diplomas in horticulture in this country—I can say that whatever is best in the interests of horticulture, in the alloting, organizing, and examining for diplomas, shall receive full assistance from the Department over which I preside. In our Board of Agriculture here we have not previously had a horticultural branch, but I am pleased to announce that only within the last few weeks I have succeeded, with the help of my able officials, in setting aside a portion of the work of our Board of Agriculture to horticulture itself, and I have created a horticultural branch, whose interests shall be devoted entirely to horticulture and nothing else. In such a learned assembly as this, I need hardly point out that it is difficult to say exactly where the limits come. We are not unconscious of the large part which insects play in the industry of horticulture, and we therefore hope to have near the head of the branch one of the best entomologists our country can produce, and we know the part those very useful creatures the bees play in fertilising and beautifying our country. We have received an impulse and stimulus from your great Exhibition. And I, in the name of my Department, express our deep gratitude to you for the enthusiastic way in which you have embarked on this tremendous undertaking. Finally let me say how much pleasure it gives me, as a Minister of the Crown, to welcome here gentlemen of all nationalities. However different may be our national ideals, however far at times our interests may not be identical with those matters in which we are primarily interested, our intentions and ideals are the same, and we join hands with our friends who come to this island, in welcoming them because they are enthusiasts, as we are, in wresting from Mother Earth—the mother of us all—the richest and most delicious blessings which she can produce.

Mr. Gurney Fowler responded. He said the exhibition was started two years ago, and during those two years he thought they had run through the whole gamut of human feelings. They started with enthusiasm and went on as far as they could; they then began to feel despondent; they then found the public supporting their efforts; they began to get enthusiastic again, and they had now come to the time when he hoped and believed they had achieved success. The speech of Mr. Runciman would be welcomed by all gardeners throughout the country. They had always pressed that the diploma should be a State affair, and they were glad to hear what Mr. Runciman had said on that point. He would be remiss if he did not mention the names of those gentlemen who had done so much for the Exhibition—Mr. Veitch and Mr. May. Mr. Veitch was almost the only representative present who was active at the 1866 Exhibition. His activity never failed him, and on the present occasion it had been as obvious as ever. Mr. Veitch had had the management of the jury section and the management of the schedules, and had always given invaluable advice. To Mr. May they owed a great debt of gratitude. He had been chairman of the Show and Site Committee, and they would all agree that the site he had chosen was certainly no discredit upon his judgment and management. Other members of the Board had worked enthusiastically, but those two gentlemen had borne the brunt and burden of the day. With regard to the detailed work, he could point to their managing director—Mr. White. That gentleman had been a host in himself, always ready and able to solve difficulties. Then their organising secretary, Mr. Henslow, had had an exceedingly hard time, and it was impossible to estimate the amount of work he had done. To that gentleman he wished to tender his best thanks. Then he must not omit their friend Mr. Piggott, who would go down the centuries as the tent-maker for the great International Horticultural Exhibition. At their desire, Mr. Piggott caused a beautifully-designed tent to spring up everywhere with telephone and telegraph complete. He had been paid for his work, but his work had been a great credit to him nevertheless. He again thanked all who had so warmly drank the toast.

Sir Jeremiah Colman gave the toast of "The Jurors." He said the executive were to be congratulated in getting together 400 such judges, willing to undertake the responsible duty of judging. The difficulties judges had to overcome owing to all-round excellence were enormous, and no one who had not gained a high prize should be unduly disappointed, in view of the excellence of all. He asked them to drink the toast with enthusiasm.

M. Jules Hye de Crom was the first to respond. Speaking in French, he said he had great pleasure in acting as interpreter of the Belgian exhibitors, as well as of the members of the jury from other nations friendly to England. The Temple Shows had a universal reputation, and distinctions which he and his compatriots had gained during the past 27 years were particularly precious to them. As a member of the jury, he had had sometimes to fulfil delicate functions on account of the extraordinary importance of their superb floral displays. He had done the work with pleasure and pride, because of the good relations and sympathy which had rendered his task agreeable, and because he had met the *élite* of those who were concerned in producing the most beautiful things on earth. "I drink to the King of England," he said in conclusion; "I raise my glass to the English people, to the good relations between England and Belgium, and to the organisers of your superb Exhibition."

Herr Fritz Benary also responded. He spoke of the wonderful display of flowers. Everything showed the superiority of England in horticulture and gardening, and all the jurors were unanimous in expressing their conviction that a similar floral Exhibition had never before been seen anywhere. They would leave England full of admiration, and they could never forget what they had seen.

Jonkherr W. T. C. Van Doorn, President Netherlands Horticultural Council, proposed "The Exhibitors." He expressed the grateful feelings of his Dutch countrymen towards their Majesties the King and Queen, and went on to say that Dutch gardeners had learnt much from English gardeners, and there was much they could desire to imitate.

Mr. Vicary Gibbs responded. He said they were all proud to have seen such a show. He knew that exhibitors, as a body, heartily disliked one thing, and that was the judges. That day he happened to be both an exhibitor and a member of the jury, and a finer jury there never was. As an exhibitor, he congratulated the jurors, because he understood they had awarded him one of the finest cups in the show.

Sir Trevor Lawrence, President of the Royal Horticultural Society, proposed "The President." The toast, he said, would be received with much warmth and pleasure by everyone, and they were all glad that the Duke of Portland

had that day received a first-class certificate for a beautiful Odontoglossum. He sincerely hoped Mr. Runciman would be successful in what he had mentioned. Anything the R.H.S. could do to assist would be done.

The Duke of Portland, responding, thanked the company for the warmth of their reception of the toast, and on behalf of the promoters of the exhibition he heartily endorsed the welcome which fell from Mr. Runciman and Sir Jeremiah Colman to those who had come from other countries, and who had given their inestimable services as jurors. He regretted he possessed no scientific or skilled knowledge of the problems involved in the cultivation of flowers, but he could say that, as one who dearly loved a country life and all that pertained to its rational and sensible enjoyment, and to all lovers of flowers, a well-kept garden always must be a source of the highest pleasure and contentment. He believed that exhibition would advance the objects they had in view, and it certainly afforded a first-class opportunity of seeing the vast progress that had been made since 1866. For that reason it gave him exceptional pleasure to have presided over such a function.

Mr. Harry Veitch, responding to calls from the assembly, said that was a solemn occasion for him, as he remembered very well the exhibition of 1866, and he was thankful he had been spared to take part in the exhibition of 1912. He could not hope to be present at the next exhibition, but if he happened to be he would give his best services.

Sir George Holford, also responding to calls, said he was proud to have won the King's prize, and he had the satisfaction of knowing that his pleasure was not marred by jealousy on the part of anyone else, because horticulture was such a splendid pursuit that there was no room for jealousy. Their Majesties in their tour that morning had expressed their admiration and amazement at all they saw.

Obituary.

Charles Smith.—The many friends of Mr. Charles Smith, of the Caledonia Nursery, Guernsey, will be deeply grieved to learn of his death by his own hand on the 10th inst. Mr. Smith had been in ill-health for a considerable time. At the Caledonia Nursery, Mr. Smith had amassed a most interesting collection of the more uncommon hardy and half-hardy plants, trees and shrubs. Mr. Smith had a charming personality, and he always took delight in showing garden lovers over his nursery, when he would freely give of his large store of knowledge. We learn that the business will be carried on by his nephew, who has been associated with the firm for some time past. *B.*

Mrs. Marian Sarah Farquharson.—Amid many manifestations of sincere regret from a large circle of friends, there were laid to rest in the little country churchyard of the Vale of Alford, Aberdeenshire, on Tuesday, 21st inst., the remains of Mrs. Marian Sarah Farquharson, widow of the late Mr. Robert F. Ogilvie Farquharson, of Haughton, Aberdeenshire. Early in life deceased made a study of botany and in this science she occupied a prominent place, discovering in the course of her researches many new species. In 1881 she wrote a handbook entitled *A Pocket Guide to British Ferns*; this work was followed by another on *British Mosses*. She married in 1883 the late Mr. Farquharson, of Haughton, and their combined researches resulted in the discovery of numerous species. A list of 184 species of Desmidie, besides numerous varieties compiled by the late Mr. John Roy, were almost entirely from material gathered by Mrs. Farquharson. One beautiful Desmid, of the genus Docidium, of which Mrs. Farquharson found numerous specimens on Tent's Moor, St. Andrews, was named "Farquharsonii" by Dr. Roy, in compliment to its finder. About this time, through the influence of the late Lord Farrer, Mrs. Farquharson was enabled to make visits to the Linnean Society, where subjects were often under discussion in which she was conducting research. According to the constitution of the society, she was debarred from being in the rooms during the progress of the meetings, notwithstanding that she was an acknowledged authority. In 1885 Mrs. Farquharson was asked to become the first lady Fellow of the Royal Microscopical Society, but the sex barrier still prevented her from taking a personal part in the meetings of that society. She was a daughter of the late Rev. Nicholas J. Ridley, of Hollington.

F. M. Burton.—This gentleman died at Highfield, Gainsborough, on the 16th inst., at the age of 83 years. Mr. Burton was educated under "Arnold of Rugby," and was articled to a leading firm of solicitors in Grantham. Later he practised at Uppingham, and was appointed Registrar of the Gainsborough County Court. The collection of herbaceous and other hardy plants which Mr. Burton formed at Highfield included many specimens collected by himself during his travels in various parts of the world. About 30 years ago he took up the cultivation of Orchids, and he raised many hybrids, including Epidendrum Burtonii. For many years a large number of visitors availed themselves of the opportunity afforded weekly of visiting Mr. Burton's garden.

GARDENING APPOINTMENTS.

[Correspondents are requested to write the names of persons and places as legibly as possible. No charge is made for these announcements, but if a small contribution is sent, to be placed in our collecting Box for the Gardeners' Orphan Fund, it will be thankfully received, and an acknowledgment made in these columns.]

Mr. William Cairns, for the past 1 year and 10 months Gardener to F. A. Deline Radcliffe, Esq., The Priory, Hitchin, Hertfordshire, as Gardener to S. Whitbread, Esq., Southill, Biggleswade, Bedfordshire.

Mr. Harry Tidman, for the past few years Gardener at Cregg, Fermoy, Co. Cork, as Gardener to A. Buckley, Esq., Galtee Castle, Clogheen, Co. Tipperary.

Mr. G. Rutherford, previously Outside Foreman at Mortonhall, Midlothian, and at St. Mary's Isle, Cullen House, and Norwood, as Gardener at Holme Priory, Wareham, Dorsetshire.

Mr. F. V. Kemp, for the past 4 years General Foreman to the late Mrs. M. Mitchell, Mayford House, Mayford, Surrey, as Gardener to the Right Hon. Dowager Countess of Wharncliffe, Woodhill, Send, Surrey. (Thanks for 2s. for the R.G.O.F. box.—Eds.)

Mr. A. Newnham, for the past 7 years Foreman at Goddington Hall, Chelsfield, Kent, as Gardener to Mrs. Robinson, Fircroft, 84, King's Avenue, Clapham Park, S.W. (Thanks for 1s. received for R.G.O.F. box.)

Mr. A. E. Jackson, for the past 2 years Foreman at Culham Court, Henley-on-Thames, and previously Foreman at Stokesay Court, Onibury, Salop, and Bosworth Park, Nuneaton, as Gardener to W. W. Boulton, Esq., Braxted Park, Witham, Essex. (Thanks for 1s. 6d. for R.G.O.F. box.—Eds.)

Mr. James Heath, for 6 years Gardener to the Hon. F. Forester, Shelton House, Shrewsbury, as Gardener at Decker Hill, Shifnal, Shropshire, with the same employer.

Mr. W. Watson, for the past 6 years Gardener to J. Rank, Esq., Bushey Down, Tooting Common, as Gardener at Kingswood Warren, Tadworth, near Epsom, with the same employer.

Mr. B. Webster, for the past 8 years Foreman at Kedleston Hall, Derby, as Gardener to H. M. Luckock, Esq., Brynderwen, Usk, Monmouthshire. (Thanks for 1s. 6d. which has been placed in the R.G.O.F. box.—Eds.)

TRADE NOTICE.

WILLIAM TRESEDER, LTD.

A private company has been registered with a capital of £3,000 in £1 shares, to take over the business of nurserymen, seedsmen and florists, carried on by F. G. Treseder and R. W. Treseder, at Cardiff, and at Llandaff, Whitechurch, and Monachty, as William Treseder.

CATALOGUES RECEIVED.

Robert Veitch & Son, Exeter—New Calceolarias.

FOREIGN.

Saitamaengei & Co., Toyono, Kitakatsushika, Saitamaken, Japan—Nursery Stock.

Publications Received.—*The Story of My Rock Garden*, by Reginald A. Malby. (London: Headley Brothers.) Price 2s. 6d. net.—*A Year's Gardening*, by Basil Hargrave. (London: T. Werner Laurie.) Price 6s. net.

Answers to Correspondents

*** *The Editors will be glad to receive, for consideration, large photographs of horticultural subjects, suitable for reproduction in this Journal.*

Manure for Onions: *E. E. B.* Either nitrate of soda or sulphate of ammonia may be applied to the crop of Onions, affording the first dressing as soon as the seedlings are thinned. Apply the manure at the rate of one pound per rod every fortnight until the bulbs are a suitable size. Sulphate of ammonia may be used for other crops at the same rate.

Names of Fruits: *W. G. H.* Northern Spy.

Names of Plants: *F. E.* 1, Ribes aureum; 2, Pyrus species, flowers fallen on arrival; 3, Berberis Darwinii; 4, Taxodium distichum; 5, Azara microphylla; 6, Berberis vulgaris var.—*D. G. Upton.* 1, Pyrus floribunda atrosanguinea; 2, Cydonia japonica var.; 3, Prunus species; 4, send when in flower; 5, Cydonia japonica var. alba; 6, Pyrus spectabilis flore pleno; 7, Eupatorium trapezoideum; 8, Cuphea species; 9, send when in flower.—*H. B.* Saxifraga muscoides atropurpureum.—*R. G. H.* Daphne Cneorum.—*J. E.* 1, Prunus Padus; 2, Lonicera tatarica; 3, Saxifraga Geum var.; 4, Iris cristata; 5, Anemone coronaria fl. pl.; 6, Silene maritima fl. pl.—*Kent.* Rhododendron fulgens.—*M. C.* 1, Lilac Mme. Lemoine; 2 and 3, unnamed varieties of the Common Lilac; 4, Lilac Charles X; 5, L. Michael Buchner; 6, Spiræa van Houttei; 7, Clematis Lady Londesborough; 8, Ornithogalum arvense.—*Wokingham*: 1, Pyrus Aria; 2, Gaultheria Shallon; 3, Thuya plicata; 4, Amelanchier alnifolia; 5, Acer monspessulanum; 6, Castanopsis chrysophylla.—*J. Mardlin & Son*: Prunus Padus ("Bird Cherry").—*H. F. Z.* 1 and 2, Leucothoë Catesbæi; 3, Cryptomeria japonica; 4, Vaccinium ovatum; 5, probably a species of Ligustrum; send when in flower.—*Cockle.* Akebia quinata (not a Passion Flower).—*Genista Yellow.* Cytisus scoparius.—*E. L.* 1, Muscari comosum; 2, Prunus Padus.—*R. P. B.* Rhododendron Keysii.—*A. C.* 1, Tamariz tetandra; 2, Prunus nana; 3, Lonicera japonica variety aureo-reticulata; 4, Skimmia japonica.

Darwin Tulips Under Grass: *H. B.* Darwin Tulips will not adapt themselves so readily to culture in grass as Daffodils and Crocuses. They would do well enough for one season, provided that special stations of soil were made for them in the grass.

Vermin Killer: *H. D.* The address of the manufacturers of Steiner's Vermin Paste is, we believe, Henry Street, Limehouse, London, E.C. A correspondent informs us that in recent years he has used phospho nicotyl, mixed with Barley-meal or middlings, for destroying woodlice and other troublesome creatures with satisfactory results. Phospho nicotyl is manufactured by Messrs. Walter Voss & Co., Ltd., Millwall, London, E.C.

Market Gardening: *G. J. B.* In the special circumstances indicated in your note, we cannot advise you to adopt market gardening as a profession. The work is very arduous, and, at the best, not very remunerative. Poultry farming, we should think, would be more likely to suit your requirements. The duties are light and in the open air, and your chances of earning a living thereby would be more promising. In making a start in poultry farming you should consult an expert in the work as to the most profitable breed of birds to rear and their general treatment.

The Strawberry Crop: *J. C. H. & Co.* It is anticipated that there will be a general shortage in the Strawberry crop, especially in Kent. Outdoor Strawberries are expected to arrive from Southampton at the end of May; from Kent at the middle of June.

Communications Received.—W. J. K.—A. S. A.—A. D.—H. R. J.—B & Sons—T. J. F.—W. B. M.—L. A. C.—W. W., Hatfield—C. A.—Shacas—Thanet—W. C.—W. B.—P. C.—R. P. B.—M. C.—R. S. L.—A. H., Havant—W. F.—W. J.—J. B.—R. J. B. & Sons—H. J. W.—G. B. M.—E. W. & Sons—R. J. W.—W. & Sons—A. E. M.

NEW ROSE "SUNBURST"

COLOUR—Superb Cadmium-Yellow, Orange Centre; Splendid Grower; Perfect Shape; Fine Bronzy-Green Foliage.

A well-known Grower says:—*"During the 40 years I have grown Roses I have never had its equal for beds or forcing."*

STRONG PLANTS - - - of the true variety, in deep 5 in. pots **5/-** each; **60/-** per dozen.

WOOD & INGRAM (J. E. PERKINS), The Old Nurseries, HUNTINGDON.

Telegrams: "Clematis, Huntingdon" Telephone. No. 4.

The

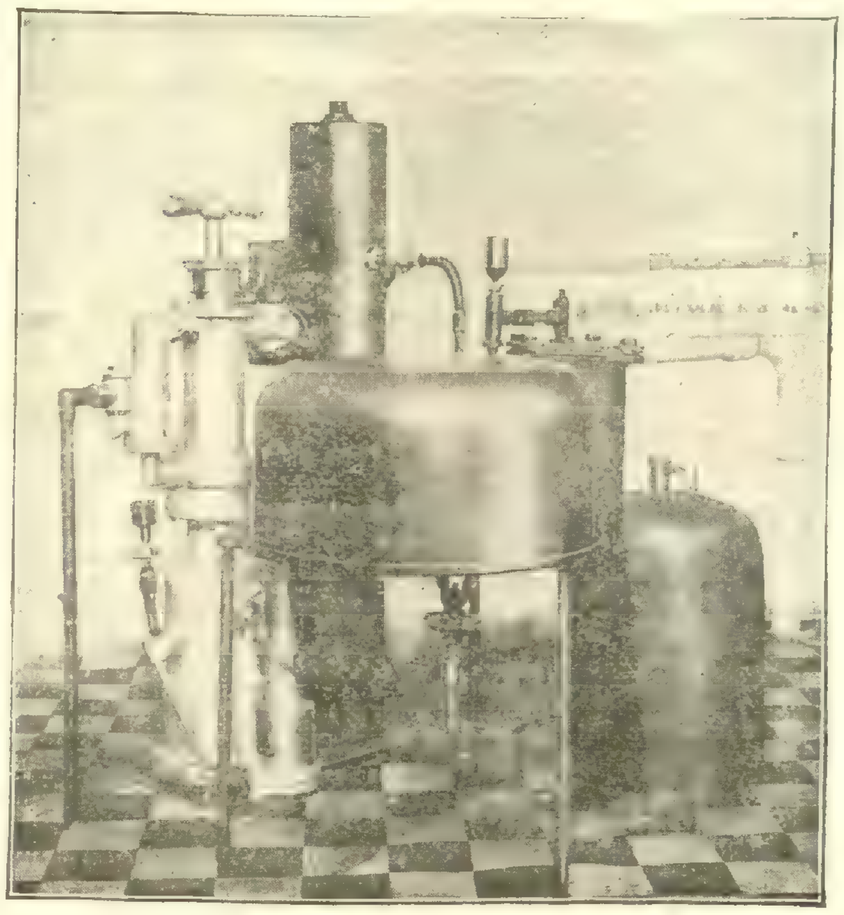
LAMP PUMP

.. Badcock's Patent.

The Cheapest and Most Compact Power Pumping Plant in the World.

AN AUTOMATIC LIFT AND FORCE PUMP.

Will pump 400 gallons per hour at the cost of less than 1d. (One Penny!)



Floor space occupied by this installation 2 ft. 6 in. by 2 ft. 6 in.

Lamp Pump No. 1, for Shallow Wells.

Telephone: 797 VICTORIA.

Telegrams: "PUMSYNDI, LONDON."

: : No more Pumping by Hand. : :
No Engine House or Skilled Attendance Required.

Apply for further particulars to—

The LAMP PUMP SYNDICATE, Ltd.,

Hydraulic Engineers,

12, Carey Street, Westminster, LONDON, S.W.,

(Two minutes' walk from the Royal Horticultural Hall).

Where the Pumps can be seen at work.

"ACME" WEED KILLER

For Destroying Weeds, Moss, &c., on Carriage Drives, Garden Walks, &c.

Powder Weed Killer

Dissolves Quickly in Cold Water.

SIZE OF TINS:

No. x, sufficient to make 12½ galls., **1/-**, postage 3d.
,, 1, ,, ,, 25 ,, **1/9** ,, 3d.
,, 2, ,, ,, 50 ,, **3/3** ,, 4d.
,, 3, ,, ,, 100 ,, **6/-**, post free.

Liquid Weed Killers

One gallon to be mixed with 25 gallons of water. PRICES: 1 gallon **2/3** (tin free); 5 gallons **7/6**, drum **2/6**; 10 gallons **13/4**; 16 gallons **21/4**; 20 gallons **25/-**; 40 gallons **48/-**.

Carriage paid on 5 galls. Drums or Casks of 10 gall. and over charged 5/- each, allowed when returned. Strength 1 in 50. Prices on application.

LAWN SAND. Kills Daisies, etc., and fertilizes the grass. 7 lbs. **1/9**. 56 lbs. **9/-** carriage paid.

A SENATE OF LEAD (Paste) for destroying all leaf eating insects, **8d.** per lb. Postage 3d. 1 lb. sufficient for 25 galls. of water.

"FUMERITE" for destroying all ground vermin, slugs, &c. (To be dug into the soil). 1 lb. **9d.**; 7 lbs. **3/-** carriage paid.

EXTRACT OF QUASSIA INSECTICIDE. Pint **1/-**, 1 gallon **3/-**.

COMPOUND EXTRACT OF QUASSIA-TOBACCO INSECTICIDE. Pint **1/3**, quart **2/-** post paid.

SUMMER SHADING. &c., &c.

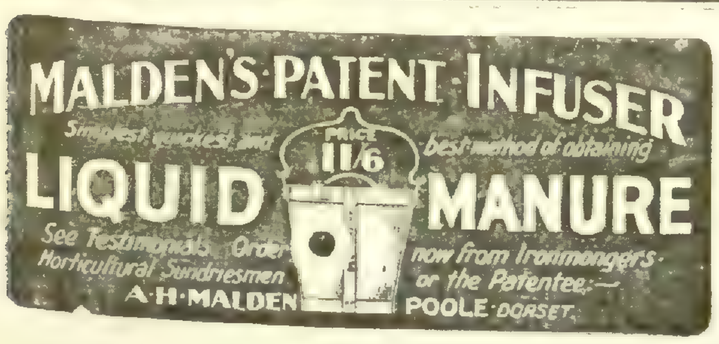
Prices and particulars on application.

THE ACME CHEMICAL CO., LTD., TONBRIDGE, KENT.

And River Street, Bolton, Lancs.

REDNALL'S INSECTICIDE.

An ideal spraying fluid for the Garden and Greenhouse. Instant death to all insect life, but absolutely non-injurious to plant life. Non-poisonous, pleasant odour, no trouble to prepare, mixes readily with cold water. Trial bottles, 9d., post free; quarts, 2/6; 1 gallon, 7/6 (car. paid), of all Seedsmen, or direct from REDNALL, WOKINGHAM. Agents wanted.



GARDEN & TENNIS NETS

(Best Tanned only, Small Mesh).

50×8 yds., **17/-**; 25×8 yds., 50×4 yds., 100×2 yds., **8/-** each; 100×1 yd., 50×2 yds., 25×4 yds., **4/-** each. Any size to order.

TENNIS NETTING (Corded). 25 × 2 yds., **6/6**; 25×3 yds., **7/6**; 25×4 yds., **8/6** each.

Prompt Delivery. Write for Price List and Testimonials.

L. WREN & SON,
Net Merchants, 139, High Street, Lowestoft.

METAL ROSE and FRUIT TREE LABELS.

1/- dozen, **10/6** gross.

The Best and Cheapest Metal Label on the market.

A Customer writes:

"After five years use they are as good as the day we had them."

Samples post free.

WHITINGTON & SON,
Tekmar Works, Newbury.

MARKETS.

COVENT GARDEN, *May 22.*

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—Eds.]

Cut Flowers, &c.: Average Wholesale Prices.

	s.d. s.d.		s.d. s.d.
Anemones, per dz. bunches, all colours ...	2 0- 2 6	Marguerite, per doz. bunches: — Yellow... ...	1 6- 2 0
Arums (Richardias)	2 0 —	Myosotis (Forget-me-not), p. dz. bunches ...	3 0- 4 0
Bouvardia, per dz. bunches ...	6 0- 7 0	Narcissus, per doz. bunches: — double, white	2 6- 3 0
Carnations, p. doz. blooms, best American var.	1 6- 1 9	Orchids, Cattleya, per doz. ...	9 0-10 0
— smaller, per doz. bunches	10 0-15 0	— Odontoglossum crispum ...	2 0- 3 0
— Carola, crimson, extra large	2 6- 3 0	Paeonies, per doz. bunches, six blooms in a bunch:	
— Malmaisons, p. doz. blooms ...	7 0- 9 0	— red	2 6- 3 0
Cornflower, per dz. bnches ...	2 0- 2 6	— pink	4 0- 8 0
Eucharis, per doz.	2 0- 2 6	— white	6 0- 8 0
Gardenias, per box of 15 and 18 blooms... ...	1 6- 3 0	Pelargoniums, per doz. bunches ...	4 0- 5 0
Gladiolus Blushing Bride, per doz. bunches ..	5 0- 6 0	— Double Scarlet	6 0- 9 0
— Bride, white ...	5 0- 8 0	Pyrethrums, dble., per doz. bchs:	
— Peach Blossom	8 0-12 0	— white	2 6- 3 0
Gypsophila, p. dz. bunches:		— coloured ...	2 0- 4 0
— large	1 0 —	— single, mixed colours ...	2 0- 4 6
— white	3 0- 4 0	Roses, 12 blooms,	
— pink	3 0- 4 0	— Bridesmaid,	1 0- 1 6
Iceland Poppies, p. dz. bunches	2 6- 3 0	— C. Mermet ...	1 0- 1 6
Iris (Spanish), per doz. bunches:		— Frau Karl Druschki ...	1 6- 2 6
— white, mauve, yellow & blue	6 0-10 0	— General Jacqueminot ...	1 0- 1 3
Ixia, scarlet, per dz. bunches ...	1 6- 1 9	— Liberty ...	2 0- 3 0
Lapagerias, white, per dozen ...	2 0- 2 6	— Madame A. Chateney ...	1 6- 3 0
Lilium auratum per bunch ...	4 0- 5 0	— Niphetos ...	1 0- 1 6
— longiflorum, per doz., long	1 6- 2 0	— Richmond ...	1 0- 2 6
— — short ...	1 6- 2 0	— Sunrise ..	1 0- 1 6
— lancifolium alba, long ...	2 0- 2 6	— President Carnot	1 6- 2 6
— — short ...	1 6- 2 0	— Lady Roberts	1 0- 1 6
— speciosum rubrum, per doz., long	1 9- 2 0	— Lady Hillingdon	1 0- 1 6
— — short ...	0 9- 1 0	— Franz Deegan	1 0- 1 6
Lily of the Valley, pr. dz. bnchs.:		— Kaiserine ...	1 0- 2 0
— extra special ...	15 0-18 0	Spiraea (Astilbe) japonica, per doz. bunches	4 0- 5 0
— special... ...	10 0-12 0	Statice, mauve, per doz. bunches...	3 0- 4 0
— ordinary ...	3 0 —	Stephanotis (72 pips)	2 0- 2 6
Mignonette, per doz. bunches...	4 0- 5 0	Sweet Peas, pr. dz. bunches:	
		— coloured ...	4 0- 6 0

Cut Foliage, &c.: Average Wholesale Prices.

	s.d. s.d.		s.d. s.d.
Adiantum Fern (Maidenhair), best, dz. bnchs.	6 0- 7 0	Croton foliage, various, per dozen bunches ...	12 0-15 0
Agrostis (Fairy Grass), per dz. bunches ...	2 0- 4 0	Cycas leaves, artificial, per doz.	3 0-12 0
Asparagus plumosus, long trails, pr. ½ doz.	1 6- 2 0	Eulalia japonica, per bunch ...	1 0- 1 6
— medium, doz. bunches ...	12 0-18 0	Moss, per gross ...	6 0 —
— Sprengeri ...	10 0 12 0	Myrtle, dz. bchs. (English), small-leaved...	6 0 —
Carnation foliage, doz. bunches...	4 0 —	— French ...	1 0 —
		Smilax, per bunch of 6 trails ...	1 6 —

Plants in Pots, &c.: Average Wholesale Prices.

	s.d. s.d.		s.d. s.d.
Aralia Sieboldii, p. dozen	6 0- 7 0	Ferns, in small and large 60's ...	12 0-20 0
Araucaria excelsa, per dozen ...	18 0-21 0	— in 48's, doz. ...	6 0 —
Asparagus plumosus nanus, p.dz.	10 0-12 0	— choicer, sorts per doz. ..	8 0-12 0
— Sprengeri ...	8 0- 9 0	— in 32's, per doz.	10 0-18 0
Aspidistra, p. dz., green	21 0-30 0	Ficus elastica, per dozen	9 0-12 0
— variegated ...	30 0-60 0	Fuchsias, per doz.	8 0- 9 0
Boronia megastigma, 48's, p. dz.	21 0-24 0	Geonoma gracilis, 60's, per dozen	6 0- 8 0
Cocos Weddeliana, per dozen:		— larger, each ...	2 6- 7 6
— 60's	6 0-12 0	Heliotropes ...	6 0- 8 0
— larger, each ...	2 6-10 6	Hydrangeas, white, 48's, per dozen	18 0-21 0
Coleus, per doz. ...	4 0- 5 0	— pink	10 0-15 0
Croton, per dozen	18 0-30 0	— blue, each ...	2 0- 5 0
Cyperus alternifolius, per doz.	5 0- 6 0	Kentia Belmoreana, per dozen	5 0-42 0
— laxus, per doz.	4 0- 5 0	— Fosteriana, 60's, per dozen	4 0- 6 0
Dracaena, green, per dozen ...	10 0-12 0	— larger, per dozen	18 0-60 0
Ericas, per dozen:		Latania borbonica, per dozen ...	12 0-30 0
— Willmorei, 48's	15 0-18 0	Lilium longiflorum per dozen ...	15 0-18 0
— persoluta ...	27 0-30 0		
Ferns, in thumbs, per 100... ...	8 0-12 0		

Plants in Pots, &c.: Average Wholesale Prices (*Contd.*).

	s.d. s.d.		s.d. s.d.
Lilium lancifolium rubrum in pts., per dozen ...	15 0-18 0	Pelargoniums, per dozen	9 0-12 0
— lancifolium alba	15 0-18 0	— Ivy-leaved ...	7 0- 9 0
Lily of the Valley	21 0-24 0	Phœnix rupicola, each	2 6-21 0
Marguerites, white, per dozen ...	8 0-10 0	Rhodanthi, per dz. pots	5 0- 6 0
Mignonette, 48's, per dozen ...	6 0- 8 0	Spiraea japonica, per dozen pots	10 0-12 0
Pandanus Veitchii, per dozen ...	36 0-48 0	— pink	10 0-12 0
		Stocks, white, pink and red ...	6 0- 8 0

Fruit: Average Wholesale Prices.

	s.d. s.d.		s.d. s.d.
Apples:		Lemons:	
— Tasmanian per case ...	7 0-10 6	— Messina, per case	7 6-17 0
— Australian per case	7 0-10 6	Limes, per case ...	4 0 —
Apricots, French per box ...	0 10- 1 0	Mangoes, per doz.	4 0- 6 0
Bananas, bunch:		Melons (Guernsey)	1 3- 2 6
— Doubles ...	10 0 12 0	— (English) ...	1 3- 3 6
— No. 1	8 0-10 0	Nuts, Almonds, per bag	52 6 —
— Extra	10 0-12 0	— Spanish, per sack	40 0-42 0
— Giant	14 0-18 0	— Barcelona, bag	35 6-36 6
— Loose, p. doz.	0 6- 1 0	— Chestnuts, per bag	3 6-19 0
— Red coloured...	5 6- 6 6	— Cocoanuts, 100	18 0-23 0
— Jamaica Giants, per ton ...	£10-£12	— English Cobs per lb.... ...	0 3 —
— Jamaica Ordinary, per box (9 doz.) ...	4 0- 5 0	— Walnuts (Naples) kiln dried, cwt. cases	54 0 —
Cherries, French, ½ sieve... ...	9 0-10 0	Nectarines, per dozen	5 0-30 0
— per box ...	1 6- 2 6	Oranges:	
Cranberries, per case (30 qts.) ..	10 0-11 0	— Navels... ...	16 0-18 0
— Cape Cod, per case (30 quarts)	9 6 —	— Denia, case ...	17 6-36 0
Figs (Guernsey), per dozen ...	3 0- 6 0	— Jaffa, per case	12 0 —
— English ...	3 0- 8 0	— Bitter, per ½ chest	16 0-18 6
Gooseberries, per peck	2 0- 2 6	— Seville Sour ½ chest ...	15 0-18 0
— ½ bushel ...	4 6- 5 0	Peaches (Belgian), per dozen ...	4 0- 8 0
Grape Fruit, case:		— English, dozen	4 0-24 0
— 96's	20 0-25 0	Pears (Australian), per case ...	10 0-15 0
— 80's		Pineapples, St. Michael ...	3 0- 5 0
— 64's		Strawberries, p. lb.:	
— 54's		— A quality ...	1 6- 4 0
Grapes, Australian, per case ...	12 0-25 0	— B quality ...	0 9- 1 0
— English (new) per lb.	1 6- 4 0	— Southamptons, baskets ...	4 0- 4 6
— Canon Hall ...	8 0-10 0		
— Muscats ...	3 0- 6 0		

Vegetables: Average Wholesale Prices.

	s.d. s.d.		s.d. s.d.
Artichokes (Globe), per dozen ...	2 0- 2 6	Horseradish, 12 bundles ...	10 0-12 0
Asparagus —		Leeks, per doz. ...	2 6- 3 0
— Toulouse ...	1 6- 2 0	Lettuce (French), per doz. ...	1 6- 2 0
— Montauban ...	2 0- 2 3	— (English), per tally	2 0- 4 0
— Dijon	0 8- 1 0	Mint, per dozen bunches ...	1 6- 2 6
— Lauris ...	0 10- 2 0	Mushrooms, cultivated, p. lb. ...	0 10- 1 0
— (English) bndl.		Mustard and Cress, per dozen punnets ...	1 0 —
— Cambridge ...	0 9- 2 6	Marrows, pr. dz. ...	10 0-15 0
— Worcester ...	1 0- 6 0	Onions (Egyptian)	6 6- 7 6
Beans, Guernsey Dwarf, per lb.	0 8- 1 0	— (Spring), per doz. bunches	1 6- 2 0
— (English) p. lb.	0 8- 1 0	Parsley, ½ sieve ...	1 6- 2 0
— French, per packet, lb. ...	0 8-0 10	— per doz. bun.	2 6- 3 0
Beetroot, p. bshl.:		Peas (French) per pad	4 0- 6 0
— Long	2 0- 2 6	— per packet ...	0 6 —
Celeriac, per doz.	2 6- 3 0	— (Guernsey), lb.	0 4- 0 8
Cabbages (French) per dozen ...	1 3- 2 0	— (English), per ½ bushel ..	4 0- 5 0
— Cornish, per dozen	0 9- 1 3	Radishes (English), per dozen ...	0 6- 0 9
— Evesham, pots	3 0- 3 6	— (French) p. dz.	1 0- 1 3
Carrots (English), pr. doz. bun. ..	5 0- 6 0	— (Jersey) long...	0 4- 0 6
— (French) per dozen bunches	6 0- 8 0	Rhubarb, forced, per 12 bundles	0 9- 1 0
— per cwt. ...	4 0- 6 0	— Outdoor, p. dz	2 6- 3 0
— (washed) p. bag	6 0- 70	Spinach, pr. bshl.	2 0- 2 6
Cauliflowers, per dozen	4 0- 5 0	Tomatos (Guernsey) per lb. ...	0 6 —
— (Cornish), per crate	12 0-15 0	— (English), p. lb.	0 6- 0 7
Celery (washed), p. doz. bndls. ...	8 0-10 0	Turnips (English), per dz. bunches	5 0- 6 0
Chicory, per lb. ...	0 4 —	— (French), pr. dz.	7 0- 8 0
Cucumbers, p. doz.	1 6- 2 6	Watercress, p. dz. bunches ...	0 4- 0 6
Endive, per dozen	1 0- 1 6		
Greens (Spring), p. bag	3 6- 4 0		
Herbs (sweet), pkts., p. gross	7 0 —		

Remarks.—Black Hamburgh Grapes are obtainable in much larger quantities; Muscat varieties also are more plentiful, but the berries are lacking in colour. Peaches and Nectarines are available in larger quantities and are meeting with a brisk demand. Forced Strawberries are very plentiful, being in excess of the demand. French growers are contributing a fair quantity of these fruits. Melons and Figs, both English and Channel Island grown, are increasing in quantity; they are meeting with a fairly good demand considering the large quantities arriving. Both the supply of and the demand for French and Spanish Cherries are well maintained. Overseas arrivals of Apples, Pears, and Grapes amounted to about 40,000 cases; a very large consignment is due to arrive by s.s. "Argyllshire," the estimated quantities being about 120,000 packages. Consignments of English and Channel Island Tomatos are more numerous daily; many of the samples show evidence of skilled cultivation and careful packing. Asparagus continues a fairly good supply from all sources. Early outdoor Peas are obtainable from the West of England and Kent. The supplies of the commoner vegetables are increasing rapidly. *E. H. R., Covent Garden, May 22, 1912.*

Potatos.

	per cwt. s.d. s.d.		per cwt. s.d. s.d.
Lincolns—		Lincolns—	
Up-to-Date ...	3 0- 3 6	Maincrops ...	3 0- 3 9
King Edward ...	3 0- 3 6	Blacklands ...	2 3- 3 6
Northern Star ..	2 6- 2 9	Dunbars—	
Evergoods ...	2 6- 2 9	Up-to-Date ...	4 3- 4 6
		Maincrop ...	4 3- 4 6

New Potatos.

Teneriffe ...	... 10 0-11 0	St. Malos ...	... 11 6-12 0
Jerseys ...	... 11 6-12 0	Cherbourgs	... 10 6-11 0

Remarks.—Trade in old Potatos is still quiet and stocks in London are very large. Prices are much lower than those of last week and a further drop is expected. New Potatos are in better demand. *Edward J. Newton, Covent Garden and St. Pancras, May 22, 1912.*

THE WEATHER.

The Following Summary Record of the weather throughout the British Islands, for the week ending May 18, is furnished from the Meteorological Office:—

GENERAL OBSERVATIONS.

The *weather* was in a very changeable condition, with occasional falls of rain in all districts. Thunderstorms occurred in the south and east of England on Sunday, in a few isolated parts of our south-eastern counties on Monday and Wednesday, and over a considerable portion of England on Thursday; on the last-mentioned day a sharp line squall passed over Raunds and Cambridge. A well-defined mirage was seen at Newquay between 10.30 a.m. and 11 a.m. on Saturday.

The *temperature* was above the average in all the English districts and also in Scotland E., the greatest excess occurring in England. In Ireland and the west and north of Scotland it was below the normal. The highest readings occurred mostly on the 14th or 15th, when the thermometer rose slightly above 70° in many parts of eastern and southern England. In Scotland N. and W. the thermometer remained below 65° throughout the week. The lowest readings occurred mostly on the 13th or 14th, but in the south-east of England on the 17th, the values ranging from 27° in Scotland E. (at Balmoral) and 30° in Scotland W. and England N.W. to 39° in England S.E., and to 45° in the Midland Counties. On the surface of the grass the thermometer fell to 23° at Balmoral and Newton Rigg, 24° at Crathes, and 25° at West Linton and Armagh. At a depth of 1 foot and 4 feet below the surface of the soil the mean temperature remained above the average, but in the east of Scotland the excess shown by the 1 foot thermometer was small.

The *mean temperature of the sea* was generally in excess of the average, but at several parts of the Irish and Scottish coasts it was lower than the corresponding week of last year.

The *rainfall* was considerably in excess of the average in Scotland N. and E. and England N.E., and slightly above it in the Midland Counties and England S.E., elsewhere there was a deficiency, and in most of the western districts the deficiency was large. A heavy fall occurred in many parts of North Britain on the 15th, the largest measurements being 1·6 inch at Wick and Gordon Castle, 1·1 inch at Crathes, and 1·0 inch at Balmoral.

The *bright sunshine* varied considerably in amount in different parts of the country. As a rule it was in fairly close agreement with the average, but in Scotland E. and W. and England N.W. there was a rather large excess. The daily mean values ranged from nearly 9½ hours in Scotland W., and a little over 8 hours in England N.W., to a little under 6 hours in the Midland Counties and England S.W.

THE WEATHER IN WEST HERTS.

Week ending May 22.

The wettest week for two months.—The days during the past week were rather warm, while the nights proved only about seasonable in temperature. On the warmest day the highest reading in the thermometer screen was 67°, and on the coldest night the exposed thermometer fell to within 2° of the freezing point. Both at 1 foot and 2 feet deep the ground is 2° warmer than is seasonable. Rain fell on four days and to the aggregate depth of an inch. On the last day of the week half an inch of rain was deposited—making this the heaviest fall recorded here on any one day since March 21, or for nearly nine weeks. This fall caused a few drops of rainwater to pass through the bare soil percolation gauge, after being perfectly dry for over six weeks. The sun shone on an average for 5 hours a day, or more than an hour a day less than the usual duration for the month of May. The winds were rather high at the beginning of the week, but since then calms and light airs have prevailed, the direction being almost exclusively from some westerly point of the compass. The mean amount of moisture in the air at 3 p.m. fell short of a seasonable quantity for that hour by 3 per cent. *E. M., Berkhamsted, May 22, 1912.*

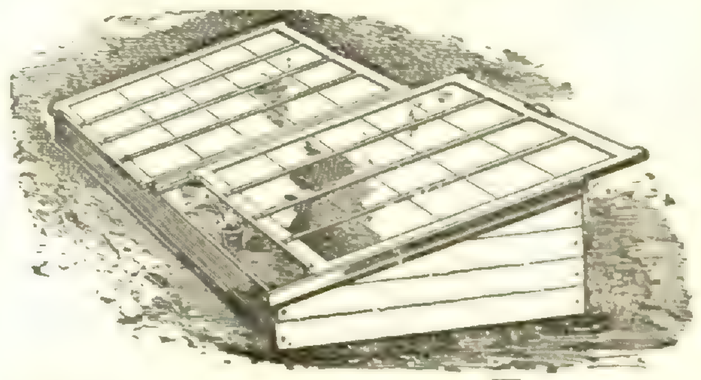
WM. DUNCAN TUCKER & SONS, LD.

PLANT PRESERVERS.
No. 87.

6 ft. by 4 ft. ... £2 3 0 | 12 ft. by 4 ft. ... £3 10 0
8 ft. by 6 ft. ... 3 18 0 | 12 ft. by 6 ft. ... 5 5 0

Carriage paid on 40/-
Orders to most Stations.

MELON AND CUCUMBER FRAMES.
No. 88.



6 ft. by 4 ft. ... £1 14 0 | 12 ft. by 6 ft. ... £3 14 0
8 ft. by 6 ft. ... 2 14 0 | 16 ft. by 6 ft. ... 4 14 0

Works—
Tottenham

27, CANNON STREET, LONDON, E.C.

Please mention this paper.

By Special Appointment To His Majesty The King.

LAWN MOWERS. GREEN'S AND ROLLERS.

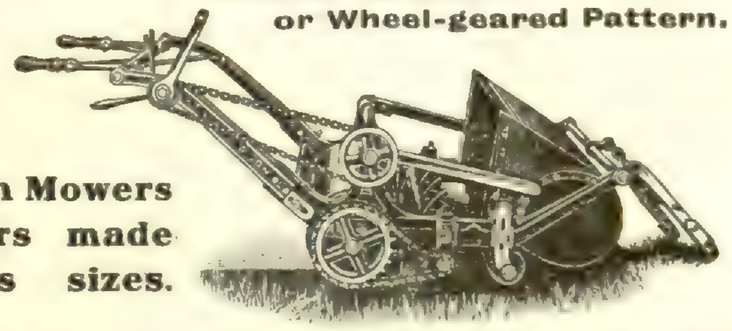
STAND PRE-EMINENT.

Hundreds of Thousands in use.

Highest Awards, Royal Botanic Society, Royal Horticultural Society, and numerous others.

GREEN'S "SILENS MESSOR" LAWN MOWERS

PONY AND HORSE MOWER.
"Silens Messor"
or Wheel-geared Pattern.

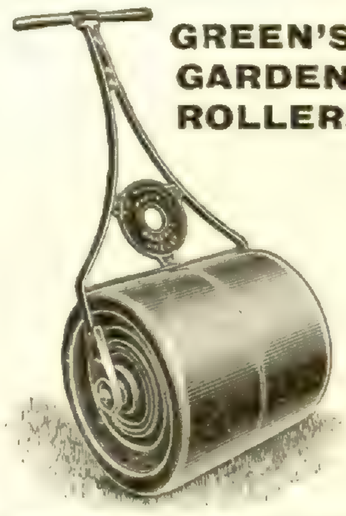


Motor Lawn Mowers and Rollers made in various sizes.

May be had from any Ironmonger or Seedsman in the United Kingdom.

PLEASE WRITE FOR ILLUSTRATED PRICE LIST No. 4 FREE.

GREEN'S GARDEN ROLLERS



THOMAS GREEN & SON, Ltd., Smithfield Ironworks, Leeds, and New Surrey Works, Southwark St., London, S.E.

Anthracite Horticultural Coal

We advise Gardeners to get supplies of Anthracite Coal in early in anticipation of cold winter.
Quotations given for truck loads delivered to any Station in England and Wales.

Apply to—

T. T. PASCOE, Colliery Office, SWANSEA.

SAVE HALF THE COST. GARSIDE'S BEDFORDSHIRE SILVER SAND (COARSE OR FINE)

Is admitted by the leading Nurserymen to be **the Best Quality** obtainable in the Trade.
Consumers should **Buy Direct** from the Owner of these Celebrated and Extensive Pits, which contain a practically inexhaustible supply of Splendid Sand, and thus *save half the ordinary cost.*
Apply Direct to the Proprietor for Samples and Prices free on Rail or Canal. *All orders executed with the utmost promptness and under personal supervision.* Special Railway Rates in force to all parts. All kinds of **PEAT** supplied at lowest possible prices. Sample Bag sent on application to—

GEORGE GARSIDE, F.R.H.S., Leighton Buzzard, Beds.

MARK SMITH, Ltd.,
LOUTH, LINCS.
"PERFECT"
WEED KILLER
STRONGEST, CHEAPEST & BEST.

TURF LOAM.

Very Fibrous Yellow Turf Loam.
SPECIALLY SUITABLE FOR VINE BORDERS
Carnations, Roses, Fruits under Glass, etc., etc.
7/6 per yard. Bag, 2/- Samples Free.
Quotations Carriage Paid to any Station.
A. B. JOHNSTON, New Park, Granleigh, Guildford.

WEEDS

One application of
HARRISON'S Reliable WEED KILLER
will keep your Garden Paths, Carriage Drives, etc., free from weeds for at least 12 months. The best Killer for Daisy, Plantain and Dandelion in lawns. Brightens the Gravel. Immense Saving in Labour.

1 Gallon ..	2/8,	drum ..	9d.,	carriage ..	9d.	
2	,,	5/4	,,	1/3	,,	1/-
5	,,	12/-	,,	3/-	,,	paid.
10	,,	21/6	,,	5/-	,,	,,
40	,,	75/-	,,	5/-	,,	,,

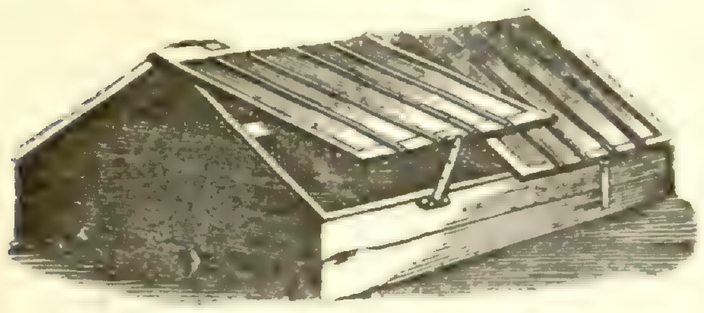
Irish orders are not subject to these carriage terms, but are paid to any English port. Full price allowed for all drums and casks if returned in good condition carriage paid, within 2 months.

N.B.—In the prices of the above, please note that this Weed Killer mixes 1 to 50 of water, being *double* the ordinary strength One gallon mixed with 50 gallons of water will cover an area of from 150 to 200 sq. yds. *effectively. There is no smell to this Weed Killer.*

Geo. W. HARRISON,
Horticultural Chemist,
READING.

PORTABLE PLANT FRAMES.

OUR WELL-KNOWN MAKE.



These Frames are made of the Best Materials, and can be put together and taken apart in a few minutes by anyone.

Sizes and Prices, Glazed and Painted.

			£	s.	d
6 feet long,	3 feet wide	CASH PRICES, CARRIAGE PAID.	2	0	0
6 feet ,,	4 feet ,,		2	5	0
6 feet ,,	5 feet ,,		2	15	0
12 feet ,,	4 feet ,,		4	0	0
12 feet ,,	5 feet ,,		4	15	0
12 feet ,,	6 feet ,,		5	12	6

Larger Sizes at Proportionate Prices.

R. HALLIDAY & CO.,
ROYAL HORTICULTURAL WORKS,
Middleton, Manchester.

SUPPLIED TO HIS MAJESTY'S GOVERNMENT
• • • VALLS • • •
BEETLECUTE
The Great Exterminator
of Beetles, Cockroaches,
Ants, Woodlice, Crickets, etc.

Beetlecute is superior to every other preparation as an exterminator of the above insects in Private Houses, Gardens, Hothouses, Propagating Frames, etc.

A powder eagerly devoured by these pests causing them to shrivel up and disappear.

Non-Injurious to Foliage, Fruit and Flowers.
Harmless to Human Beings & Domestic Animals.

In Tins, 6d., 1s. and 2s. 6d.

Proprietors—
VALLS & CO., 20, Little Britain, London, E.C.

GARDENING CHARITIES.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.
GEO. J. INGRAM, Sec.,
92, Victoria Street, S.W.
Telephone—Westminster 5142.

ROYAL GARDENERS' ORPHAN FUND
B. WYNNE, Sec.,
19, Bedford Chambers, Covent Garden,
London, W.C.

BRITISH GARDENERS' ASSOCIATION.
JOHN WEATHERS, Sec.,
Talbot Villa, Isleworth.

ROCK AND ALPINE GARDENING.

A Practical and up-to-date Guide to the making of Rock, Alpine, Wall, Water and Bog Gardens. Well illustrated. Second Edition by H. HEMSLEY, price 1/2 post free from THE PUBLISHER.
"Gardeners' Chronicle" Offices, 41, Wellington St., Covent Garden, London, W.C.

THACKERAY wrote in 1849 in praise of

"PUNCH"

"THERE were never before published in this world so many volumes that contained so much cause for laughing and so little for blushing, so many jokes and so little harm."

¶ This is no less true to-day. Why not tell your Newsagent to deliver "Punch" to you each week?

Z4

CHESTER & ELAM

(Late with BLACKBURN & HOMER),

Rope, Line & Twine Manufacturers,

AND

Gardeners' Sundriesmen,

IMPORTERS OF

Paper, Raffia, Archangel, and St. Petersburg Mats, Tarpaulins, Sacks, Pea and Potato Bags made to order.

33, GREAT QUEEN ST., LONDON, W.C.

Special Quotations to Large Buyers.

The Gardeners' Chronicle

SCALE OF CHARGES FOR ADVERTISEMENTS.

Advertisements intended for insertion in the next issue MUST reach THE PUBLISHER not later than

WEDNESDAY, 5 p.m.

		£	s.	d.
Ordinary Positions	per page	10	10	0
Facing matter and Back page ...	,, ,,	12	12	0
Half and quarter pages, column and half column spaces, pro rata.		£	s.	d.
4 line space, about 20 words, single column ..			3	0
Per inch, single column			7	0
Per inch, across 2 columns			14	0
Per inch, across 3 columns		1	1	0

SERIES DISCOUNTS.
For three insertions, 5%; thirteen, 10%; twenty-six 15%; fifty-two, 20%

Front page (no display allowed) 1/- per line space.

SITUATIONS WANTED.

26 words, **1s. 6d.**, and **6d.** for every additional **8** words or fewer.

These Advertisements must be prepaid, **AND APPLY ONLY TO GARDENERS, &c., OUT OF EMPLOYMENT.**

Advertisers may have replies to their advertisements addressed to the "GARDENERS' CHRONICLE" Office. A Box Office fee of 6d. is charged for each advertisement, and replies are forwarded post free at the end of each day.
The boxes for answers to advertisements are provided for the use of advertisers only, and no matter will be forwarded which is not, in the opinion of the Publisher, a bona-fide or specific answer to an advertisement. The boxes are not to be used for the distribution of printed or written announcements, or for the benefit of competing businesses. All advertisements and replies are accepted subject to the above conditions.

SUBSCRIPTIONS:—

THE UNITED KINGDOM ... ... **15/-** per annum.
ABROAD .. .. **17/6** ,,

Cheques and P.O.'s to be made payable to "GARDENERS' CHRONICLE, LTD."

41, WELLINGTON STREET, COVENT GARDEN, LONDON, W.C.

Telegrams "GARDCHRON, LONDON."
Telephone: GERRARD 1543.

DARLINGTON'S HANDBOOKS.

"Nothing better could be wished for."—*British Weekly.*
"Far superior to ordinary guides."—*Daily Chronicle.*

Edited by RALPH DARLINGTON, F.R.G.S.

Visitors to London (and Residents) should use

DARLINGTON'S
"Very emphatically tops them all"—*Daily Graphic.*

LONDON
"A brilliant book."—*The Times.*
"Particularly good."—*Academy.*

AND ENVIRONS.

By E. C. COOK and E. T. COOK, M.A.

5th Edition, Revised, 6/-

24 Maps and Plans, 60 Illustrations.

"The best handbook to London ever issued."—*Liverpool Daily Post.*

60 Illus., Maps & Plans, **5/-** **NORTH WALES.**

100 Illus., Maps & Plans, **5/-** **DEVON & CORNWALL.**

50 Illus. Maps, **2/6** **N. Devon & N. Cornwall.**

50 Illus., Maps, **2/6** **S. Devon & S. Cornwall.**

DARLINGTON'S HANDBOOKS, 1/- each.

Llangollen: DARLINGTON & Co. London: SIMPKINS.
Paris & New York: BRENTANO'S.

The Railway Bookstalls and all Booksellers.

SELECT LIST
OF
Books on Gardening.

PRICES QUOTED ARE, IN ALL CASES, POST FREE TO ANY PART OF THE UNITED KINGDOM.

Grapes, and How to Grow Them. Culture and Management in Vineries, Greenhouses, and in the Open air. By J. Lansdell. **1s. 2d.** Cloth, 1s. 8d.

Greenhouse and Conservatory, Construction and Heating. By Paul N. Hasluck. With 228 Illustrations. 2s. 3d.

Greenhouse Management for Amateurs. By W. J. May. Contains all the necessary information for the guidance of the Amateur. Third Edition. 380 pages. Well Illustrated. 5s. 4d.

Greenhouse Management, Pictorial. Edited by Walter P. Wright. Illustrated. Paper, 1s. 3d.; cloth, 1s. 9d.

Greenhouse, The Amateur's. By T. W. Sanders, F.L.S. A Practical Work on the Construction, Heating, and Management of the Greenhouse, and the Culture of Greenhouse Plants. 416 pages, 154 Illustrations. 5s. 4d.

Greenhouse, The Book of the. By J. C. Tallack, Head Gardener at Shipley Hall. Illustrated. 2s. 9d.

Hardy Trees, Flowering Shrubs, Conifers and Evergreens. By Geo. Bunyard. A Popular Handbook of 160 pages. 50 Illustrations. Useful hints. English and Latin names. 3s. 9d.

Herbs, The Book of. By Lady Rosalind Northcote. 2s. 9d.

Heredity in the Light of Recent Research. By L. Doncaster. 1s. 3d.

Holly, Yew and Box. By W. Dallimore. 280 pages. 175 Illustrations. Contains the Illustrations of Hollies published in the monograph by the late Thomas Moore, in the GARDENERS' CHRONICLE. 8s.

Horticultural Directory. Almanac and Address Book for present year. 1s. 3d.; cloth, 2s. 6d.

Horticultural Note Book. A Manual of Practical Rules, Data, and Tables. By J. C. Newsham. 4s. 9d.

Horticulture, A Primer of Practical. By J. Wright. 1s. 1½d.

Horticulture, The Principles of. By Wilfred Mark Webb. 2s. 3d.

Horticulturists' Rule-Book. By Prof. L. H. Bailey. 3s. 4d.

Insect and Allied Pests of Orchard, Bush and Hothouse Fruits. By F. V. Theobald, M.A., &c. 328 Illustrations. 30s. 6d.

Insects, Injurious and Useful. An Introduction to the Study of Economic Entomology. By L. C. Miall, F.R.S. 100 Illustrations. 3s. 9d.

Iris, The Book of the. Illustrated. By R. Irwin Lynch. 2s. 10d.

Jam Making and Fruit Bottling, Successful. By Miss Lucy H. Yates. Illustrated. 2s. 9d.

Johnson's Gardener's Dictionary. New Edition. 9s. 6d.

Judging, Rules for. Issued by the Royal Horticultural Society. New and Revised Edition. 1s. 6d.

Kew, The Royal Gardens. New Edition. Descriptive Notes by Herman Spooner. Beautifully Illustrated from photographs specially taken by E. J. Wallis. 1s. 3d.

Lawns. By Sutton & Sons, Reading. In paper cover. Well Illustrated. 1s. 2d.

Complete New Catalogue (Ninth Edition) sent post free on application to

THE PUBLISHER,
41, Wellington Street, Covent Garden, W.C.

CALENDAR OF GARDEN OPERATIONS

New and enlarged Edition just issued.

Indispensable to Cottage Gardeners, Allotment Holders and Amateur Gardeners.

Price 6d.; post free, 8d.

Press Notices.

"It is a concise and practical manual, from which possessors of small gardens in country or town may obtain much useful advice and guidance."—*Nature.*

"A vast improvement on the numerous editions which have been issued, and can be highly commended for those who lecture on horticultural subjects."
—*Journal of the British Gardeners' Association.*

"This book has had an enormous sale—a fact which is not surprising considering the splendid value given for the low price charged—sixpence. The new edition is well illustrated and contains new chapters on 'French Gardening,' and on the cultivation of trees in towns."
—*The Nurseryman and Seedsman.*

"There is no better sixpennyworth of guide to amateur gardening on a small scale."—*The Westminster Gazette.*

"The information given covers every department of gardening operations, so the Guide should prove of great assistance to all who are interested in any branch of the subject. The advice is conveyed in a concise, practical, and simple manner, and the value of the text is greatly enhanced by the number of excellent illustrations and diagrams which accompany it. Every amateur can be assured of finding something to interest and instruct in a perusal of the pages of this work, and the 'Calendar' should not fail to find a prominent place on his bookshelf."
—*The Observer.*

"A most valuable work for the amateur gardener."
—*The Lady.*

"Cottage gardeners, allotment holders, and amateur gardeners will find it a very useful handbook to consult."
—*The Gentlewoman.*

"Offers to all who possess even the smallest piece of ground, complete guidance as to what to plant and how to plant for every season of the year."
—*Universe and Catholic Weekly.*

"Is an excellent compendium for the use of cottage gardeners, allotment holders, and amateur gardeners."
—*The Christian.*

"One of the most important and invaluable books for the amateur to possess in particular is a good calendar, and in the work under review, this want is supplied in a most comprehensive manner."—*Purley Gazette.*

"It is full of interesting and general information as to the growing of fruit, flowers, and vegetables, and how to protect them from destructive garden pests."
—*The Western Daily Press.*

"The information with which the 170 pages are crammed has been brought thoroughly up to date, and chapters added on the cultivation of trees and shrubs in towns and on 'intensive culture,' as vegetable forcing is now termed."
—*Norwich Chronicle.*

"Copiously illustrated and free from technicalities, it should command a ready sale and unstinted appreciation."
—*Manchester Weekly Times.*

"The amateur gardener and the small holder will find it a most useful little book."
—*The Yorkshire Weekly Post.*

"A handbook of practical information prepared by experts associated with the GARDENERS' CHRONICLE."
—*The Scotsman.*

"Cottage gardeners, allotment holders and amateur gardeners will find the book of service."
—*The Dundee Advertiser.*

"Gives instructions in regard to operations connected with vegetables, fruit and flowers for the different months of the year; and there follow a number of valuable articles on special subjects."—*Aberdeen Journal.*

"As a guide and instructor to amateurs, this calendar is invaluable, and few volumes give as good value for sixpence."—*Irish Gardening.*

"It is excellent value for the money."
—*Cork Constitution.*

THE PUBLISHER,
"Gardeners' Chronicle" Offices, 41, Wellington St.
Covent Garden, London, W.C.

SITUATIONS VACANT.

Four Lines 3s. (Head-line counted as Two), 6d. for each succeeding line.

PRIVATE.

Foots Cray Urban District Council.

WORKING SUPERINTENDENT OF CEMETERY.

THE URBAN DISTRICT COUNCIL of Foots Cray invite Applications for the post of WORKING SUPERINTENDENT at their Cemetery situate at Bexley Lane, Sidcup. The person appointed will be required to reside at and act as caretaker at the Council Offices in Hatherley Road, the Council providing rooms, lighting, and coals. The salary will be 25s. per week. The person appointed will be required to discharge all the duties usually performed by a Working Superintendent, and in addition such other duties as the Council may delegate. Preference will be given to candidates having previous experience of similar work, and having a practical knowledge of ornamental gardening. Applications in own handwriting, stating age, particulars of family, past and present occupation, and copies of not more than three testimonials, must be sent to me on or before the 1st June. Canvassing members of the Council, either directly or indirectly, will be strictly prohibited, and will disqualify.

A. E. LEONARD,
Clerk.

Council Offices,
24, Hatherley Road, Sidcup.

WANTED for Gloucestershire, GARDENER (HEAD WORKING), who has had experience as Head, Inside and Out, including Orchids.—Write, stating all particulars, M. C., Box 8, 41, Wellington Street, Covent Garden, W.C.

WANTED, a married MAN to take Lead on Pleasure Grounds; must have a thorough knowledge of Herbaceous Borders and Lawns, including Bowling Green; age 30 to 35.—Apply, GARDENER, Townhill Park, Bitterne, Southampton.

WANTED, KITCHEN GARDENER; must be a good man; married, with no children; wife to be prepared to help occasionally in mansion and board two men if necessary; four others kept.—Apply, THE AGENT, Alderbourne Manor, Gerrards Cross, Bucks.

WANTED, strong, active MAN for Pleasure Ground; good Scythe hand; take duty; Church of England; 18s. and Bothy.—SHOEBRIDGE, Nursery Gardens, Douglas, I. of M.

WANTED, at once, strong, active MAN, not under 24, for Pleasure Grounds; wages 18s. and Bothy.—Full particulars to T. KING, The Gardens, Gadsden, Hayes, Kent.

WANTED.—Can any Gardener recommend MAN, age 24, to take charge of Glass; good Plantsman and Decorator; wages £1 per week, with Bothy and vegetables.—F. THIRLBY, Broadlands Gardens, Romsey, Hants.

WANTED, competent SINGLE HAND; Fruit, Flowers, Greenhouse, Cow, and Bees; young, active and temperate; about to marry; 20s.—FREEMAN, Otford, Kent.

WANTED, GARDENER (SINGLE-HANDED), not over 40; good all round; strong and willing; married, no children; rooms, coal, light; good wages to a reliable, trustworthy couple; wife assist. in house.—The Cottage, Radlett, Herts.

WANTED, GARDENER (SECOND); four kept; general knowledge required, but must thoroughly understand Forcing and Management of Lawns.—State wages wanted and full particulars of experience to M. A., care of Wm. Prescott, Acacia Grove, West Kirby.

WANTED, GARDENER (SECOND); to take charge of Houses; good Carnation (American tree) grower; wages 18s. a week and Bothy and vegetables.—Send particulars to Mr. GREGORY, The Gardens, Heytesbury House, Heytesbury, Wilts.

WANTED, at once, GARDENER (SECOND of five); energetic, and well up to his work and good at Plant and Fruit Culture; wages 20s. Also a good GARDEN LABOURER; wages 15s.—Apply, GARDENER, Perridge, Shepton Mallet.

WANTED, GARDENER (SECOND, INSIDE); age about 24; must be well recommended; 18s. per week; Bothy, milk, and vegetables.—Apply to E. J. QUAINTON, Peper Harow, Godalming.

WANTED, a good JOURNEYMAN for the Houses, with some knowledge of Orchids and Carnations; wages 17s. per week, with Bothy.—Apply, with particulars of experience, age, &c., to F. GARRETT, Sudbourne Hall Gardens, Orford, Suffolk.

WANTED, JOURNEYMAN-IMPROVER (Inside) in good establishment; Bothy; personal recommendation required; age about 19; wages and full particulars.—Apply, F. W. GALLOP, Canwell Hall Gardens, Sutton Coldfield.

WANTED, YOUNG MAN, about 24, who is experienced in Greenhouse Work, Grape Thinning, Flower and Kitchen Garden; take duty, &c.; wages 22s. 6d. per week.—Apply by letter to W. STANTON, The Gardens, Rutland Lodge, Shortlands, Kent.

WANTED, two YOUNG MEN; one for Greenhouses and one for Flower Garden; Church of England; wages 15s. per week, Bothy, and vegetables; duty.—A. HUBBARD, Hestercombe Gardens, Taunton.

WANTED, active YOUNG MAN; experienced in Alpines, Rock Garden, &c.; 17s. per week.—State full particulars to HEAD GARDENER Doddington Place, near Sittingbourne.

WANTED, YOUNG MAN (Outside); must have some experience; 12s. per week; Bothy, milk and vegetables.—H. DEW, Langford Lodge Gardens, Crumlin, Co. Antrim.

WANTED, a smart Lad as IMPROVER (Inside); must have had some experience; strong and willing to learn.—Full particulars, wages required with Bothy, &c., to A. T. PASKETT, Burrswood Gardens, Groombridge, Kent.

WANTED, COWMAN (married) for private place; must thoroughly understand his work; fill up time in garden; wages 17s. per week, with cottage.—Apply, WM. PETTIT, Lamport Hall Gardens, Northampton.

TRADE.

WANTED, FOREMAN (General), first-class, for old-established Hardy Plant Nursery; good all-round Propagator; used to control of men; experienced in laying out grounds and drawing estimates.—Write, PLANTS, Box 1, 41, Wellington Street, Covent Garden, W.C.

WANTED, FOREMAN for Apple Trees, &c., and to act as Foreman in Nursery.—Apply, with copies of references, stating experience and wages required (outdoor), to J. A. COOPER, Lissadell, Sligo.

WANTED, GROWER (single), for Tomatos, Cucumbers, Chrysanthemums, Bedding and Outside Stuff; able to take charge; also IMPROVER; must be quick at Tying, Potting, and Watering; Bothy.—Age, wages, and references to GROWER, Box 3, 41, Wellington Street, Covent Garden, W.C.

WANTED, GROWER; state experience in growing Cucumbers, Tomatos, Chrysanthemums, Bedding Plants, Ferns, and Flowers for cutting, &c., also wages required.—BIRD & VALLANCE, Nurserymen, Downham, Norfolk.

WANTED, an experienced GROWER for Fruit and Market Garden; abstainer preferred.—Write, giving age, wages required, and references, to F. A. TORPEY, 1, Gould Road, Salcombe, South Devon.

WANTED, a thoroughly reliable VALLEY GROWER for Market; references indispensable.—F., care of Smith's Library, Stony Stratford.

WANTED, BUDDER and GRAFTER for Apple Trees, &c., and to act as Foreman in Nursery.—Apply, with copies of references, stating experience and wages required (outdoor), to J. A. COOPER, Lissadell, Sligo.

WANTED, GRAPE THINNERS; wages 4s. per day and 6d. per hour overtime.—Apply, PARTRIDGE, Hampton, Middlesex.

WANTED at once, MAN thoroughly experienced in Cucumbers, Tomatos, Ferns, and general Market Plants; wages £1.—FORTEY, Fern Nurseries, Swinesherd, Worcester.

WANTED, GARDENER, Young Journeyman, for large Nursery in Scotland (Inside and Out); wages 18s. per week.—Full particulars of experience to "MOIRA," Box 7, 41, Wellington Street, Covent Garden, W.C.

WANTED, Young Man as GROWER; small Outside General Nursery; state wages and experience.—HOLMES, Station Road, Letchworth.

WANTED, Herbaceous Department, smart Young Man; well up in Propagation, Execution of Orders, Flower Shows, &c.—THYNE & SON, Nurserymen, Dundee.

WANTED, smart, energetic YOUNG MAN for Market Nursery; well up in Vegetables and Fruit; knowledge of Bees essential.—Age, wages and experience to L. and F. JACOBS, Argyle Nurseries, Argyle Road, Bognor, Sussex.

WANTED, YOUNG MAN for Fern Department; must have had previous experience.—Age and wages required, CLIBRANS, Altrincham.

WANTED, YOUNG MAN for Cucumbers, Tomatos, &c.; must be good worker, steady, and have good references.—Bartle Nurseries, Longton, Preston.

WANTED, YOUNG MAN for Outside; principally Herbaceous; state experience, age, and wages.—Apply, W. H. SIMPSON & SONS, 209, Monument Road, Birmingham.

WANTED, two YOUNG MEN; well up in Ferns, Watering, Potting, &c.; good character.—Apply, stating age and wages required, to E. CURRY, The Nurseries, Whitehall Lane, Chingford.

WANTED, YOUNG MAN (Inside and Out); wages 18s.; reference.—Apply, COOKE, South Parade Nursery, Maesteg.

WANTED, at once, TRAVELLER; Wholesale Seed Trade; first-class man only need apply.—State fullest particulars to PROGRESS, Box 25, 41, Wellington Street, Covent Garden, W.C.

WANTED, INVOICE (typewriting) CLERK; Day-book and Ledger; Wholesale Seed Trade; previous experience; young, quick, and reliable; hours 7-6 summer, 9-7 winter.—"WEST COUNTRY," Box 26, 41, Wellington Street, Covent Garden, W.C.

WANTED, for East Midland Town, LADY FLORIST ASSISTANT (Second Hand); live out; £1 per week.—State age, and send references and photo, which will be returned, to FLORIST, Box 4, 41, Wellington Street, Covent Garden, W.C.

SITUATIONS WANTED.

Twenty-six words for 1/6, & 6d. for each succeeding Eight words or less.

Gardeners desiring their Advertisements repeated *must give full particulars, otherwise no notice will be taken of their communications. Name and address alone are insufficient.*

Gardeners writing to Advertisers of Vacant Situations are recommended to send them **copies** *of testimonials only, retaining the originals. On no account should they enter into communication with unknown correspondents who require a fee beforehand.*

Advertisers are cautioned against having Letters addressed to Initials at Post-offices, as all Letters so addressed are opened by the Postal authorities and returned to the Sender.

PRIVATE.

Gardeners, Farm Bailiffs, Foresters, &c.

DICKSONS, Royal Nurseries, Chester, are always in a position to RECOMMEND MEN of the highest respectability and thoroughly practical at their business. All particulars on application.

CLIBRANS, Nurserymen to H.M. the King, Altrincham, can recommend thoroughly practical, well experienced Men, of high character, as GARDENERS (Head or Under), FORESTERS, &c Correspondence invited.

CHARLES WALDSTEIN, Esq., of Newton Hall, Cambridge, highly recommends his GARDENER (Head); honest, sober and trustworthy; very efficient in dealing with Flowers and Vegetables; age 37; married, no children.

GARDENER (Head, where two are kept); thorough good all-round practical experience, both Inside and Out; also with Herbaceous Plants; excellent character.—H. GARDENER, 124, Hampstead Road, London, N.W.

GARDENER (Head); thorough knowledge gained in first-class establishments, including Bowood, Deepdene, and Sandbeck; been nearly four years Head; employer given up place cause of leaving; excellent references; age 30; married; abstainer.—H. BEST, Vyne, Basingstoke.

GARDENER (Head); an all-round, experienced man; Inside and Out; could lay out new place; manage Land and Stock; good references.—J. H., Box 9, 41, Wellington Street, Covent Garden, W.C.

GARDENER (Head); thoroughly experienced in Plant and Fruit Cultivation; Roses, Carnations, Violets, Alpines, rare Shrubs and Trees a speciality; Landscape and Garden alterations; good manager of men.—T. BENNETT, 6, The Villas, Oadby, Leicester.

GARDENER (Head) and ORCHID GROWER; age 32; life experience in first-class trade and private establishments; thoroughly qualified in all branches; excellent references; married when suited.—WOOD, 3, Victor Cottages, Lewes Road, Lindfield, Sussex.

GARDENER (Head or good Single-handed with help); experienced Inside and Out; good references; age 46; single.—G. BURGESS, 17, Eversleigh Road, Lavender Hill, London, S.W.

GARDENER (Head Working, with one or two under); life experience in all branches; excellent references; age 34; married.—Apply to D. C. FLACK, Cholmondeley Castle Gardens, Malpas.

GARDENER (Head Working); life experience in good establishments; excellent references; take charge of electric light if required; age 36; married, no family; abstainer.—J. B., Box 5, 41, Wellington Street, Covent Garden, W.C.

GARDENER (Head Working, where several are kept); life experience in all branches; well recommended by present and previous employers; age 31.—H. EMMERSON, The Gardens, Falkland Park, South Norwood Hill. (No circulars.)

GARDENER (Head Working, where more are kept); 25 years' practical experience in all branches, Inside and Out; Orchids, Vines, Peaches, Cucumbers, Melons, Stove and Greenhouse Plants and Herbaceous Borders; thoroughly reliable; highly recommended; married, without encumbrance.—F. WOODHOUSE, Hadlow Down, Buxted, Sussex.

GARDENER (Head Working, where three or four are kept); life experience Orchids, Stove, Vines, Cucumbers; Flower and Kitchen Garden; Land and Stock; leaving through place being let; age 40; married, no family.—DOWNHAM, Queensmere Road, Wimbledon Park.

GARDENER (Head Working); age 39 years; married; experienced in Flower Gardening, Fruit and Vegetables and all branches of Outdoor Horticulture.—Address, BIRD, 8, Alexandra Road, Richmond.

LADY highly recommends her late GARDENER (Head Working, where three or more are kept); Scotch; life experience Inside and Out, including Orchids; 20 years as Head in good establishments; three years here; married, no family; leaving through estate being sold.—ROBERT BEGG, Redenham Park Andover.

GARDENER (Head Working); thoroughly experienced in all branches, Inside and Out; highly recommended; married, no family.—T. ELLIS, Caterham Valley, Surrey.

GARDENER (Head Working, where two or more are kept); life experience, Inside and Out; Fruit, Flowers, Vines, Vegetables, &c.; married, no family.—BLAGBURN, Sherwood Farm, Mitcham.

GARDENER (Head Working); life experience Inside and Out; 11 years Head; excellent references; left through death; married, no family.—ELLERY, Lyndhurst, Belmont Road, Westgate-on-Sea.

GARDENER (Head Working); life experience in all branches; Land and Stock if required; disengaged; 8 months' and 12½ years' good character; age 42; three children, youngest nine years.—F. COLES, 5, Chestnut Road, Twickenham.

GARDENER (Head Working); life experience in all branches, Inside and Out; can manage electric installation; age 34; married, no family; abstainer.—W. BERRETT, 48, Southwood Lane, Highgate, N.

GARDENER (Head Working); life experience in good establishments; seven years present and eight years at Worsley Old Hall, Manchester, as Head; good testimonials; married, no family; wife good cook; age 45.—JAMES BURROWS, Box, Minchinhampton, Gloucestershire.

GARDENER (Head Working).—Mr. H. G. BULL, Breakspears, highly recommends C. Harbert as above; well versed in Cultivation of Flowers, Fruit, and Vegetables; practical experience; age 30.—Breakspears Gardens, Uxbridge, Middlesex.

GARDENER (Head Working) requires Situation where three or more are kept; life experience in all branches; age 30; married, no family.—A. E. MOSS, Westlington, Dinton, Aylesbury.

SIR CHARLES ROSE, Bart., M.P., wishes to highly recommend F. Elkins as GARDENER (Head Working or good Second).—Hardwick House, Whitchurch, Pangbourne.

COLOURED PLATE.

THE GARDENERS' CHRONICLE

ESTABLISHED 1841

No 3727

No. 1,327.—VOL. LI. {THIRD SERIES.} SATURDAY, JUNE 1, 1912. {Registered as a Newspaper. WITH SUPPLEMENT: PRICE 3d. POST-FREE, 3½d.

SUBSCRIPTION—Inland, 15/-; Foreign, 17/6 [22fr. 10c.] [$4 26c.] per annum. Entered at the New York Post Office as second-class matter.

Postal Address—41, Wellington Street, Covent Garden, W.C. Telegraphic Address—"Gardchron, London." Telephone—Gerrard, 1543.

☞ For CONTENTS see page 359.

INTERNATIONAL HORTICULTURAL EXHIBITION.

The attention of advertisers is directed to the arrangements made by the "Gardeners' Chronicle" (see issue for May 11th, page 318) for reporting the International Exhibition. The issues (May 25, June 1 and 8) containing the three Exhibition Supplements will be sold at the usual price (3d. each).

WEBBS' WALLFLOWERS.
The finest strains in existence.
WEBBS' Canary Bird (golden-yellow).
WEBBS' Ruby Gem (ruby-violet).
WEBBS' Vulcan (deep velvety crimson).
WEBBS' Eastern Queen (salmon shaded).
WEBBS' Universal (single mixed).
WEBBS' Double (mixed; very fine).
Each, 1s. per packet, post free.
WEBBS' Kinver Favourite (blood-red).
WEBBS' Primrose Dame (primrose).
WEBBS' Belvoir Castle (yellow).
Each, 6d. per packet, post free.

WEBB & SONS, The King's Seedsmen, WORDSLEY, STOURBRIDGE.

HUTS FOR THE GARDEN. — Fruit Rooms, Potting Sheds, Workshops, Cycle Houses, Boot Rooms, Servants' Mess Rooms, Children's Playrooms, &c. Send for Illustrated Catalogue, free. BOULTON & PAUL, Ltd., Norwich.

GREENHOUSE PAINTING & GLAZING "Vitrolite" superior to White Lead Paint, 9/- per gall. "Plastine" supersedes Putty, 16/- per cwt. Full particulars from W. CARSON & SONS, Grove Works, Battersea. Agents throughout the country.

CHOICEST WALLFLOWERS.—Dicksons selected Dark Blood Red, Dicksons Golden Beauty, Primrose Dame, Eastern Queen, Ruby Gem, Golden Monarch, Vulcan, and Harbinger—all distinct and beautiful varieties, per packet 6d. and 1s., post free. DICKSONS, Royal Seed Warehouses, Chester.

ALPINES & HERBACEOUS PLANTS, —Himalayan and other rare Rhododendrons, rare Shrubs, Construction of Rockeries. Catalogues ready. G. REUTHE, Keston, Kent.

Roses and Herbaceous Plants.

GUNN & SONS were awarded the 25 Guinea Challenge Cup in each collection at the Leamington Show. Up-to-date List for each now ready. Address: Olton, Warwickshire.

FRUITING VINES IN POTS.—Muscat of Alexandria, and leading Market varieties. We make Vines a speciality. G. COLEMAN, The Vineries, Burgess Hill, Sussex.

THE Popularity of "XL ALL" Specialities increases every year. All gardeners proclaim that nothing equals these celebrated preparations. "XL ALL" NICOTINE VAPORISING COMPOUND, the gardeners' favourite Fumigant, both Liquid and Cake. "XL ALL" NICOTINE INSECTICIDE WASH for Syringing, Dipping and Dressing Fruit Trees and Plants; Mealy Bug, Scale, etc., cannot exist where this is used. "XL ALL" INSECTICIDE WASH B (*sine* Nicotine), best non-poisonous Wash on the Market. No licence required to sell this. Other preparations of great renown are:—"XL ALL" WEED KILLER, "XL ALL" FERTILISER, "XL ALL" ROSE MANURE. Richards' GREEN SUNSHADE, finest powder shading on the market, 1s. packet, does 100 feet of glass. Don't forget to ask your Nurseryman or Seedsman for my small pink list.—G. H. RICHARDS, Manufacturer, 234, Borough High Street, London, S.E.

SUTTON'S FIRE KING WALLFLOWER Vivid orange, a new and beautiful colour in this favourite spring flower. Per packet, 1s. 6d.

W. G. BURSTOW, Esq., Curator, Wallasey U.D. Council, writes:—"Your Fire King Wallflower is a great success here. It has been eulogised by our local press, and rightly described as a new departure. We grow over 4,000 of all the leading varieties. Post free.

SUTTON & SONS, The King's Seedsmen, READING.

Sow Now.

BATH'S EMPRESS PANSIES, as grown for the Royal Gardens at Frogmore. The richest and largest-flowered strain of Pansies extant. Per packet, 2s. 6d. and 1s. 6d., post free for cash. (Dept. A), R. H. BATH, Ltd., The Floral Farms, Wisbech.

MACKENZIE AND MONCUR, Limited, Hothouse Builders and Heating Engineers, London, Edinburgh, and Glasgow. By Special Appointment to H.M. The King. London Office: 8, CAMDEN ROAD, N.W.

BUNYARD'S CATALOGUES, free on application.
BORDER CARNATIONS, 50 varieties.
ROSES AND OTHER CLIMBERS, in Pots.
HERBACEOUS AND AQUATIC PLANTS for present planting.

GEORGE BUNYARD & CO., LTD., Royal Nurseries, Maidstone. Established 1796.

LAXTON'S STRAWBERRIES. — New Catalogue now ready, with particulars of three fine improvements for 1912, including the new "Queen," a gem of the first water, a glorified British Queen. Full particulars on application. LAXTON BROTHERS, Bedford.

AUTO SHREDS FUMIGANT kills Leaf-mining maggot, insects in greenhouses, frames. For 1,000 cubic feet, 6d.; 10,000, 3s. 6d. No apparatus. WM. DARLINGTON & SONS, Patentees, Hackney, N.E.

GARDEN PESTS.—Cross's 'Clubicide" is the Gardeners' Insurance against damage by Eelworm, Wireworm, Slugs, Maggot, and all Disease Germs and Insect Pests. Kills all harmful Bacteria, reinvigorates the soil, stimulates plant life. In 1s. flasks and ½-gall. and 1 gall. drums. From all Seedsmen. Sole Manufrs.: A. CROSS & SONS, Ltd., Glasgow.

WALTERS & CO., Morland Rd., Croydon, Makers of Lath Roller Greenhouse Blinds; Pinoleums, Scrim, Tiffany; also Garden Trellis, Arches, Rose Trainers, of best designs. New Catalogue 1912, free.

GISHURST COMPOUND is harmless in use; its soluble Sulphur, &c., has for 40 years cured Blights and Fungus on Plants, and is good for washing unhealthy dogs. Gishurstine keeps boots dry in all weathers; they will polish. Good for Harness. Wholesale from— PRICE'S PATENT CANDLE CO. LTD., London.

BARR'S SEEDS FOR JUNE SOWING. —Finest strains of Antirrhinums, Aquilegias, Campanulas, Canterbury Bells, Calceolarias, Cinerarias, Delphiniums, Hollyhocks, Lupins, Pansies, Primulas, Stocks, Wallflowers, etc. Special list on application. BARR & SONS, 11, 12 & 13, King St., Covent Garden, London.

SELECT YOUR ALPINES IN FLOWER. —A large collection, in pots, also Aquatics for present planting. Visitors cordially welcomed.—THE GUILDFORD HARDY PLANT NURSERY, Guildford.

OSMUNDA for Orchids.—Consignments arrive fortnightly. 2s. 6d. per bushel; per bag, 8s. 6d. SANDER & SONS, St. Albans.

For Advertisement Charges see page xiii.

Now is the time to plant

KELWAY'S GAILLARDIAS, which are among the most brilliant and the most easily grown of the hardy herbaceous perennials; they give abundant bloom in the same year that they are planted, and blossom profusely from June to November. The flowers are on long stems, and last in water for a fortnight. Choice named collections, 12s. a dozen. From pots. Carriage and packing free for remittance with order.—KELWAY & SON, The Royal Horticulturists, Langport, Somerset.

Now is the time to plant

KELWAY'S NEWEST GLADIOLI. These new Gladioli are a revelation. They should be planted by all who want glowing effect of colour in their beds and borders, and flowers for the house in July, August and September. We recommend trial of a selection of our "Cream of the World" collection of named varieties, flowering bulbs, for instance, one dozen for 9s.; per 100, £3 10s. Other choice collections, 30s. and 45s. per 100. Full descriptive list on application. Carriage free for remittance with order.—KELWAY & SON, The Royal Horticulturists, Langport, Somerset.

KELWAY COLOUR BORDERS.—Now is the time to plant these for Autumn planting. Full particulars and estimates for Hardy Borders of any dimension, and to suit any taste, packed ready for planting on arrival, on application. Send information as to measurements, position and soil to KELWAY & SON, The Royal Horticulturists, Langport, Somerset. ——Esq., Jamaica Street, Glasgow. "I have to thank you for the plants I received from you in the Spring. Everything, without exception, has done splendidly, and my border at the present time is simply grand."

WM. DUNCAN TUCKER & SONS, Ltd., 27, Cannon Street, London, E.C.; Works, Tottenham. Conservatories, Winter Gardens, Vineries, Peach-houses, Portable Buildings, etc. Catalogue gratis.

ORDER TRELLIS-WORK NOW.—Get our book on Trellis-work, showing Screens, Wall Panels, Window Surrounds, Arches, Arbours, &c., post free. BOULTON & PAUL, Ltd., Norwich.

LISSADELL ALPINE & HERBACEOUS PLANTS.—Write for our new illustrated and enlarged List, containing many beautiful novelties at moderate prices. Also List of Seeds collected from above in 1911. J. A. COOPER, Lissadell (No. 2), Sligo, Ireland.

New Phloxes.

GUNN & SONS were Awarded a Silver Cup at the Great Show at Olympia. New Lists now ready. Address: Olton, Warwickshire.

HARRISON'S "RELIABLE" WEED KILLER.—Best and cheapest. See p. xii. this issue.

PERPETUAL FLOWERING CARNATIONS; strong, established plants in pots, from 4s. per doz., carriage paid; 20s. per 100, carriage forward; illustrated catalogue, describing 75 leading varieties with cultural hints, post free.—C. F. A. VAN DER SLUYS, F.R.H.S., Ramee, Guernsey.

KEYNES' DAHLIAS, sturdy, healthy, plants of all best kinds. No one interested in Dahlias should be without a catalogue, gratis to all applicants.—KEYNES, WILLIAMS & CO., Salisbury.

BEGONIA GLOIRE DE LORRAINE, old variety, also Rothschild var. and Turnford Hall, well-rooted young plants, 2s. 6d. doz., 50 for 6s., 10s. 6d. per 100; The King, 3s. 6d. doz., 50 for 12s.; carriage paid for cash.—H. DUDDERIDGE, The Dorset Nurseries, Blandford.

ECHEVERIA, for Bedding, 5s. per 100; packed free for cash.—J. GREEN, Reliance Nurseries, March.

SALES BY AUCTION.

Wednesday next, June 5th, at 2 o'Clock.

Japanese Liliums, Begonias, Gloxinias, Lily of Valley, Iris, Carnations, &c., Liliums Nepalense and Sulphureum, Gladiolus and other hardy bulbs and tubers.

At 3.30 o'Clock,

100 lots of Ornamental and Decorative Palms and Plants, Standard Bays, &c., from Belgium, Stove and Greenhouse and Bedding Plants.

MESSRS. PROTHEROE & MORRIS will SELL the above by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C. On view morning of Sale and Catalogues had.

Enfield Highway, Middlesex.

AT LOW RESERVES.

The compact FREEHOLD PROPERTY, DURANTS ARBOUR NURSERIES, with 42 greenhouses, about 5,200 feet run of glass, fitted with hot-water piping heated by 10 boilers. Engine, pumps, 2 aermotors, reservoir, stabling, 4-roomed bungalow. Part of land planted with fruit trees, 15 greenhouses planted with vines. Area about 8¼ acres. To be sold as a going concern with possession.

MESSRS. PROTHEROE & MORRIS will offer the above by AUCTION at the Mart, Tokenhouse Yard, London, E.C., on FRIDAY, 14th June, at two o'Clock. Particulars of H. B. Wedlake, Esq., Solicitor, London and South Western Bank Chambers, Finsbury Park, N., and of the Auctioneers, 67 and 68, Cheapside, E.C.

Walton-on-Thames.

By order of the Mortgagees.

Important to Market Gardeners, Nurserymen, and Florists. The valuable FREEHOLD NURSERY and MARKET GARDENS, The Nursery, Field Common, area 44 acres, 29 greenhouses with 3,100 ft. run of glass, 17,000 ft. of hot-water piping, 9 boilers, stabling, water tower, engine and pump. Possession upon completion.

MESSRS. PROTHEROE & MORRIS will OFFER the above by AUCTION at the Mart, Tokenhouse Yard, E.C., on FRIDAY, 14th JUNE, at 2 o'Clock. Particulars of Messrs. Saxton & Morgan, Solicitors, 29, Somerset Street, W., and of the Auctioneers, 67 and 68, Cheapside, E.C.

Mickleover House, Mickleover.

(Three miles from Derby and two miles from Uttoxeter Road tram terminus.)

MESSRS. CUMBERLAND, BROWNSON & PAGE are favoured with instructions from H. Charrington, Esq. (who is leaving) to SELL by AUCTION, on the premises as above, on WEDNESDAY, June 12th, 1912, his well-known collection of 92 CHOICE FRUIT TREES in pots, comprising select sorts of Nectarines, Peaches, Plums, Cherries, and Figs.

The trees are all well grown, in a most healthy condition, laden with fruit, which will be maturing shortly after the day of Sale.

Sale at 3 p.m. prompt.

May be inspected on application to Mr. G. Bacon, on the premises.

Catalogues from the Auctioneers, The Wardwick, Derby and Ashbourne.

Bottesford, Leicestershire.

To Horticulturists, Nurserymen, Market Gardeners, &c.

TO BE SOLD BY AUCTION BY

WALKER, WALTON & HANSON, at the Rutland Arms, Bottesford, on THURSDAY, the 13th day of June, 1912, at 5 o'Clock in the afternoon, precisely, subject to Conditions of Sale to be then produced, the following FREEHOLD PROPERTY, known as

THE NURSERIES, BOTTESFORD,

and comprising Detached Residence of 9 rooms, with good stable and usual out offices; 18 Greenhouses, namely, 6 span-roof houses, 148 ft. by 15 ft., 10 span-roof houses, 148 ft. by 10 ft., stocked with healthy cucumber and tomato plants, a lean-to forcing house, 89 ft. by 6 ft.; all the above being fitted with 4 in. hot-water pipes; a lean-to greenhouse, 215 ft. by 9 ft.; workshop and packing shed, 49 ft. by 14 ft.; 2 other sheds; large fenced-off kitchen garden; enclosed orchard; 2 small paddocks of rich pasture land, one of which, having a frontage to the Nottingham Road of 262 ft., is well adapted for building purposes. The whole property contains 6 acres or thereabouts, and is in a high state of cultivation throughout.

The above will first be offered in one lot, and if not sold, the property will be divided into two lots, viz., the Greenhouses and trade erections and the land they stand upon in one lot, and the Residence, with garden, orchard and paddock near the Nottingham Road in one lot.

The erections are all strongly built and in good condition, and a well-established business is now carried on by the owner. Vacant possession will be given on completion of the purchase. The property is situate in the Parish of Bottesford, and of easy access to London and the most important Provincial Markets in the country. For further particulars, apply to the owner and occupier, Mr. Thomas Page; the Auctioneers, Nottingham and Melton Mowbray; or to Henry Thompson & Sons, Solicitors, Grantham.

BUSINESSES TO LET.

NURSERY to LET; splendid position; five minutes from rail and trams; 350 ft. glass, 1½ acre fruit; good house, rent £40.—Further particulars from MILES, Royal Hotel, Sheerness.

BUSINESSES FOR SALE, &c.

Over 100 Nurseries, Market Gardens, Florist & Seed BUSINESSES to be DISPOSED OF.

MESSRS. PROTHEROE and MORRIS' HORTICULTURAL REGISTER contains full particulars of the above, and can be obtained gratis at—67 and 68, Cheapside, London, E.C.

FOR SALE, a well-equipped NURSERY and FLORIST BUSINESS, situated in a busy neighbourhood, within easy reach of the London markets; good local trade; established 30 years; dwelling house on the nursery; price, including valuable lease, growing crops, outbuildings, 10 glasshouses, frames, lights, &c., and goodwill, £1,500; exceptional opportunity for a person wishing to secure a pleasant ready-money business.—For particulars, write to ESSEX, Box 22, 41, Wellington Street, Covent Garden, W.C.

FOR SALE, Freehold, THE NURSERIES, Clacton-on-Sea, about 400 feet of glass-houses, heated and well stocked; fine dwelling-house in main road; best position in town; adjoining two new developing estates; 19 years same hands; price low; nearly three-fourths can remain.—SPENCER, Nurseryman, Clacton-on-Sea.

NURSERY and FRUIT FARM, 20 miles from London; modern eight-roomed house, 130 ft. run glass, 250 choice fruit trees, full bearing; area 2¾ acres; freehold £800.—Apply, Messrs. DEBENHAM & CO., 80, Cheapside, E.C.

WILLIAM AUBREY & CO., Nurserymen's Agents, 10, Duke Street, Charing Cross, London, offer NURSERY with Florist's and Fruit Shop, N.W. London, comprising about ¾ acre land, seven glasshouses, cottage, &c.; low rent; turnover exceeds £800 yearly; price, including growing crops, glasshouses, horse, cart, &c., £550.

WILLIAM AUBREY & CO. also offer NURSERY with Sale Shop in market place, good residential town, Essex, comprising three acres land, five glasshouses, dwelling-house, &c.; turnover £800 yearly; price £450 complete, including growing crops, fixtures, fittings, stock, &c.

FOR SALE, compact FREEHOLD HOLDING of five acres; modern brick-slated seven-room residence; two-stall stabling, coach-house, loft, granary, poultry houses, covered runs, outbuildings, &c.; matured fruit trees, two acres market garden; 200 ft. h. and c. glasshouses, gravel subsoil, abundant water supply, south aspect, splendid position for bee-keeping, healthy neighbourhood, New Forest.—OWNER, Northfield, Poulner, Ringwood.

W. A. GARAWAY, Deceased.

FOR SALE,

the old-established BUSINESS of

JAMES GARAWAY & CO.

NURSERY 35 acres at Keynsham;

SEED, BULB & FLOWER BUSINESS at Clifton, Bristol.

Immediate possession at valuation.

Apply, F. J. TARR & SONS, Solicitors, Bristol; or JAMES GARAWAY & CO., Nurserymen, Bristol.

MESSRS. PROTHEROE & MORRIS Horticultural Auctioneers, 67 and 68, Cheapside, London, E.C., will be pleased to forward particulars of either of the following properties:—

By order of the Executors of Thomas Childs, deceased.

The well-known MARKET NURSERIES AT NEW ELTHAM. To be sold as a whole or in two lots, as follows:—

Lot 1.—Freehold Nursery, area about 5 acres, with 41 greenhouses, in all 3,954 feet run of glass, with heating apparatus, range of buildings and sheds. Important frontages of over 1,000 feet.

Lot 2.—Freehold Nursery. Area 2½ acres, with 21 greenhouses, in all 2,931 feet run of glass, with heating apparatus and useful trade buildings.

Stock by arrangement. The late Mr. Child was well known as a market grower, and the opportunity is thus afforded of acquiring well-equipped properties as going concerns with the advantage of early possession.

STAFFORDSHIRE.—Important ORCHID NURSERY to be LET or SOLD; area 1½ acres; 12 Orchid houses; two dwelling houses and outbuildings; widespread trade in cut bloom; stock of nearly 20,000 plants.

MUST BE SOLD. — FREEHOLD NURSERY on main G.E.R.; 12 miles from Southend; 550 ft. run of glass in capital condition and three acres of land; water supply from mains; price £500.

IN a popular residential town in Berkshire, old-established NURSERY and FLORIST'S BUSINESS; 12 greenhouses, total area 7½ acres; commodious shop on main road and eight-roomed dwelling-house; good trade done; moderate rent; price £1,150.

TO be SOLD, near Bristol, compact FREEHOLD NURSERY, area three acres, with 12 glasshouses, outbuildings; good dwelling house; capital trade done; price £1,600; half on mortgage if desired.

NOTICES.

THE RHODODENDRONS planted in Rotten Row, Hyde Park, are supplied by ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey. Kindly note Christian name and address.

PUBLISHERS' NOTICES.

Oxford Gardens.

A historical account of the oldest Botanic Gardens in England. **By R. T. GUNTER, M.A.**

Contains 15 plates and 14 text figures. **Price 6/-.**

Messrs. Parker & Co., Oxford.
Simpkin, Marshall & Co., London.

Present-Day Gardening.

Edited by R. HOOPER PEARSON, Managing Editor of the GARDENERS' CHRONICLE. Now Ready. Post free, **1/9** each.

Numerous Beautifully Coloured Plates are contained in Each Volume.

1.—**SWEET PEAS.** By HORACE J. WRIGHT, late Secretary and Chairman of the National Sweet Pea Society. With Chapter on "Sweet Peas for Exhibition," by THOS. STEVENSON.

2.—**PANSIES, VIOLAS, AND VIOLETS.** By WILLIAM CUTHBERTSON, J.P., and R. HOOPER PEARSON.

3.—**DAFFODILS.** By the Rev. J. JACOB.

4.—**ORCHIDS.** By JAMES O'BRIEN, V.M.H., secretary of the Orchid Committee of the Royal Horticultural Society.

5.—**ROOT & STEM VEGETABLES.** By ALEXANDER DEAN, V.M.H., Chairman of the National Vegetable Society.

6.—**CARNATIONS & PINKS.** By T. H. COOK, Head Gardener at Sandringham; JAMES DOUGLAS, V.M.H., and J. F. McLEOD, Head Gardener to Mr. Pierpont Morgan. Contains 8 full-page coloured plates.

7.—**RHODODENDRONS & AZALEAS.** By W. WATSON, with preface by Sir F. W. MOORE, M.A. (the first popular volume published on this subject). Contains 8 full-page coloured plates.

8.—**LILIES.** By A. GROVE, F.L.S., with preface by H. J. ELWES, F.R.S. Contains 8 coloured plates.

9.—**APPLES & PEARS.** By GEORGE BUNYARD, V.M.H. Contains 8 coloured plates.

10.—**ROSES.** By H. R. DARLINGTON, with 8 full-page coloured plates. A double volume, price **2/10**, post free. Special presentation edition, with leather cover design, in cloth gilt, gilt top, price **3/10**, post free.

11.—**IRISES.** By W. R. DYKES, M.A., with preface by PROF. BAYLEY BALFOUR. 8 full-page coloured plates.

12.—**ANNUALS, HARDY AND HALF-HARDY.** By C. H. CURTIS, with 8 coloured plates. **1/9.**

THE PUBLISHER,

"Gardeners' Chronicle" Offices, 41, Wellington St., Covent Garden, London, W.C.

EXHIBITIONS.

GRAND

Yorkshire Flower Show

AND GALA.

JUNE 19th, 20th and 21st, 1912.

£800 OFFERED IN PRIZES.

£275 for Orchids, Stove and Greenhouse Plants.
£175 for Pelargoniums, Carnations, Begonias, etc.
£225 for Roses, Cut Flowers, etc.
£125 for Fruit and Vegetables.

Four Gold Medals and Premier Prize for Trade Exhibits.

ENTRIES CLOSE JUNE 12th.

For Schedules apply to FRED. AREY, Secretary, Davyhall Chambers, York.

The National Hardy Plant Society's FIRST SHOW

will be held in the R.H.S. HALL, VINCENT SQUARE.

On WEDNESDAY, JUNE 19th, 1 p.m. to 6 p.m.

ADMISSION ONE SHILLING.

Since publication of the Schedule two classes have been added, one for Six Bunches of Sutton's Pink Sweet William and one for Six Bunches Scarlet ditto.

Messrs. Sutton & Sons offer Prizes, 21/-, 10/- and 5/- in each class.

Entries close June 8th.

Schedule and Particulars from A. J. MACSELF, 53, Beechfield Road, Finsbury Park, N.

THE
Gardeners' Chronicle
No. 1,327.—SATURDAY, June 1, 1912.

CONTENTS.

Books, notices of—		Rhododendrons at Leonardslee, Sussex	361
Annuals, Hardy and Half-Hardy	359	Saxifraga, a hybrid	367
Chalk-loving plants	367	Science, horticultural, 1866-1912	364
Chelsea gardens, renovation of the	366	Societies—	
Delhi, gardening at	366	Bath & W. of England Agricultural	370
Echium candicans	368	British Gardeners' Association	370
Florists' flowers—		Horticultural Club	368
The herbaceous Calceolaria	359	Manchester and North of England Orchid	369
Forest trees, exotic	367	National Gladiolus	369
Hoya bella	368	Royal Horticultural (Scientific Committee)	366
International Horticultural Exhibition (Supplementary pages)		Strawberries, etherisation and the forcing of	368
Jamesia americana	367	Strawberries, forcing	359
Kew Guild annual meeting and dinner	366	Veitch, Sir Harry J.	367
Manna	366	Week's work, the—	366
Mushrooms in boxes	361	Apiary, the	363
Primula Knuthiana	366	Flower garden, the	362
Rhododendron Falconeri	367	Fruits under glass	362
Rosary, the—		Hardy fruit garden, the	362
Cultural notes for June	360	Kitchen garden, the	362
Roses under glass	360	Orchid houses, the	363
		Plants under glass	363

ILLUSTRATIONS.

Calceolaria Veitchii ... Supp. xxii
Cherry Governor Wood ... Supp. xxviii
Chinese plants shown by Hon. Vicary Gibbs Supp. xxvi
Deutzia Veitchii ... Supp. xix
Echium candicans ... 368
Flowering plants, Messrs. Sutton and Sons' group of ... Supp. xxix
Fruit exhibited by His Majesty the King ... Supp. xxvii
Fruit shown by L. de Rothschild, Esq. ... Supp. xxix
Iris squalens var. "Nibelungen" ... Supp. xx
Japanese garden arranged by Messrs. Jas. Carter and Co. ... Supp. xxiv
Lilium davuricum var. luteum ... Supp. xxi
Miltonia Jules Hye de Crom ... Supp. xxv
Odontioda Queen Mary ... Supp. xxv
Orange Trees shown by Messrs. Jas. Veitch & Sons Supp. xxxi
Orchids shown by Sir Geo. Holford ... Supp. xviii
Oxalis enneaphylla var. rosea ... Supp. xxv
Plum Early Transparent Gage ... Supp. xxx
Primula Knuthiana (coloured Supplementary Illustration)
Rhododendron Aucklandii, 361; R. Loderi ... 360
Saxifraga, a hybrid ... 367
Strawberry King George V. ... Supp. xxviii
Sweet Pea Melba ... Supp. xxiii
Vegetables exhibited by Hon. Vicary Gibbs Supp. xxxii
Veitch, Sir Harry J., portrait of ... 365

ETHERISATION AND THE FORCING OF STRAWBERRIES.

FOR some years past M. M. G. Bultel has been experimenting on the value of etherisation for forcing early Strawberries. His earlier experiments, published in 1906, appeared to show that the method is capable of commercial application, and this conclusion is confirmed by the results of experiments carried out on a more extended scale during the present year. In the latter experiments, M. Bultel used 600 plants of the variety Vicomtesse Héricart de Thury, all of which plants were obtained from layers taken at the same time, and grown under precisely similar conditions. Of the 600 pot plants, 300 were placed in a heated frame on November 25, and the other 300 were etherised on that date. One hundred and fifty of the latter were treated for 48 hours with a full dose of ether (400 grams per cubic metre), and the remaining 150 were exposed for 40 hours to half this quantity, and then for 20 hours to the full dose. In describing the results, we need not distinguish between the two lots of etherised plants beyond saying that the more gradual treatment produced slightly better results. The etherised plants were placed in heated frames, with the non-etherised Strawberries, on November 27 and November 28. When the plants showed signs of flowering, they were brought into the forcing house and subjected to a temperature of 15° C. (59° F.), which temperature was raised gradually, first to 65° F., and later to 68° F.

The difference in time of flowering between the etherised and unetherised plants was striking. Thus, on January 8, 213 of the 300 etherised plants were showing flower-buds; whereas only 33 of the 300 unetherised plants were in a similar condition. Of the etherised Strawberries, 238 flowered and 62 failed to flower; whereas, of the unetherised plants, the corresponding numbers were 224 and 76.

The fruits of etherised plants began to swell on February 21; whilst those of the non-etherised plants did not begin to swell till March 6. Finally, the etherised plants bore ripe fruits on March 15-17; whereas no fruits were ripe on the unetherised plants till 15 days later.

M. Bultel makes no mention in the account which he gives of his experiments (*Journal de la Soc. Nat. d'Horticulture de France*, April, 1912) of the respective yields obtained from the two crops. We are bound, therefore, to infer that that from the etherised lot of plants was at least equal to that from the plants not subjected to this treatment.

Assuming that the yield is satisfactory, it certainly seems probable that, as M. Bultel observes, etherisation may prove profitable to those growers who desire very early crops, particularly in years when, owing to the absence of cold autumn weather, the plants have not "ripened" well. We hope that more experiments of this kind will be undertaken, and would commend the subject to the notice of those in this country who have facilities for this kind of experimental work.

NOTICES OF BOOKS.

A NEW WORK ON ANNUALS.*

THIS is the 12th volume of the "Present-day Gardening" series, and even a cursory glance is sufficient to make one wonder how it could be produced at the price, considering the beauty of the illustrations, and comparing the work with one on the same subject which was published not long ago at a price four times as high.

The first chapter is devoted to a brief dissertation on the value of annuals, and the second to a description of their cultivation. The remainder of the book is occupied by a review of the best varieties in cultivation, with short notes on the mode of culture required by each. The lists are up-to-date and reliable, though I was surprised not to find Silene Armeria—an old favourite of mine, commonly neglected.

The volume contains an exhaustive index, which adds much to its value as a work of reference. *R. P. Brotherston.*

* *Annuals, Hardy and Half-Hardy*, by Charles H. Curtis, with eight coloured plates, price 1s. 6d. "Present-day Gardening Series," edited by R. Hooper Pearson. (London: T. C. & E. C. Jack.)

FLORISTS' FLOWERS.

THE HERBACEOUS CALCEOLARIA.

FEW greenhouse plants have been more improved during recent years than the herbaceous Calceolaria, both with respect to the constitution of the plant and the beauty of the flowers. No plant thrives better in a cool house, though no subject is quicker in resenting neglect or careless treatment. The first week in June is a suitable time to sow the seed, whilst a second sowing made during the last week of that month will ensure a succession in flowering. The compost used at all stages should be of a rich nature—one part of finely-sifted soil to half the quantity of leaf-mould, with sufficient silver sand to make the whole perfectly porous is suitable. Prepare a clean seed pan, well furnish it with crocks for drainage purposes, and fill the remaining space with the compost, making it moderately firm. If the soil is moist when mixed it will not need watering. The seed, being fine, requires careful handling; it should be sown thinly and covered with a mere dusting of very fine earth. Place a sheet of glass over the pan and stand the latter in a suitable place, such as a cool, moist vinery, for the seed to germinate. After a little more than a week the seeds appear through the soil, at which stage the glass should be removed and the pan placed in a lighter position, but shaded from all direct sunshine. As soon as the second leaf appears the seedlings should be pricked out at a distance of about 2 inches apart; in many places it is the rule to throw the smallest plants away, but these small plants often furnish the most charming colours. Although they are very small at first, they eventually become robust. As soon as they are ready for potting, small pots should be got in readiness: the receptacles must be perfectly clean and have a few small crocks covered by clean moss for drainage. Use a compost similar to that described above, but make sure that it be porous, as an open soil is one of the essentials to success. Lift the plants carefully, retaining as much soil as possible at the roots. Pot with moderate firmness, and make the soil slightly higher in the centre. Place the plants in a cold frame, affording shade whenever necessary and never allowing the plants to suffer in the least for want of water. On hot days frequent light syringings with soft water should be afforded, and fresh air should be admitted freely at all times. Aphis must be checked by frequent light fumigating with tobacco paper. About September the plants will be ready for potting again, and pots must be selected according to the size of the plants. Avoid over-potting at this stage, as the plants will remain in these receptacles over the winter. As soon as the nights begin to be chilly, the plants should be removed to a cool pit or greenhouse, but wherever they are placed they must have plenty of light and air, the more the better. Whilst the temperature can be maintained at 45° to 55°, no fire-heat is necessary; extremes of temperatures must be guarded against, and a dry atmosphere, which is very injurious to the plants, must be avoided. Watering should be done carefully during the dull months, and insects must be kept in check by light fumigating on calm nights. At the latter part of February the plants should be transferred to their flowering pots. The compost should be richer than before, a liberal amount of plant fertiliser should be added, also a sprinkling of soot, and the whole made quite firm yet perfectly porous. The size of the pots should vary according to the size of the plants; those from 6 to 9 inches diameter are most suitable. The plants should be given every encouragement to grow. Provide plenty of fresh air, but avoid draughts and overcrowding. Use the syringe freely on warm days, and when the pots are filled with roots liquid manure may be afforded at every alternate watering. Tie the shoots before the flowers open, and when the blossoms have expanded afford the roots clear water only. *C. Townend.*

THE ROSARY.

CULTURAL NOTES FOR JUNE.

At the time of writing, the prospects of outdoor Roses are far from promising. Cold winds and a rather long spell of drought have not been conducive to the development of healthy or clean growth, and it is more than ever necessary to syringe the plants freely. Even a free, overhead watering will do much towards cleansing, and also freshening the foliage during times when the atmosphere is very dry. Provided this is not done during periods of bright sunshine, the plants will receive great benefit.

If the weather continues dry it will be necessary to water growing plants freely. Roses planted late during the present season are also likely to need free watering. After watering, the soil should be stirred lightly or hoed over as soon as its condition will permit. Much depends upon this loosening of the ground, for it must be remembered that watering when the ground is dry causes the surface to become caked. It is by no means necessary to stir deeply; a slight scratch with the Canterbury hoe will answer the purpose. There should be no delay in combating insect pests, constant syringings being the most effective remedy. Mildew also is likely to be troublesome, and not enough consideration is given to the fact that the young growths are very susceptible to the disease. Continue to use preventive measures as the young growth develops; syringing twice a week is not too often. With the prospect of the plants being sufficiently forward for budding next month, it is time to disbud the young breaks upon standard Briar stocks. Leave two to three shoots at the desired height, and it will be an advantage if the shoots are on opposite sides or situated so as to form a triangle. All other shoots, both above and below these, should be cut away cleanly. The budding will be easier to accomplish if the shoots are stopped when about 9 to 12 inches long. This prevents the shoots from spreading across the rows, and also causes a stouter and better developed barrel for inserting the Rose-bud, and much depends upon this.

Many precocious bloomers have already finished flowering, and in their cases a little judicious summer pruning may be done earlier than usual. For example, such early and one-crop bloomers as Carmine Pillar and the Austrian Briars may have the shoots that have carried blossom severely thinned to induce longer maiden rods and side growths to develop, as these will produce next early summer's crop of flowers. Roses in dry positions will need soakings of liquid manure, more especially those growing near dry, porous walls.

Growers desiring to exhibit Roses during the present season should overhaul their stock of tubes, boxes, and other necessary appurtenances at the earliest possible date. There is always a lot to do in this respect, and it is unwise to delay it until the last moment. Shades and tubes should be cleaned, and the latter tested for leakage.

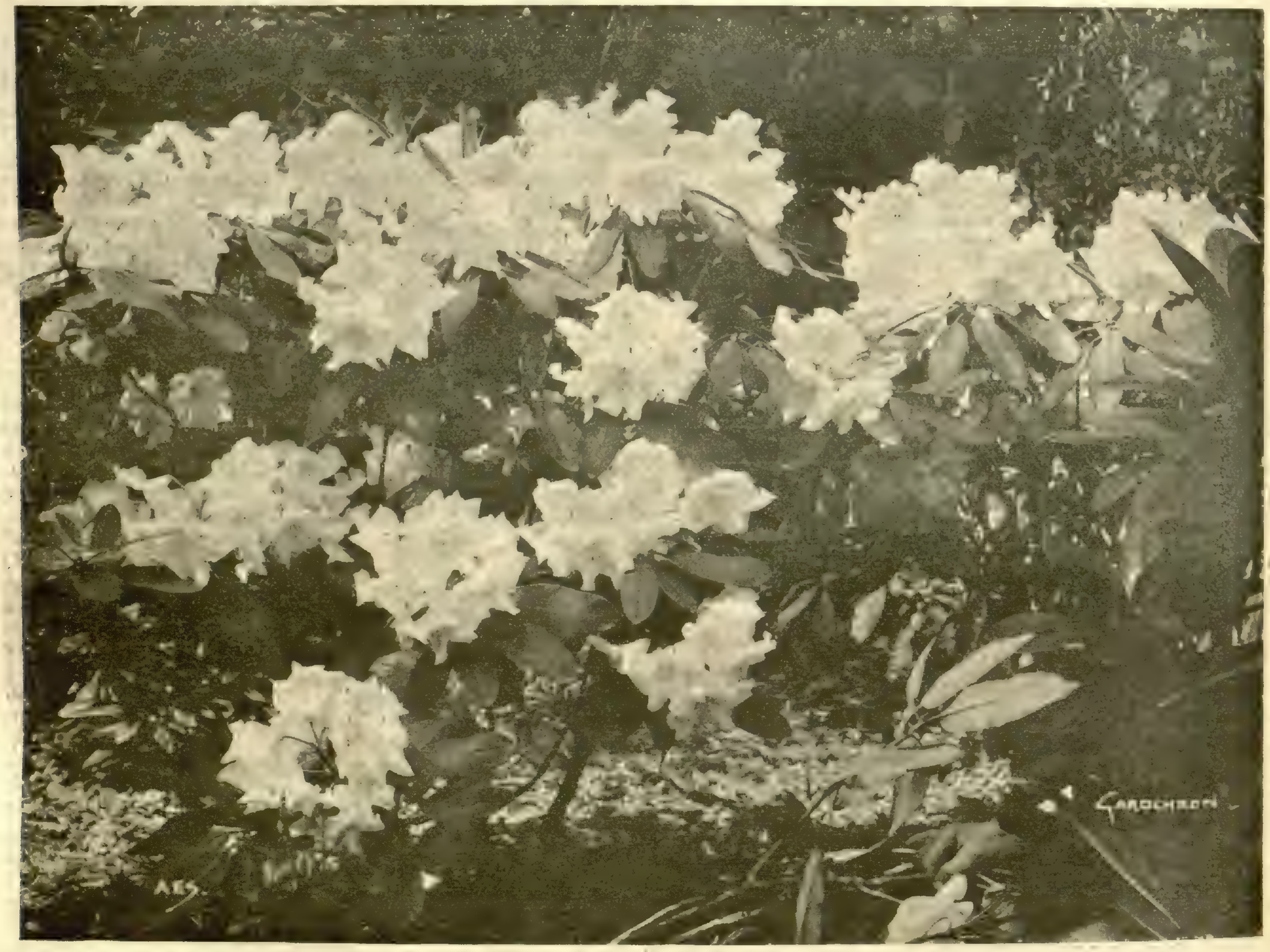
To obtain good flowers the characteristics of each variety must be considered closely. Much success depends upon cutting the blooms at the most suitable stage, and it must be remembered that certain varieties last fresh for a much longer period than others. Another important detail is the proper staging of the blooms. It is only by a long experience and a close observation that these points can be learned. It is well to have a sufficient number of spare blooms at the show in various stages of development, especially those with few petals, which are apt to expand too soon in close, warm weather. Our grafted Roses have been placed in prepared beds, and the dwarf Polyanthas are already quite showy with flowers. By winter grafting, and planting out in this manner, Roses of this charming section are best increased and managed. Such free-growing Teas and their hybrids as Peace, G. Nabonnand, Corallina, and Marquise de Salisbury are also more readily increased by grafting than by budding; it often being a difficult matter to secure buds large enough for the purpose.

Roses Under Glass.

With a fair show of blooms on Roses trained against sheltered walls outside, there is not so much need for Roses grown under glass. But, however fine the weather may be, really clean flowers are seldom obtained from plants in the open early in the season. Fire heat is not needed, but plenty of moisture, including free sprinklings of the walls, paths, and benches, should be provided. A free syringing early in the morning or evening will assist the foliage and encourage a better growth before the pot plants are stood in the open to mature the wood for next season's blooming.

Most climbers indoors have finished their chief blooming at this date, and should be pruned severely with the object of obtaining long maiden rods from the base for next year's flowering. Plants that are much root-bound should be repotted, taking care not to disturb the roots more than is unavoidable when removing a little of the stale compost. Roses should be afforded a good, rich soil after they have formed a small ball of well-established roots.

As a rule Roses are not potted firmly enough, and the compost is broken too finely. Liquid manure should not be afforded newly-potted Roses until the roots have thoroughly permeated the



[Photograph by H. N. King.

Fig. 175.—Rhododendron loderi: flowers white.

(See p. 361.)

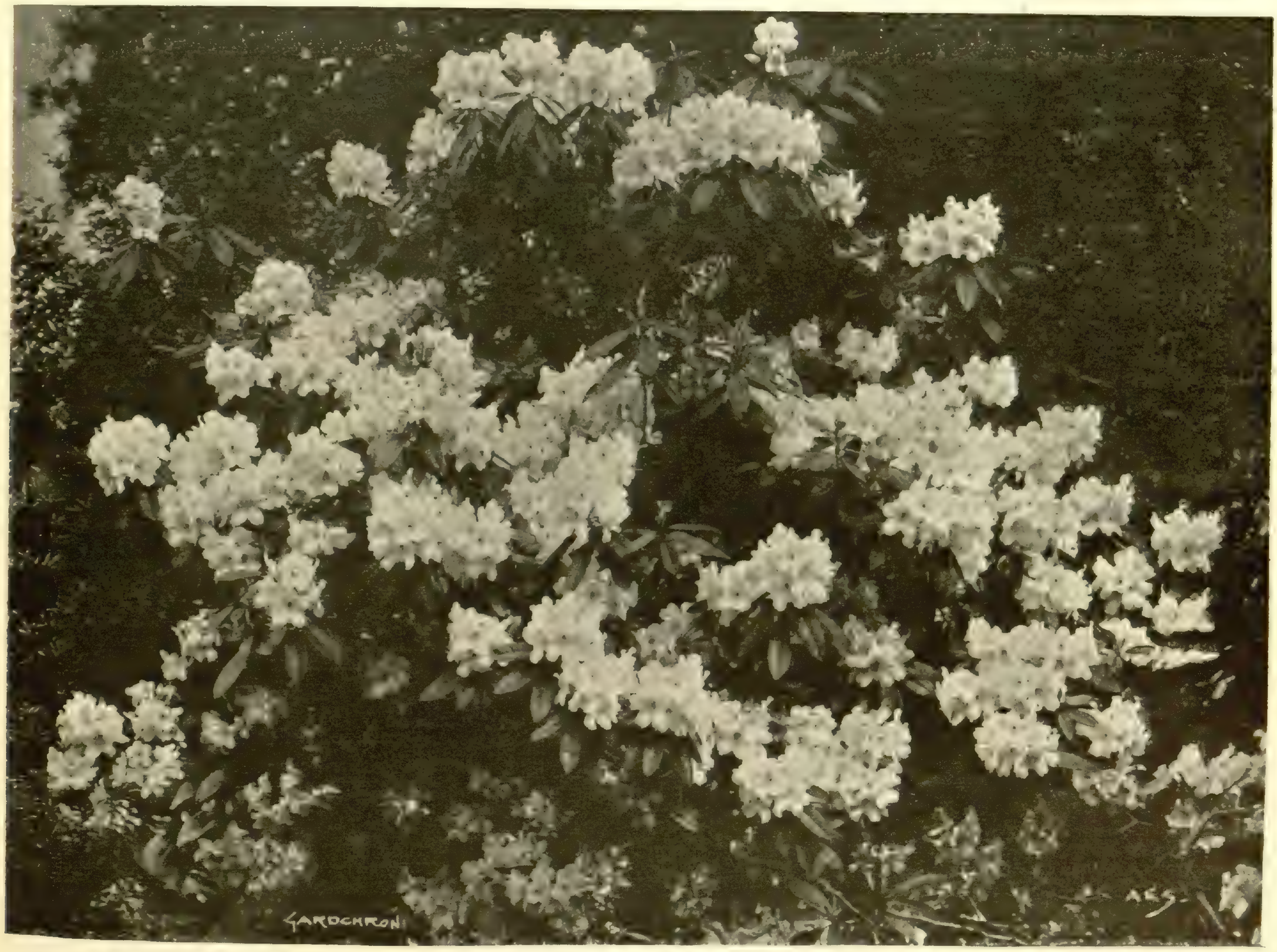
fresh soil; those not repotted may receive copious supplies of this stimulant, which is better spread over many waterings than given in strong doses occasionally.

Next month the majority of pot Roses will do better in a sheltered spot outside. But I will refer to this later; what I wish now to point out is that it is better to keep the plants under cover during June if the space can be spared. If not, then place them in a light position out-of-doors where they will be sheltered from winds. *Practice.*

RHODODENDRONS AT LEONARDSLEE.

Owing to the extraordinary summer last year, many choice species of Rhododendrons of the Himalayan section flowered abnormally early this spring. At Leonardslee many plants were in bloom in April, but the frosts damaged some of the best trusses, and the wet winter also militated against the season's flowering. At the latter part of April many varieties were expanded which in a normal season are not usually in bloom till the third week in May. But plants of R. Thomsonii have been especially good this season, also R. arboreum album and R. campylocarpum. The variety mentioned last is stated by some to be tender, but this is not my experience; most Rhododendrons that are found at an altitude of from 11,000 to 14,000 feet are fairly hardy. Others that have been specially good include R. kewensis, various R. Aucklandii hybrids (see fig. 176), R. Fortunei × R. Aucklandii, R. ochroleucum × R. Aucklandii, R. Ascot Brilliant, R. Gill's Triumph, R. Standishii, R. Glory of Leonardslee (R. Aucklandii × a blood-red variety of R. arboreum), R. Aucklandii × R. album elegans, R. Otto Forsteri, R. argenteum, R. Shiltonii, R. racemosum, R. Loder's white, and R. Loderi (see fig. 175). There are plants of R. Loderi of several colours, more or less with a pink tint or flesh colour; one specially fine white variety is R. Loderi var. Patience, named after Sir Edmund Loder's daughter. R. (Azalea) amœna and its varieties also bloomed very early, and even some of R. (Azalea) ponticum and the Ghent Azaleas.

Magnolias have been splendid, and have made a brave shown. The frost injured a good many flowers, especially on April 4 and 12, where the sun caught them early in the morning, but the undeveloped buds afterwards opened well. The Camellias have never been so good; amongst the many thousands of blooms, some were 6 inches across. *W. A. Cook, Leonardslee Gardens.*



[*Photograph by H. N. King.*

Fig. 176.—A fine hybrid of Rhododendron Aucklandii in Sir Edmund Loder's garden, Leonardslee: flowers white.

MUSHROOMS IN BOXES.

There is no more convenient method of growing Mushrooms than in boxes of an easily portable size, the great advantage of the plan being that such contrivances can be stowed away in any odd corner. The kind of box most useful—and it will produce a crop quite as satisfactory in every way as anyone could desire—is about 2 feet in length, 8 inches wide, and 6 or 7 inches deep. At the present time I have several such boxes under the staging of the greenhouse, and the Mushrooms are coming up so thickly that the soil is being literally heaved over the edges. There is really no more difficulty in producing a crop of Mushrooms in this manner than in any other, but many who can get good crops from fair-sized beds seem to fail with boxes. The reason for this, I believe, is that the heat of the manure in such small bulk is apt to disappear so quickly that the spawn has no time to "run" properly, and if the temperature falls below 60° or 70° Fahrenheit within the first week or so after the spawn has been inserted, a good crop of Mushrooms is an impossibility, and complete failure more than probable. The manure for boxes requires no preparation such as is desirable when a good-sized bed is being made, for the danger of overheating does not exist in the former case. All that is necessary is a couple of turnings at intervals of a day or two after the material comes from the stable, and it may then be put straight into the boxes. The latter are half filled and then rammed as hard as possible with an iron or wooden rammer (I prefer the former), and a second layer is treated in the same fashion, so that after the second ramming the boxes are about two-thirds filled. The spawn is then inserted—about seven or eight good-sized pieces to each box, or about two-thirds of a cake—and another layer of manure put on and again rammed hard. This will leave a space of about an inch at the top, and this is filled with fresh moist loam and rammed so that it comes flush with the edges. The boxes may now be put away anywhere where a temperature of 55° or 60° can be maintained, or in a cooler building if they are covered with straw, and the Mushrooms should begin to appear in about six or seven weeks from spawning. It may be added that spawning in boxes is always safe when the manure is no hotter than the hand can bear when thrust into the heap. *East Sussex.*

The Week's Work.

FRUITS UNDER GLASS.

By E. HARRISS, Fruit Foreman, The Royal Gardens, Windsor.

LATE VINES.—When the vines have passed out of flower all surplus growth and useless bunches should be removed. The tying of the shoots is an operation which needs care and patience, especially in the case of such varieties as Lady Hutt, Appley Towers, and Black Alicante, as the young growths break easily. They should be secured to the trellis with a piece of raffia and gradually pulled down at intervals of a few days, till they are in their permanent positions. When it can be determined which are the best bunches, no time should be lost in removing the others, leaving only a sufficient number to furnish the crop. The thinning of the berries should receive early attention. Those varieties which set their berries thickly should be thinned first; the work of thinning is more easily accomplished if it is done before the berries become too crowded. Late Grapes should be more severely thinned than the early or mid-season kinds. The berries should be allowed ample room to develop; at the same time the bunches should be well furnished with Grapes, especially on the tops of the shoulders. The bunches of certain varieties may be improved in appearance by looping up the shoulders; those of a compact type may be increased in size by doing this, but it should not be done to excess. The final thinning may be done as soon as it can be seen which berries are swelling freely. Old-established vines growing in well-drained borders should be afforded plenty of stimulants. If there are numerous roots near the surface of the border, an occasional sprinkling with some suitable fertiliser will be beneficial. After the final thinning the borders should receive a top-dressing of rich farmyard manure, and the manurial properties of the mulch washed into the soil at once. Watch carefully for the presence of mealy-bug, as this pest will do much damage should it infest the bunches. Red spider also must be carefully guarded against, especially where the leaves have been in close proximity to Strawberries. During warm weather an abundance of air should be admitted to the vines, opening both the top and bottom ventilators. It will be safe to leave the ventilators open a little all through the night during favourable weather. Use fire-heat as sparingly as possibly, and, during hot weather, damp the walls and paths frequently to promote a moist atmosphere.

THE ORCHARD HOUSE.—Trees in orchard houses must not be neglected in the matter of watering, and stimulants may be increased in strength and applied more frequently as growth advances. The final thinning of the fruits should be done as soon as the stoning stage is past. The trees must, on no account, be overcropped, as this would seriously impair the flavour of the fruit. The size and strength of the individual trees must be considered when deciding the number of fruits to leave on each tree. When the fruits commence to swell, the trees should receive a dressing of decomposed horse manure and loam in equal parts. Use the knife freely where the growth is becoming crowded, and keep the young shoots pinched at the fourth or fifth leaf. Syringe the trees twice daily and damp the floor space frequently. Should aphis appear on the leaves, fumigate the house with a nicotine vaporising compound.

THE KITCHEN GARDEN.

By EDWIN BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

KOHL RABI.—Where space permits, a small bed of this vegetable should be planted, as it proves valuable when there is a failure with Turnips, which it resembles in flavour. Place the young plants at a distance of 2 feet apart and allow a yard or so between the rows. Beyond an occasional hoeing between the plants and placing a mulch of manure around each plant in dry weather little attention is needed with this crop. For winter use the Early Purple variety is preferable to the Green sort, the latter being best for summer use.

CAPSICUMS AND CHILIES.—These plants will ripen their fruits out-of-doors if they are set out now in a sunny position, but I much prefer to grow them in pots—excellent specimens may be grown in pots not exceeding 5 or 6 inches in diameter. During the summer months they may be grown in a cold frame, and in the event of unfavourable weather, the lights may be placed over the frames with advantage. For their final potting, use a fairly rich compost composed of fibrous loam, spent manure from an old Mushroom bed, with the addition of coarse silver-sand and bone-meal. Watch the plants in the meantime for the presence of aphis, which frequently infests them, and give light fumigations occasionally to keep this pest in check. Syringe the plants twice daily, and keep their surroundings moist to combat red spider. Always afford the plants plenty of light to encourage a sturdy growth, exposing them to plenty of sunshine during the summer months.

ASPARAGUS.—The beds are now in full bearing, and the shoots may be cut for a time, but, generally speaking, not after the third week in this month. It may be necessary to discontinue cutting at the middle of June this season, as the growth developed very early this year. If the heads are removed later than these dates, next year's crop may be weakened. Afterwards the beds should be hand weeded as often as is necessary, and well soaked with water and properly diluted drainings from the farmyard. During showery weather, give a good sprinkling of concentrated manure, alternating this with soot. When the growth is high enough to require protection from wind, place neat sticks at intervals and stretch one or two rows of string around them.

ONIONS.—Beds of transplanted Onions intended for producing large bulbs will, in the absence of rains, need damping each evening and the plants soaked at the roots occasionally with clear water, to induce a free growth. When moisture is applied to the soil during hot weather, the surface of the ground becomes caked, therefore use the Dutch hoe frequently between the rows. Any failures in the rows should be made good without delay, and a sharp look-out kept for the Onion mildew. If any signs are manifest, dust the plants freely with black sulphur. When the plants are growing freely, mulch the rows with horse-droppings, such as are used for Mushroom beds. The soil where the main crop of Onions is growing should be well stirred with the Dutch hoe, and weeds removed by hand. Do not thin the plants too severely where well-ripened bulbs and a large crop are preferred to size of individual Onions. Autumn-sown Onions that were planted out early in the spring will be bulbing freely, and should receive plenty of stimulants.

THE HARDY FRUIT GARDEN.

By F. JORDAN, Gardener to Lady NUNBURNHOLME, Warter Priory, Yorkshire.

SUMMER PRUNING.—There is plenty to do at this date in the fruit garden, and no matter whether the crops are abundant or thin, the trees must not be neglected, as next year's results will depend, to a great extent, on the care and attention the trees receive at this season. Plants carrying heavy crops should receive first attention as to thinning, cleansing and training. Barren trees must receive the same care and attention, with a view to the early maturation of the young wood, and the perfect formation of the fruit-buds, that will furnish next season's crop. Disbudding of all trees should be brought to a close according to directions given in previous calendars, and from this time onward attention must be given at intervals to summer pruning. This operation requires care and forethought, so that the energies of the trees may be directed to the formation of fruit-buds and the proper development of this season's crop. The operator who undertakes the work of summer-pruning should have a good knowledge of the different trees, as the varieties vary in many important details. Pears on walls are generally the first trees to claim attention. The breastwood should be shortened, and sufficient young wood trained in to furnish the space. Cordon Pears also require close stopping to keep them in a fruitful condition, and this also applies to Plums and Sweet Cherries. In the case of pyramids and bushes, these may be pinched and thinned to a reasonable degree, and the work must be regulated by the space available for them. Provided the outside shoots are not extra strong, they may be allowed to extend, as in some cases, such as Victoria and other Plums, the fruits are often borne upon such growths the following season. Standard trees, when once established, need no restriction of the shoots, and they soon become fruitful. The shape of bush and pyramid trees is a matter of great importance. The side shoots of pyramid trees should be pinched early to about five leaves, and the subsequent shoots pinched once or twice, according to the season, to within two leaves of the first pinching. Leading shoots are thus encouraged to grow strong, and, by this method, the whole tree becomes very fertile. When the side shoots are allowed to extend till July or August, their removal causes a great check to the trees. They also favour the development of strong roots, and each succeeding year the trees get thicker and thicker, until they become a dense mass of shoots, excluding both sunlight and air.

NEWLY-GRAFTED TREES.—The dry weather of April was unfavourable for newly-grafted trees. Young stocks that have failed in grafting may be budded later. It will be advisable to encourage a strong shoot to develop from the base of the plant for the purpose of budding. Syringe any grafts that are still alive, but with the buds dormant, to assist the latter to start into growth. Examine the trees carefully, and see that the ties are not cutting into the bark of stock or scion. If the ligature is found to be too tight, remove the clay or wax, sever the old tie, and rebind the shoots again rather loosely. Secure the young growths to stakes to prevent them from being damaged by strong winds. Rub off sucker growths as they appear on the stocks of both this year's and last year's grafted trees.

THE FLOWER GARDEN.

By J. G. WESTON, Gardener to Lady NORTHCOTE, Eastwell Park, Kent.

SUMMER BEDDING.—In view of the summer bedding preparations, work in the flower garden is very pressing just now, for the beds need to be planted at the earliest possible moment. Where they have been occupied since autumn with spring-flowering plants, the beds should be cleared as soon as convenient. Water the soil thoroughly, and incorporate with it a quantity of rich manure, as such plants as Wallflower, Mysotis and Polyanthus have an exhausting effect on the soil. If planting is to follow this work immediately, the ground should be made fairly firm and raked fine. At this date nearly all bedding plants are sufficiently hardened to place out-of-doors; nevertheless, it is well to leave the more tender subjects, such as Salvia, Heliotropium, Fuchsia, Iresine, Coleus and sub-tropical plants until the last moment. Do not delay the planting, even if the weather is hot and dry, as plants in small pots and boxes deteriorate rapidly, and it will be late in the season before the beds produce a good effect. Water the soil overnight and again after the plants have been bedded out. When the ground becomes fairly dry, run the flat hoe over the surface of the bed to promote a fine tilth.

CLIMBERS.—All climbing plants grow rapidly at this season, and, if neglected, the shoots will soon become a tangled mass. Attend to their requirements in this matter at regular intervals. In the case of climbing Roses, the basal shoots should be tied out of harm's way, and, if space is limited, the other shoots reduced in number to avoid overcrowding. Climbing Roses are very forward this season; in fact, earlier than I have ever seen them in this locality. On the first appearance of aphis on the shoots, syringe the plants with a suitable insecticide: if mildew appears, a dressing of mildew specific should be applied early, or the foliage may soon be entirely ruined. Clematis and Loniceras require attention every few days, as the shoots, being brittle, are liable, if left unsecured, to snap off when strong winds prevail. Do not train climbers in a stiff or formal manner, or their greatest charm is destroyed. The object in tying and thinning unnecessary shoots is to enable those left to develop their beauty in the highest degree, and, provided that they are supported sufficiently to withstand winds, the more loosely they are allowed to grow,

the more natural will be their effect when in bloom. Where newly-planted, permanent climbers are not likely to furnish their allotted spaces this year, advantage should be taken to fill up the blanks with tender climbing annuals, taking care, however, that these do not encroach on the rightful occupants. There is a good choice of showy, tender climbers, including Lophospermum scandens (pink), Eccremocarpus scaber (scarlet), Cobæa scandens, Convolvulus major, and the tall Nasturtium. These are all of very quick growth, and may be relied on to fill up the gaps and to give a variety of colour.

THE HERBACEOUS BORDER.—Hardy perennials are growing rapidly in the herbaceous borders, and constant attention to the matters of staking and tying is very necessary. The work should not be left till the plants have grown so loosely that the shoots drop about or have become broken by high winds and heavy rains. Damage done by storms is not readily repaired, but much may be averted by timely attention to staking and tying. Delphiniums, Lupins, Galegas, Pæonies and Heleniums, to name a few, should all be supported early in the season. Discrimination must be used in this work, and the individual habit of growth studied. Avoid tying the plants in shapeless bundles. Where perennial Asters have been left undisturbed for a year or two, there is usually a great number of shoots. These should be reduced without delay, leaving a sufficient number only that will develop properly; the stronger-growing sorts should be thinned of all but from four to six shoots. These should be staked out singly, and, if the ground is in good heart, each shoot will develop in a large, bushy pyramid or standard, to which the spindly growths of an unthinned plant will bear no comparison. Keep the flat hoe constantly at work in the border, and if the weather remains hot and dry place a mulch of manure from an old Mushroom bed or leaf-mould, after first affording a thorough soaking of water.

THE ORCHID HOUSES.

By J. COLLIER, Gardener to Sir JEREMIAH COLMAN, Bart., Gatton Park, Surrey.

VANDA.—As plants of Vanda teres pass out of flower, they should receive attention at the roots. Specimens that have become "leggy" and have lost a quantity of their bottom leaves may be cut down to a desired length below some of the aerial roots, and potted again as compact specimens. The portions may be potted singly, or three or more stems may be placed together in pots of a suitable size, or in narrow boxes or troughs. Whichever receptacle is employed, it should be provided with plenty of clean crocks for drainage purposes. Use a compost composed of equal parts of Osmunda fibre and Sphagnum-moss, cut up rather short, mixed with a quantity of crushed crocks and small lumps of charcoal. Plants that do not require to be cut down should have all the old soil washed from the roots, substituting fresh compost. Secure each plant firmly to a neat teak-wood stake. When the potting is finished, the plants should be afforded a thorough watering at the roots, and be placed in a house having a southern aspect and a humid atmosphere. They should be shaded for a few days, and, as soon as they have recovered from the effects of repotting, they must be exposed fully to the light, syringing them overhead frequently. This treatment should be continued throughout the growing season. When the season's growth is completed, water should be withheld gradually, and for a period of at least four months the plants should receive no water at the roots, but should be syringed occasionally to prevent the foliage and stems from shrivelling. These conditions should be maintained until flower-spikes are seen to be pushing from the stems, when the plants may again be subjected to moist conditions. The lower parts of the stems from which the tops have been removed may be left in the receptacles, and if they are afforded moist conditions, will soon form new top growth and roots, when they should be repotted. The stock may be increased by placing portions of the stem in a bed of Sphagnum-moss, or in the boxes or troughs in which the plants are growing. When the cuttings have formed new top growth and roots, they may be potted and grown in the usual way. V. Miss Agnes Joachim should receive the same cultural treatment as V. teres.

VANDA CŒRULEA.—Plants of Vanda cœrulea having been afforded a short season of rest since passing out of flower, have become active at the roots, and should be repotted or top-dressed according as is necessary. Plants that have healthy roots and have not become leggy or unsightly through losing their bottom foliage, should have some of the old compost picked out from between the roots, replacing it with fresh material. Plants that require repotting should be turned out of their pots, and any portions of the stems at the bottom that are bare of healthy roots may be cut away. The plant should be placed as low in the pot as possible. Fill the pots to half their depth with clean crocks, placing them carefully between and around the roots. Fill the rest of the pot level of the rim with a mixture of equal parts Osmunda fibre, half-decayed Oak leaves and Sphagnum-moss: pot moderately firm. Water should be applied sparingly until after the new roots have grown well in the compost, when moisture may be given more liberally. Keep the stage on which the plants are stood moist by frequently syringing the undersides of the foliage and the bare spaces between the pots. The plants should occupy the lightest position possible in either the Cattleya or intermediate house, and, when established should be subjected to but little shade. They will be benefited by a continual supply of fresh air during their season of growth.

PLANTS UNDER GLASS.

By THOMAS STEVENSON, Gardener to E. MOCATTA, Esq., Woburn Place, Addlestone, Surrey.

CELOSIA CRISTATA AND C. PLUMOSA.—The earliest-raised plants of Celosia may be placed in their flowering pots, using a rich compost. If plants of the former variety are plunged in a pit with plenty of bottom heat good "combs" should be secured. Bottom heat is not so necessary in the case of C. plumosa, but a good brisk heat, with plenty of moisture, is desirable until the flower-plumes are about one-third developed, when somewhat drier conditions will suit them better.

CANNAS.—Cannas that have been treated as advised in a previous Calendar may now be potted in their flowering pots, using 6-inch pots for those with a single inflorescence, and larger receptacles for those with more spikes. A rich soil is necessary for these gross-feeding plants, giving them plenty of water as soon as they have rooted freely, as well as plenty of syringings overhead to keep the foliage free from aphis and red spider.

GLOXINIAS.—The earliest batch of these plants should now be making a good show, and the atmosphere of the house must be kept a little drier to ensure the flowers keeping fresh. After a little judicious hardening the plants may be transferred to the shady side of the show house or conservatory, where they should continue to provide a bright display for some time to come. Later batches of plants and this season's seedlings must be kept growing freely; the former may be afforded a little manure when the pots are filled with roots. The seedlings should be potted into 5-inch pots, in which they will flower.

STREPTOCARPUS.—The Streptocarpus requires a similar treatment to Gloxinias. The young seedlings may be grown on steadily for a year unless small decorative plants are desired, in which case they may be allowed to flower in 5-inch (48-size) pots. The plants are rather subject to attacks of aphis, therefore the house should be lightly fumigated occasionally. When the plants are well established in their flowering pots they will be benefited by applications of manure. Clay's fertiliser will improve the size and number of the blooms, and add colour to the foliage.

POT ROSES.—By this time practically all the pot Roses will be removed out-of-doors. The plants should be spaced well apart on open ground or an ash bed, and should receive constant attention during the summer months. In the case of Tea Roses, when it is desired to build up the plants for next season's blooming, all the flower-buds that appear after this date should be removed. This is not necessary in the case of Hybrid Teas and Hybrid Perpetuals that were pruned severely before they were started; at the same time, they must be kept steadily growing during the summer, and every precaution must be taken against aphis and mildew appearing. Plants of the climbing Polyantha and Wichuraiana varieties that are still indoors should be treated liberally in the matter of watering and feeding. Shade the house a little as the plants commence to unfold their flowers.

THE APIARY.

By CHLORIS.

BEE-KEEPERS AND LEGISLATION.—Those of us who go from apiary to apiary know only too well that unless something is done soon to protect us from careless and ignorant bee-keepers, bee-keeping will become a thing of the past in parts of the country at least. A person with whom I am acquainted is about to make a third start in bee-keeping. His former failures have not been due to carelessness, for he destroyed all diseased bees and hives. Every bee-keeper should lay his grievances before his local member of Parliament. In one district already fruit blooms have not set because there are none, or few, bees to do the necessary pollination.

SUPERS.—There has been an abundance of bloom in all parts of the country, and the bees are very forward. Brood frames are filled to their utmost capacity with brood in all its stages, and the topmost cells containing honey are tipped with new white wax, showing that the time has come when supers may be added. Before examining the hives have ready a complete supply of well-fitted sections or frames so that no time may be lost when the hives are opened. In the case of sections see that they are wedged tightly so as to leave no spaces, which the bees would fill with propolis and cause additional work later in the season. Since bees do not take readily to sections, a rack of frames containing drawn comb will induce them to commence work above at once, and its place may be taken by sections when the work is well started. Having got the smoker to work, remove the roof, and, raising the quilts carefully, give a few puffs of smoke to drive down the bees, remembering to use no more smoke than is necessary. Put on the queen excluder, with the perforations running in the same direction as the frames, over this place the super, packing it with plenty of material to economise the heat, for bees dislike cold and draughty supers, finally covering all with plenty of non-conducting quilts.

WASPS.—When the bee-keeper is removing roofs containing no cone escape, a sharp look-out should be kept for queen wasps, which often make their nests in the roof of hives amongst the quilts.

PURCHASING SWARMS.—Those about to commence bee-keeping will be advised to start with one swarm, not more; as knowledge increases, others may be added. During May and June swarms may be purchased with advantage, but a little knowledge is necessary. An excellent swarm would weigh 5 lbs. and measure about 2 gallons or a little less. Never purchase a swarm of less than 3 lbs. in weight. In each instance the swarm should be headed by a queen in her second season. A written guarantee should be obtained showing that the apiary is free from disease. If the bees have travelled a distance it should be distinctly understood that they will have lost a little of their weight in transit as they have consumed some of the honey, with which they were gorged, for comb building. Having fitted up the hive, see that it stands quite level in each direction, and this can best be ascertained by using a spirit level. In the evening, after 6 p.m., set the smoker going, and when well alight place it near to the hive in case of need. Shake down the bees in the skep from the cheese cloth cover—this may be done by striking the sides smartly with the palms of the hands; cut the string, shake the bees on the board resting on four bricks and the alighting board and cover with a sheet. Watch the bees enter the hive, and if they be shaken on the cloth as far from the entrance as possible and in small quantities the queen will easily be discovered. Place on a super, and wrap up warmly. Should the weather be wet and cold, feed the bees with syrup, not forgetting to reduce the size of the entrance.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, *as well as specimens of plants for naming, should be addressed to the* **EDITORS, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Special Notice to Correspondents.—*The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.*

Local News.—*Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

APPOINTMENTS FOR JUNE.

SATURDAY, JUNE 1—
Soc. Française d'Hort. de Londres meet.
TUESDAY, JUNE 4—
Royal Hort. Soc. Coms. meet. (Masters' Memorial Lecture by Prof. I. Bayley Balfour on "Problems of Propagation.") Scottish Hort. Assoc. meet.
THURSDAY, JUNE 6—Linnean Soc. meet.
MONDAY, JUNE 10—
United Hort. Benefit and Prov. Soc. Com. meet.
WEDNESDAY, JUNE 12—
Royal Cornwall Sh. at Penzance (2 days).
FRIDAY, JUNE 14—Richmond Horse Sh. (2 days).
TUESDAY, JUNE 18—
Royal Hort. Soc. Coms. meet. and Gladiolus Sh. (Lecture by the Rev. Prof. Henslow on "Prof. J. S. Henslow as Ecologist.")
WEDNESDAY, JUNE 19—
Yorkshire Gala (3 days). Royal Meteorological Soc. meet. Nat. Hardy Plant Soc. Sh. at R.H.S. Hall, Westminster.
THURSDAY, JUNE 20 - Linnean Soc. meet.
MONDAY, JUNE 24—Midsummer Day.
TUESDAY, JUNE 25 –
Royal Scottish Arboricultural Soc. Excursion to Dee side (5 days).
WEDNESDAY, JUNE 26—
Colchester Rose and Hort. Soc. Summer Sh. Nat. Rose Soc. Sh. at Southampton. Richmond Fl. Show. Royal Botanic Soc. meet.
THURSDAY, JUNE 27—Isle of Wight Rose Exh. at Ryde.
FRIDAY, JUNE 28—Canterbury and Kent Rose Soc. Sh.
SATURDAY, JUNE 29—
Windsor, Eton and Dist. Rose Sh. at Windsor. Sutton Rose Soc. Sh.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—58°.

ACTUAL TEMPERATURES:—

LONDON.—*Wednesday, May 29* (6 P.M.): Max. 72°; Min. 46°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—*Thursday, May 30* (10 A.M.): Bar. 29·8°; Temp. 68°; *Weather*—Sunshine.

PROVINCES.—*Wednesday, May 29:* Max. 60° Kent; Min. 51° Scotland, N.E.

SALES FOR THE ENSUING WEEK.

WEDNESDAY—
Gladiolus, Liliums, and other Hardy Bulbs and Roots, at 2; Palms and Plants, at 3.30; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

Horticultural Science: 1866-1912.

The 1912 Exhibition with its wonderful demonstration of the progress of the art of horticulture evokes in the student of horticultural science many reflections, not all of which are cheerful. None but the querulous or disappointed can aver that the art of horticulture has not made enormous strides during the 46 years which have elapsed since the last International Exhibition was held in London. It is true that just as there were great men before Agamemnon, so there were great cultivators before the present race of horticulturists began its triumphant career. It is true also that we are apt to judge kindly our own exploits and to be critically severe on those achieved by our forbears. We contrast the airy grace of our garden flowers with the prim stiffness of those which won the affections of our grandfathers and grandmothers. We forget, perhaps, that our taste is but an expression of our character, and that the solid and stiff formality of mid-Victorian flowers reflected alike the virtues and the failings of that age as the soft-toned gracefulness of many of the floral products of the present day represent ours. This symbolic aspect of horticultural progress we leave, however, to the moralist to interpret. It may be that he will decide that we, in becoming more artistic, have lost some of the sturdiness and strenuousness of character possessed by the previous generations. It may be that he will absolve us of this failing and assure us that we and our flowers alike have all the virtues of our ancestors, with the added graces of our own: for doubtless we may train our philosophers like those of olden time to speak comfortable things to us. But when we turn from the art of horticulture to the scientific side, and compare our present knowledge with that possessed by the gardeners of past times, we find it extraordinarily difficult to arrive at a just conclusion.

On the one hand, whereas the knowledge of the mode of life of plants possessed by the scientific men of 1866 could be comprised within the bounds of a slender volume, it now overflows those of volumes many and thick. On the other hand, should the gardener of the present day ask of contemporary men of science practical advice in the management of his plants, we are by no means confident that he would fare much better than did the gardener of 1866 who relied on the scientific knowledge of his time. In but two directions, perhaps—that relating to the proper use of artificial manures and that concerned with the eradication of pests—might he hope for better guidance.

But, even admitting this, can it be concluded that all our laboriously-garnered scientific knowledge is vain and useless? By no means; for an unfinished house is not useless except as an immediate habitation, and it may be urged that though the roof is not yet on the building of our knowledge of scientific horticulture, yet the foundations have been laid and the walls of the edifice have risen well above the ground.

It is true that the practical horticulturist may find perhaps but little that attracts him in the architecture of that building, yet if he be wise and have an eye for the future, he will not hasten to condemn it. It is a fact, for example, that science is better able to name his pests than to destroy them, and is more concerned in explaining his results than in emulating them: yet, though this be so, it does not therefore follow that the science of horticulture has played a futile part during the last 50 years. A little careful consideration may put the case in a truer perspective.

There are two aspects of every science. One, which may be called that of pure science, is concerned with a description of facts and a discovery of laws; the other, that of applied science, is occupied with the bringing of scientific knowledge to bear on the practical problems of life. None but a charlatan among scientific men believes that there can be an applied science except it be founded on the basis of pure science. You cannot predict the tides without a knowledge of the laws of gravitation. Now the greatest achievement of the present age is the birth and growth of applied physical and chemical science. So the next great achievement to be expected is the birth and growth of applied biological science. Inasmuch as the latter, when it arrives, will be born of the travail of pure science, the labours of scientific horticulturists and other biologists of the present day may not be conceived of as having been in vain.

Hence, whereas there will always be men who take short-sighted views of things and who urge that if horticultural science cannot here and now show how to rid them of their pests, how to double their profits, how to control or at least predict the vagaries of the seasons, how, in short, to give first aid to the wounded, then horticultural science is no good to them; yet there will also always be others who look with approval on the building, though it may not be ready for occupation in their time, and who realise that the results of pure science, though not always of immediate service to them, are a necessary preliminary to discoveries of a more "practical kind."

That this is in course of achievement there can be no doubt. The mysteries of the soil are being unravelled; the garden pests begin to tremble at their impending destruction; the secrets of immunity from disease are in course of discovery, and though the patient hybridist may even now afford to ignore the laws which Mendel gave us, the time is not far off when he may discover that to work according to those laws is to achieve his ends more surely than by working at hazard and by waiting on the gifts of chance.

The 40 years in the wilderness were weary years, and many of the wanderers despaired; so the spade work that has been done in the wilderness of horticultural science has been weary work, yet the future is full of promise, and when the achievements of applied horticultural science are in universal use it will be recognised that they are the outcome of the work which is now in course of doing.

That this is so was demonstrated amply by a careful inspection of the exhibits displayed in the somewhat sombre tent devoted to Science and Education in the International Exhibition. A cursory glance and a hurried exit was all that the many could bestow—nor are they to be blamed, for all must learn where they may. But those whose business it was to be much in the Scientific section observed many a gardener studying the specimens with care, and showing a deep interest in the varied collections. Happiest augury of all was the fact that the exhibitors were not confined to the professional men of science, but included firms such as Messrs. May, Messrs. Sutton & Sons, Messrs. Veitch, and others, and thus demonstrated that horticultural science is not a thing apart but a factor and an increasing factor in horticultural development.

PRIMULA KNUTHIANA

A NEW SPECIES INTRODUCED FROM CHINA BY MESSRS JAMES VEITCH AND SONS

Sir Harry J. Veitch, V.M.H.

SIR HARRY VEITCH.—The announcement that a knighthood has been bestowed on Mr. HARRY VEITCH will be received with feelings of delight by all horticulturists, for all love the man and admire his work. No honour could be bestowed more worthily, for no man has striven more strenuously and consistently for the advancement of horticulture than has Sir HARRY VEITCH. He was at work before many of us were born, and his work continues to this day. Long may he remain with us to adorn the rank to which he has been called. To describe the range of the activities of Sir HARRY VEITCH were to write a history of contemporary horticulture, but what will most touch the hearts of gardeners is the generosity and devotion which he has displayed in the interests of the gardening charities. For more years than we care to remember, Sir HARRY has been Chairman of Committee and Treasurer of the Gardeners' Royal Benevolent Institution, and it will be within the recollection of all that on the occasion of his presiding at the annual festival of that institution the subscriptions were of a larger amount than on any previous or subsequent year. Sir HARRY is a fitting subject for the honour of knighthood. Direct and simple, with sympathy and steady purpose, he has done a man's work in the world.

SUPPLEMENTARY ILLUSTRATION.—The subject of this week's coloured plate is Primula Knuthiana, which was collected by Mr. PURDOM in Northern China, and exhibited by Messrs. JAMES VEITCH & SONS before the Floral Committee of the R.H.S., at a meeting held on March 19, when it received an Award of Merit. The plant, which was named at Kew, has flowers of an attractive rosy-lilac colour, and leaves which are somewhat mealy. P. Knuthiana is included in the Farinosæ section of the Primulaceæ, and is closely allied with Primula frondosa. The plants exhibited by Messrs. VEITCH show considerable variation in the shade of their flowers, and, indeed, P. Knuthiana appears, from the description of Pax (in *Das Pflanzenreich*), to vary considerably.

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the Royal Horticultural Society will be held in the Society's Hall, Vincent Square, Westminster, on the 4th inst. At the 3 o'clock meeting in the lecture room the "Eighth Masters' Memorial Lecture" will be delivered by Professor I. B. BALFOUR, F.R.S., V.M.H., the subject being "Problems of Propagation."

KEW GUILD ANNUAL MEETING AND DINNER.—The annual general meeting of the members of the Kew Guild was held at the Holborn Restaurant on the 28th ult. Mr. R. HOOPER PEARSON presided. He referred to the resignation of Mr. W. WATSON, Curator of Kew, from the chairmanship of the committee, and, in expressing the deep regret of the Guild, stated that Mr. WATSON was not only the founder, but he had done more than any other member to forward the interests of the Guild. These remarks were received with applause. It was decided that the office of chairman of the committee shall be a triennial one, and that the retiring chairman shall not be eligible for re-election. Mr. A. W. HILL was elected chairman for the ensuing term of three years. The members of committee who retire this year are Messrs. C. W. MAYHEW, A. GARNETT, F. J. COLE, J. C. WALLACE, and H. W. L. SOUTHGATE. Their places are taken by Messrs. MAYHEW and GARNETT (re-elected), A. C. BARTLETT, G. W. BUTCHER and S. J. NORMANTON. The committee reported with regret the deaths of the following members: Sir JOSEPH DALTON HOOKER, PHILIP MACMAHON, WILLIAM DON, JAMES MUIR, and JOHN DEACON. The benevolent fund, inaugurated by Mr. HOOPER PEARSON at the last annual dinner, is making steady progress. Already the committee had made a grant of £5 from this fund to a member who had fallen on evil times. The financial statement showed a balance of £27 4s. 6d. The chief items on the receipt side were the surplus of £43 11s. 5d. from 1910-11; annual subscriptions and sales, £11 7s. 1d.; and advertisements, £14 10s. The Director of Kew, Lieut.-Col. D. PRAIN, C.M.G., &c., who presided at the dinner, was supported by Mr. J. H. BURKILL, M.A., Mr. R. J. LYNCH, M.A., and 116 members and guests. In the course of an admirable speech, the president expressed his gratification at being present. He said that it was just a quarter of a century since he first became connected with Kew men in India, and his six years of Directorship of Kew had served to confirm the high opinion he had previously formed of Kew and her sons. Col. PRAIN sympathetically referred to the past year's loss of true and tried friends of the brotherhood, and more particularly to the death of Sir J. D. HOOKER. This was the sad side of the brotherhood of Kew men: there also was, he said, the pleasant side, as illustrated by that evening's gathering, which brought together many members in our islands and those from overseas, like Mr. BURKILL, from India, Mr. W. J. TUTCHER, from Hong Kong, Mr. F. S. SILLITOE, of Khartoum, Mr. J. BERROW, from La Mortola, Italy, Mr. H. J. DAVIES, of Lucknow, and Mr. W. H. PATTERSON, from St. Vincent, West Indies. Such gatherings brought to the memory old associations, and they provided the means of forming new friendships. The members of the Guild might be divided into two groups—those who, for various reasons, were unable to attend that annual function, and those who were present. This being so, the toast of "The Kew Guild" meant the toast of absent friends and themselves. Mr. J. H. BURKILL, in replying to the toast, said that he felt most fortunate in being home in time to attend the dinner. Probably the home members could not realise how much their overseas brothers looked forward to the advent of the green-clad *Journal*; how eagerly it was scanned for news of absent friends; what reminiscences the portraits called up; and how the *Journal* was read from end to end, and prized as a treasured possession. He was glad to have the opportunity of expressing his appreciation of the care and trouble spent in editing so good a journal as it now was, and he referred also to the debt the Guild owed to those hard and enthusiastic workers, Messrs. W. WATSON and HOOPER PEARSON, and others, who, 18 years ago, did so much to establish it. Mr. IRWIN LYNCH referred to the inception of the Guild as being quite an inspiration. In proposing the health of the president, Mr. R. HOOPER PEARSON expressed the pleasure all felt that Col. PRAIN had consented to become president of the Guild for the ensuing year. He alluded to the sympathetic speech which the president had delivered. It was, he said, the speech of one genuinely anxious to forward the interests of Kew and its Guild. Kew men were proud of Col. PRAIN'S attainments as a botanist, but it was not as a botanist that they welcomed him there that evening, but as the Director of Kew and President of the Guild. It was pleasant to hear the director refer to his experience of Kew men at Calcutta, and to hear that he had formed so good an opinion of them even before his official connection with Kew. Mr. PEARSON recalled the fact that it was just 12 years since the first annual dinner of the Kew Guild was held in that room. The toast of "The President" was received with musical honours.

RENOVATION OF THE CHELSEA GARDENS.—It must be apparent to all who have visited the International Exhibition that the necessary renovation of the hospital gardens is a matter requiring immediate attention. Mr. EDWARD WHITE informs us that the work will be greatly facilitated if the Directors have at their hand a supply of trees and shrubs to present to the governors for immediate planting. A few firms have already made useful contributions for this purpose, and it is hoped that others may be able to help in this connection, for exhibitors have every reason to be grateful to the governors of the hospital. Those who can help are asked to intimate this fact to the Organising Secretary, Mr. GEOFFREY HENSLOW.

GARDENING AT DELHI.—Mr. GRIESSEN, Superintendent of the Taj and other gardens at Agra, is in charge of the horticultural and gardening operations in connection with the new capital of India. He is assisted by Mr. R. H. LOCKE, Superintendent, Government Gardens, Delhi, and also Mr. DODD, Delhi. All three were formerly members of the garden staff at Kew.

RHODODENDRON EXHIBITION.—An exhibition of Rhododendrons by Messrs. JOHN WATERER & SONS, LTD., is now open in the Royal Botanic Gardens, Regent's Park, and the display will be maintained for two or three weeks.

MANNA.—A recent issue of the *Pharmaceutical Journal and Pharmacist* gives interesting particulars of the Manna of the *Bible*. The plant, Lecanora esculenta, is found over a region covering south-west Asia, extending to south-east Europe and to north-west Africa. It appears on small stones, preferably small chalky pebbles, first as thick, wrinkled warty crusts, greyish-yellow on the outside and having a white mealy fracture. Later the flakes become cracked, detach themselves from the stones, and roll up into bullet-shaped or warty masses of about the size of a Hazel nut. When the rain comes the Manna quickly absorbs moisture, and bursts into large flakes which have a mealy interior. When we consider that the dry Manna plants are carried considerable distances by wind, and are often blown together in considerable quantities, this rapid change from hard, dry, almost stone-like substances into a flaky food may well have induced the belief of the Israelites that the Manna fell from heaven. In Persia Manna is used as a food, and is also given under the name of "Chirzadé" to feeble and ill-nourished mothers as a lactogogue in daily doses of 150 to 200 grammes. The food value of Manna lies in its 20-25 per cent. of lichenin.

GALLS.—Students of galls will find an interesting summary by Doctors W. and J. VAN LEEUWEN-REIJNOSAN, of their investigations of the galls of Java in the *Bulletin du Jardin Botanique de Buitenzorg*, 2me série, n. 3, pp. 1-52. Some 350 kinds are described, or recorded alphabetically, under the names of the plants on which they occur, and there are figures of above fifty. The enumeration is preceded by an introduction dealing with some of the more important facts established by the author's researches. Taking into account the great diversity in species of plants forming the tropical forest, there is not a markedly greater variety of galls than exists in the temperate vegetation of Europe. In a classification of the galls it is shown that in the plains the galls caused by Acarids are as two to one of those caused by Cecidomyids. In the mountain virgin forests the proportions are more than reversed, being upwards of three to one in favour of the Cecidomyids. Mangrove forests yield few galls, the number discovered being less than a dozen, seven of Cecidomyid origin and four of Acarid origin.

CHALK-LOVING PLANTS.—The much debated subject of the significance of chalk-frequenting and chalk-shy plants is discussed by Professor KRAUS in a recent work. He reaches the conclusion that the facts that certain plants are found habitually in chalky soil, and that others as frequently shun such a soil, are not due to any direct effect of calcium carbonate on the plants. Professor KRAUS suggests that chalk plays the part of umpire of plant distribution by reason of the effects which the presence of calcium carbonate produce on the physical condition of the soil. This view though it requires further precision before it may be regarded as fully satisfactory, accounts for the known fact that chalk-loving plants are to be found in soils which lack this substance. Professor KRAUS cites in this connection such genera as Pulsatilla. Conversely, Calluna and Vaccinium, which generally shun chalky soils, have been met with in soils containing as much as 3 per cent. of chalk. The last-mentioned observation has also been made by observers in this country, for, as shown recently in a contribution to the *New Phytologist*, Calluna occurs in patches on the chalky downs of Berkshire.

HYBRID SAXIFRAGA.

HYBRID Saxifrages, both in the encrusted and mossy sections, are now so numerous that they have largely supplanted the wild types in gardens. S. cochlearis is a most variable plant, there being in cultivation three well-marked forms, one, known as the type, with medium-sized rosettes, S. cochlearis var. major, which is much larger in all its parts, and S. cochlearis var. minor, a diminutive variety of graceful habit, which has recently been raised by one authority to specific rank under the name of S. Probynii. S. lantoscana, usually classed as a variety of S. lingulata, is a plant of great beauty, with silvery rosettes of leaves and arching inflorescences, having all the flowers on the upper side. The hybrid illustrated in fig. 178 is from a cross between S. cochlearis and S. lantoscana; it has the habit of the first-named species, being upright and freely branching, with the larger flowers of the other species. The flowers are white, with a few pink spots and lines near the base of the petals, while the leaves are intermediate in character, being not quite so spatulate as in S. cochlearis. Of free-flowering and graceful habit, the hybrid should prove a welcome acquisition for the rock garden, even although well over 200 distinct members of the genus Saxifrage are grown in gardens. *W. I.*

[*Photograph by W. Irving.*

FIG. 178.—HYBRID SAXIFRAGA (S. COCHLEARIS × S. LANTOSCANA): FLOWERS WHITE WITH PINK SPOTTING.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

EXOTIC FOREST TREES.—I regret if I have put a wrong construction upon *G. W.'s* note, and I willingly accept his explanation that his warning was directed only against planting large areas with exotics whereof the behaviour in this country has not been sufficiently tested. But is this usually done? I only know of three instances in Scotland, all of which have proved highly successful. The oldest of these is the Larch forest at Dunkeld. The second Duke of Atholl brought the first Larches to Scotland about the year 1724; before he died in 1764 he had planted 20,000 acres with the new tree. Next is the forest of Sitka Spruce at Durris in Aberdeenshire. This species was introduced by Douglas in 1831; does *G. W.* consider that we have not waited long enough to testify confidence in it as an unrivalled timber producer on wet, cold soils? The last example is the 2,000 acres of Thuya and Douglas Fir forest at Benmore. *G. W.* writes slightingly of this because it is only 35 years old; but Thuya gigantea was only brought to this country in 1854. If he pays Benmore a visit he will not entertain much apprehension of red rot attacking such vigorous growth as he will behold. Can *G. W.* cite any other instances where large areas—1,000 acres and upwards—have been planted unsuccessfully with untried exotics? *G. W.* explains that he did not complain of Douglas Fir producing coarse timber, but because the wood was full of knots. But that is precisely what the merchant classifies as coarse timber. *Herbert Maxwell, Monreith.*

JAMESIA AMERICANA.—In an open clearing to the front of the shrubbery border Jamesia americana is about to flower. Although quite hardy, the plant is not generally cultivated; yet a flowering group of half-a-dozen specimens is very beautiful. The small flowers are white and freely produced, for each upright terminal cluster may contain as many as 100 flowers. The growths which are produced simultaneously with the inflorescence should be pinched or removed entirely, the better to display the blooms. The plant succeeds best in a light soil, and after flowering should be afforded a good mulch to help to build up vigorous flowering growth for the following year. It forms a compact bush 3 feet or so in height which, when defoliated, has the appearance of a bundle of withered twigs; one might wonder if such unpromising looking material would again show signs of life. *Fred. W. Jeffery, Woodend Gardens, Renfrewshire.*

FORCING STRAWBERRIES.—In reply to Mr. W. H. Kent (see p. 304), I agree that his method is one of the best ways of storing and resting Strawberries in pots. Assuming that the plants have made good plump crowns during the growing season, they require a rest. I still maintain, from an experience extending for 60 years, that such a rest is necessary. A layer of ashes (ashes are best) or sand should be placed between each two layers of pots. If the soil is wet when the plants are stored the latter will not receive any injury during the time they are at rest. The ashes will keep the pots at about an equal degree of moisture throughout. About the middle of January is a good time to place the first batch of pots in cold pits, on boards to keep them from rooting into the earth, and they should remain for about three weeks with the lights over them. Admit plenty of air. After that time, successional batches may be placed in the frames fortnightly. It is a good plan to set the pots on pieces of turf, in which the roots will penetrate. *Thomas Godfrey.*

RHODODENDRON FALCONERI.—I enclose herewith a truss of the fine Rhododendron Falconeri for your inspection. The plant from which it was cut measures fully 18 feet in height and the same in diameter; it is in perfect health, being literally covered with bloom, forming a beautiful sight. It occupies a position amongst other species on a slope facing south-east. *M. Chaunt, Vaynor Park Gardens, Berriew.* [A fine inflorescence accompanied this note.—EDS.]

HOYA BELLA.—In the place of this plant H. Paxtonii is often grown. In some old gardens it may still be found, and I should be greatly obliged for cuttings. Compared with H. Paxtonii it has smaller, rounder, thicker, more fleshy, darker green leaves, and the flowers, though very similar, have a centre of a different colour. No doubt they are very closely allied, but they are different. I wish to have them growing together. *R. Irwin Lynch, Botanic Garden, Cambridge.*

FIG. 179.—ECHIUM CANDICANS: FLOWERS BLUE.
(Received R.H.S. Award of Merit on April 80 last.)

ECHIUM CANDICANS (TRUNCATUM).

MANY of the plants of the Canary Islands are remarkable for their shrubby development, more especially certain genera of Crassulaceæ such as Sempervivum and Crassulæ. The Echiums also show a marked difference in habit from those which are found in this country and in other parts of Europe. E. candicans (see fig. 179) forms a shrubby plant, with straggling wide-spreading branches, in Madeira, where it is said to grow in the crevices of perpendicular rocks. It is one of several having a similar habit, all bearing a close resemblance to one another, and all of which have been described under various names as distinct species. Echium candicans was introduced into cultivation in 1777, and is therefore an old inhabitant of gardens. It grows several feet high, and bears terminal panicles of blue flowers, from which protrude the long pink filaments, giving it a singular but pleasing appearance. The stems and leaves are covered with white hairs. The variable character of this plant has led to much confusion of names and specimens exhibited at the meeting of the Royal Horticultural Society on April 30, when it obtained an Award of Merit, were shown under the name of E. truncatum. The plant has been grown under this name at Cliveden, the residence of W. Astor, Esq., for the past 15 years. E. fastuosum is a closely allied species often confused with E. candicans. They both have blue flowers, but in the latter plant the filaments are nearly white, while the leaves are not so hairy. It is stated by an authority on plants of the Canary Islands that E. fastuosum is found on the coasts, while E. candicans grows at higher elevations on the mountains. This difference of habitat probably accounts for the slight variations in the two plants. *W. I.*

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

MAY 14.—*Present:* Mr. E. A. Bowles, M.A., F.E.S. (in the Chair); Dr. A. Voelcker, Messrs. W. E. Ledger, J. T. Bennett-Poë, W. Fawcett, W. Hales, J. O'Brien, J. Fraser, C. E. Shea, R. H. Curtis, W. B. Hemsley, and F. J. Chittenden (hon. sec.).

Irises.—It was reported that the Council had awarded a Certificate of Appreciation to Mr. R. DYKES for his work with the Irises which he exhibited at the last meeting of the Committee.

Arsenical poisoning.—Dr. VOELCKER said that he had ascertained that the source of the arsenic in the water referred to at the last meeting was weed-killer.

Tulips with fimbriated edges.—Messrs. J. R. PEARSON & SONS, Lowdham, sent two Tulips having the perianth segments much cut along the edges. The abnormality occurred among T. Gesneriana and "Margaret." The plants had been marked so that their behaviour next season may be ascertained. One or two other similarly cut-petalled plants have been reported this season.

Hybrid Orchid.—Mr. J. O'BRIEN showed from Mr. E. F. Clark, of Evershot, Dorset, a flower of an Orchid raised by crossing Lælia cinnabarina and Lælio-Cattleya × "G. S. Ball." The latter is a hybrid between Lælia cinnabarina and Cattleya Schröderæ. The flower was an improved Lælia cinnabarina, large and more open in the lip, but four of the pollen masses were large and four not quite so large, thus differing from both Lælia and Cattleya. Mr. Clark proposed to name the hybrid Lælio-Cattleya × Cinnabal.

Primulas.—Professor I. BAYLEY BALFOUR, F.R.S., showed the following Primulas: P. Faurei (Franch.) from mountains of Japan, a plant with rose-coloured flowers freely produced, and leaves with golden farina below; P. tibetica (Watt), a dwarf plant with rose flowers allied to P. involucrata and native of the Tibetan highlands; P. Reedii (Duthie) (*Botanical Magazine*, 6961), a fairly well-known and beautiful pale violet species, not quite hardy, from Kumaon, introduced in 1885; P. malvacea (Franch.) from Yunnan, allied to P. cortusoides and having mauve flowers in two or three superposed umbels; P. deflexa with bluish-lilac flowers, rather small but in dense clusters and very sweetly scented; P. membranifolia (Franch.) with violet-coloured flowers, a native of Yunnan; P. uniflora (Klatt) with very pale violet flowers (with a two-flowered scape in this instance) from the Sikkim Himalaya; P. pulchelloides (Balfour), with rather large, beautiful, violet-coloured flowers, similar in appearance to P. pulchella, but nearly allied to P. nivalis, a native of China; and P. Beesiana × P. Bulleyana, a beautiful hybrid with salmon coloured flowers. Botanical Certificates were recommended to the last five plants.

HORTICULTURAL CLUB.

"TRAILS OF THE CANADIAN ROCKIES."

MAY 14.—The usual monthly dinner of the members of the Horticultural Club was held on this date. The President, Sir Frank Crisp, presided. There was a large attendance, the company including many ladies. After the dinner an extremely interesting lecture was delivered by Mrs. Henshaw, the hon. secretary of the Alpine Club of Canada, on "Trails of the Canadian Rockies." The lecture was illustrated by a large number of beautifully-coloured lantern slides, depicting many of the most interesting members of the flora and fauna of that little-known region, and a number of striking views of the mountain chain which is a continuation of the range stretching uninterruptedly from Mexico northwards to the Arctic regions. Many thousands of square miles of this domain have never yet been visited by white men, and it presents, for the most part, a virgin field for the explorer. The lecturer gave a graphic description of each slide presented and of the circumstances attending its production. She carried her audience with her through the vast panorama of snowy Alpine solitudes and beautiful lakes, fed by glacier-born streams, and surrounded by magnificent vegetation. The great glaciers were traversed, and

much evidence was given in the form of the lakes and their surroundings, of the denudation and erosion effected by glacial action in the great Ice Age. As a contrast with the forest scenes—one view gave a vivid impression of those raging conflagrations which periodically occur, due sometimes to lightning, but too often to the carelessness of travellers, who neglect to properly extinguish their camp fires—the audience found themselves confronted with masses of brilliant blossom, rivalling those of the more familiar European Alps. The lecturer gave the botanical names of the plants depicted on the screen, and not merely the various local names, which are unintelligible to the stranger. One lantern slide showed a brilliant scarlet Aquilegia, as yet unnamed, which would be a decided acquisition. Another slide, amongst many which showed the animal life of the domain, represented a group of the Canadian white bear, specimens of which have so far only been obtained by the native Indians, who secured a representative family group for the Victoria Museum. Wolverines, porcupines, lynx, deer of many species, several kinds of sheep and goats, as well as species of bears, including the dreaded grizzly, were also shown in their native wilds. The lecture was amongst the most interesting in the Club records, and at its close remarks were contributed by Messrs. G. P. Baker, Reginald Farrer, C. E. Shea, W. A. Bilney, and Dr. Balfour, of the Edinburgh Botanical Gardens.

LECTURE ON THE ROSE.*

(Concluded from p. 341.)

I WILL mention here two Roses of recent introduction, R. Hugonis and R. Moyesii, chiefly because their habit of growth in the garden much resembles that of R. sericea. R. Hugonis has charming Fern-like foliage and soft-yellow flowers in the axils of the leaves, and comes early. R. Moyesii, on the contrary, is late in starting, with stiffer stems, on which the thorns are hooked upwards instead of downwards. The flowers are a really wonderful colour. Terra-cotta-pink is the general effect, but there are shades of brown and cinnamon, which, with the yellow anthers, make a striking and beautiful flower.

R. humilis is a neat, dwarf, little Rose from the United States. The foliage is not specially noticeable, but it is worth growing in a collection of Rose species from the fact of its having an autumnal as well as a summer season of flowering.

R. nitida is one of the gems of the species; it is a most charming little Rose. It grows only about 18 inches high, the foliage is a dark, glossy green, and the flowers are a brilliant shade of carmine-pink, which is specially attractive. The flowers are followed by numerous round red berries, which look very bright in the autumn, when the leaves turn to brilliant autumnal tints of red and brown. It produces many small root shoots, which are densely covered with brilliant red prickles of unequal size interspersed with setæ, and when the leaves fall these produce a fine effect in the winter sunshine. In order to get the best effect with this little Rose, the constant production of young growth must be encouraged. This may be managed in one of two ways, either by removing all the wood of more than a year old in spring and pegging down what is left, or by the removal of all two-year-old wood as soon as the plants have flowered, trimming again judiciously in autumn. It is a useful little Rose for the rock-garden, or may be grown in a bed by itself or, again, in front of the taller species. In some way, however, careful and constant thinning out of the old wood is quite essential. If left to become a mass of old wood, more than half the charm of the plant is lost. It is quite hardy and of the easiest culture, and there are few Roses which are so beautiful in so many stages of its growth or which better repay moderate care and attention.

R. foliolosa is a pretty little rockery Rose with rather narrow leaflets; but perhaps even more interesting and useful is a hybrid between this species and R. rugosa, which has the advantage of two or three periods of blossom.

The group of Spinosissimæ contains many Roses whose foliage is a distinctive feature in the garden. Few are more beautiful either in flower or leaf than R. altaica, Lindley's grandiflora. The cream-coloured solitary flowers are large, sometimes as much as 5 inches across. The leaflets, which are large for the group, are closely packed and very graceful. When doing well, it puts up numerous root shoots. Its culture is simple, and ought principally to be directed to correct any tendency to become leggy and bare at the base. One of the best means of effecting this is to stop the strong root shoots during summer, so as to make them break back somewhat. Though it has only one true flowering period, it sometimes gives a pleasant surprise by producing one or two of its beautiful flowers intermittently in autumn. The fruits are dark purple or nearly black.

R. hispida (the R. lutescens of Pursh) is somewhat similar in general appearance, but makes a slightly smaller bush. The foliage is a dense dark green, and turns to a purplish tint in autumn. The flowers are solitary and a very soft shade of pale yellow.

R. xanthina is a rather deeper shade of yellow, and perhaps the foliage is even more pleasing, contrasting well with the stems. It is clearly very closely related to the spinosissima section, but is curious in having no setæ. It has been suggested that this Rose is the same as R. Ecæ, which, however, is a much dwarfer-growing variety, and though it is probable they are nearly related, no one who has grown the two would, I think, treat them as synonymous. R. Ecæ is not, I think, so hardy as R. xanthina, nor does it flower so freely, but it makes a nice little Rose for the rockery.

R. spinosissima lutea is the last of the taller-growing Roses of this group I shall mention. It is a much deeper yellow, and though variable in colour, sometimes comes nearly as deep as Persian Yellow or Marechal Niel.

I must also mention R. alpina, of which the best form for foliage is R. a. pendulina and the Boursaults, including R. inermis Morlettii, nor must I omit R. rubrifolia, with, perhaps, the most charming foliage of any Rose, the early shoots coral pink, changing to a glaucous, grey-blue tint.

In the rubiginosa group, R. Seraphini is a little gem, whose place is in the rock-garden. It grows from 1 foot to 18 inches high, and has a pink flower, large for the size of the plant, at the end of each little shoot. The plant being naturally low-growing and branching, these shoots are very numerous. The foliage is glossy, and when the flowers are gone they are followed by cheerful-coloured little fruits which last till autumn. Altogether a charming little plant.

R. ferox, the Hedgehog or Bird's Nest Rose, so called from the dense thicket of thorny stems that it produces, is another low-growing species 18 inches to 2 feet high.

No review of Roses from the standpoint of their foliage would be complete without reference to Sweet Briars. The delicious perfume from their leaves wafted over to one when at work among the Roses on a summer's evening is an added pleasure to the pursuit enjoyed by the rosarian. The first day in spring when one notices the fragrance should be a red-letter day in the rosarian's year, and the placing of hedges and bushes with a view to filling the garden with fragrance requires careful consideration in garden planning. The Sweet Briars are very accommodating; we may have the tall Penzance Briars to make a high hedge, or the common Sweet Briar, of which there are two forms, one tall and the other dwarf.

THE DISCUSSION.

In the discussion which followed the delivery of the lecture, Mr. G. L. Paul mentioned that he recently found, in looking through a batch of plants in an out-of-the-way corner a plant of R. simplicifolia or R. berberidifolia doing well, though it had apparently received little attention. He stated that Ariel was, in fact, a seedling of Tea Rambler, and he agreed that R. Pissardii was a hybrid from R. moschata, which Rose, he understood, derived its name not from the scent of Musk, as generally understood, but from the district in which it was grown or discovered. He suggested there was a large field open to the amateur in experimenting with first crosses from the various species, many of which were little used in gardens.

Mr. R. A. Rolfe said that R. microphylla was one of his favourites. The result of sowing seeds of garden hybrids was often very interesting, curious reversions taking place.

* Lecture by Mr. H. R. Darlington, delivered on April 30.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

MAY 16.—*Committee present:* Rev. J. Crombleholme (in the Chair); Messrs. R. Ashworth, J. Bamber, C. Parker, H. Thorp, Z. A. Ward, J. C. Cowan, J. Evans, W. Holmes, A. J. Keeling, D. McLeod, and H. Arthur (secretary).

A *Silver-gilt Medal* was awarded to A. WARBURTON, Esq., Haslingden (gr. Mr. Dalgleish), for a choice group of Odontoglossums.

Silver Medals to Col. J. RUTHERFORD, M.P., Blackburn (gr. Mr. Lupton), who showed choice groups of Cattleyas and hybrids; Z. A. WARD, Esq., Northenden (gr. Mr. Weatherby), for a meritorious group of well-grown Odontoglossums; J. MCCARTNEY, Esq., Bolton (gr. Mr. Holmes), for a good exhibit of Cattleyas; H. THORP, Esq., Rhodes, for a group composed principally of Odontoglossums of the crispum section; and Messrs. HASSALL & Co., Southgate, for a choice group of Odontoglossums.

Other exhibitors were J. J. HOLDEN, Esq., Southport (gr. Mr. Johnson); W. R. LEE, Esq., Plumpton Hall; Rev. J. CROMBLEHOLME, Clayton-le-Moors (gr. Mr. Marshall); F. A. HINDLEY, Esq., Bradford; Messrs. KEELING & SONS, Bradford; Mr. J. BIRCHENALL, Alderley Edge; and Mr. J. EVANS, Congleton.

AWARDS.

FIRST-CLASS CERTIFICATE.

Brasso-Cattleya Veitchii variety "Luptonii" (C. Reineckiana × B. Digbyana), a huge flower, from Col. J. RUTHERFORD, M.P.

AWARDS OF MERIT.

Brasso-Catt.-Lælia "Beardwoodensis" (L.-C. Violetta × B. Digbyana), also from Col. J. RUTHERFORD. *Odontoglossum Wilkieanum* variety "plumptonense" and *Cypripedium Annie Measures* variety "Diabolus," both from W. R. LEE, Esq. *Cypripedium Hortonensis* (Victor × Beeckmanni), from F. A. HINDLEY, Esq.

NATIONAL GLADIOLUS.

MAY 22.—A successful meeting of this Society was held on the opening day of the International Horticultural Exhibition, at the Royal Horticultural Society's Hall, Westminster.

The proceedings lasted two hours and the meeting was well attended, many foreign visitors being present. The honorary secretary presented the accounts for the past year, which were passed as being highly satisfactory, the society having money on deposit at the bank and a balance in the current account.

Many new members have joined since 1911. The schedule for the autumn show to be held on August 13 at the Royal Horticultural Society, on the occasion of one of the fortnightly meetings, was drawn up.

Mr. Lionel Perkin offered a silver medal for competition at the show, and Mr. Warnaar, of Warnaar & Co., Sassenheim, Holland, a silver cup. Mr. Hopman expressed his wish to offer a prize, and Messrs. Kelway & Son and other members have also offered prizes.

It was decided that two forms of certificate should in future be awarded: (1) to good market varieties; (2) to good exhibition varieties.

The Committee awarded a Certificate to Gladiolus "Pink Beauty," a market variety, raised by Firma P. Vos Mz., Sassenheim, Holland. This Gladiolus is a most valuable variety, on account of its early flowering. The colour is deep pink.

It was decided that the Council should sit to consider new varieties for certificates on July 30, August 13, and August 27. The time and place of meeting will be announced later, and the Council will also sit on June 18 for the same purpose, and on this date the show for early-flowering varieties will be held at Vincent Square.

The annual general meeting of the society will be held on August 13 at the Royal Horticultural Hall.

Trade growers, in submitting new varieties for certificates, will be required to show six spikes, and must be prepared to introduce the variety to commerce. Amateurs submitting new varieties will be required to show three spikes only, and will receive a different form of certificate.

Mr. Lionel Perkin, of Berrylands Road, Surbiton, was elected a member of the Council.

BATH AND WEST OF ENGLAND AGRICULTURAL.

MAY 22-27.—In connection with the annual show of the above society, held at Odds Down, Bath, a display of horticultural produce was held in a special tent.

Mr. J. MILBURN, Victoria Nurseries, Bath, built an attractive rock-garden outside the tent at the entrance. The exhibit was backed by Japanese Maples and fine specimens of Viburnum plicatum and other flowering shrubs. A plant of Rodgersia pinnata was noticeable.. Euonymus kewensis and a group of the white Pæony Mrs. Mesman were also shown by this exhibitor.

Messrs. J. WATERER & SONS, Bagshot, staged a good exhibit of Rhododendrons.

Mr. H. E. JEPHSON, Hessenford, near St. Germans, put up a rocky bank containing good specimens of Adiantum pedatum, Aster subcœruleus var. grandiflorus, a deep reddish-purple variety of Horminum pyrenaicum, Saxifraga primuloides (a miniature and dainty London Pride), Sisyrinchiums, and the beautiful pink Allium Ostrowskianum.

Messrs. BLACKMORE & LANGDON, Twerton Hill Nurseries, Bath, showed Begonias in their usual good form; the exhibit also contained long-spurred Aquilegias and a beautiful plant of Polygonum baldschuanicum.

Messrs. RICH & Co., Bath, had a good display of Pyrethrum Queen Mary, amongst other flowers.

Messrs. GEO. COOLING & SONS, Rose Growers, Bath, filled the end space of the tent with a rock-garden backed by Palms and foliage plants, and flanked with Clematises and Roses.

Messrs. W. TRESEDER & SON, Cardiff, arranged a small exhibit of Pelargoniums, Cactus-flowered Dahlias and Pyrethrums.

Mr. CHAS WALL, Melrose Nurseries, S. Down, Bath, had a good exhibit of Carnations.

Messrs. JARMAN & Co., Chard, showed their strain of Centaureas, the deep yellow variety Honeymoon being particularly fine.

THE CEDARS HARDY PLANT NURSERY, Wells, occupied two spaces. One was filled with Rhododendron fastuosum plenum, the other with R. Pink Pearl.

Mr. H. N. ELLISON, West Bromwich, showed a collection of Ferns in excellent variety and condition.

Messrs. ROWLAND ADAMS, White Wells Farm Nursery, Bath, filled a space of about 40 feet with climbing and other Roses; while Messrs. WALTERS & SON, Bath, had a similar group on the opposite side.

Messrs. R. VEITCH & SON, Exeter, had a fine exhibit, in which a plant of Calceolaria Veitchii was prominent. Many choice flowering shrubs such as Carpenteria californica and greenhouse plants were well arranged behind boxes of Alpines.

Messrs. GODFREY, Exmouth, exhibited Pelargoniums and hardy plants such as Oriental Poppies, Iris dalmatica and Pyrethrums.

Messrs. H. and W. EVANS, Hardy Plant Nursery, Llanishen, S. Wales, showed herbaceous and Alpine plants. Verbascum Caledonia and densiflorum, Trollius, and a collection of German Iris were among the former, with Dianthus neglectus, D. alpinus, the bright-pink dwarf Phlox "Vivid," the recently-introduced Geranium Traversii, and many other Alpine plants.

BRITISH GARDENERS' ASSOCIATION.

ANNUAL MEETING.

MAY 25.—The eighth annual meeting of the above association was held at Carr's Restaurant on this date. Members attended from all parts of the country, and nearly every branch was represented. The balance-sheet and annual report were presented and adopted. It was unanimously decided to hold the next annual meeting at Birmingham. It is intended to widen the scope of the work of the association, and an effort will be made to improve the *Journal*. The new members of the Executive Council are Messrs. G. W. Butcher, B. Tindall, Kew; J. D. Jones, J. Lodge, E. Smallman, W. B. Child, Birmingham; T. G. Friend, J. E. Little, London; W. H. Paine, Kildare; E. H. Chitty, Highgate; and T. Aley, East Finchley. Mr. T. Winter was reappointed treasurer, and Messrs. J. Weathers and Parrott, auditors.

Answers to Correspondents

*** *The Editors will be glad to receive, for consideration, large photographs of horticultural subjects, suitable for reproduction in this Journal.*

BEAUMÉ HYDROMETER: *S. J. T.* You can procure a Beaumé hydrometer for fluids lighter than water—either 70 to 0 degrees, or, for fluids heavier than water, 0 to 70 degrees, price 5s. each, also one for fluids heavier than water (0 to 40 degrees) for 3s. 6d. from Messrs. Negretti & Zambra, Holborn Viaduct, London.

CANTALOUP MELONS: *R. O. F.* The failure of Cantaloup Melons to set fruits may be attributed to (1) a check caused by a fall in the temperature during stormy weather, a heavy rainfall, or a period of prolonged cold weather; (2) excess of moisture at the roots which, coupled with excessive bottom heat, promotes a quick and sappy growth of the foliage and shoots, to the detriment of fructification; (3) lack of ventilation; (4) drought at the roots. From your letter, and taking into consideration the weather experienced in April and early in May, it may be safely assumed that ventilation has been neglected. The moisture arising from the ground and manure would be nearly sufficient to ensure a fair setting of fruits. To be successful with Cantaloup Melons, the plants need to be grown hardy without exposing them to danger from a check by regulating the ventilation carefully and watering according to the weather.

CARNATION DISEASED: *B. C.* Eelworm is present in the roots of the plants. Infected specimens should be burnt, as they will not bloom properly, and are sure to infect other plants. Burn or sterilise the soil with gas-lime.

CATERPILLARS ON APPLE TREES: *M., Scarborough.* The caterpillars attacking the Apple trees are those of the winter moth (Cheimatobia brumata), a very common fruit pest. The moths appear from October to December, the female being practically wingless. The eggs are deposited in various positions—round the buds, in crevices of the bark, &c.—and the caterpillars hatch usually a short time before the buds burst, afterwards feeding on the young foliage, and often spinning the leaves together. The females may be caught by tying a band of greaseproof paper round the trunk of the tree 1 to 2 feet from the ground, and smearing it over with sticky grease. The bands should be in working order from October to January, and should not be allowed to dry. Caustic soda is of no avail for the pest, but as soon as the leaves commence to show spraying with Paris green or arsenate of lead should be resorted to; a second application should be given as soon as the blossom has fallen. Paris green should be put on as a very fine spray, 1 ounce of the powder should be used to 10 gallons of water, and whilst the mixture is being made up the fluid should be stirred continuously.

FRUITS FAILING TO SWELL: *G. C.* There is no mildew present. The unhealthy condition of the trees is due to imperfect root action.

GRAPES DISEASED: *F. G. B.* The injury is caused by Botrytis cinerea. Strong Bordeaux Mixture would be the best to use, but liver of sulphur may be employed if the berries are half-grown.

GRAPES UNHEALTHY: *H. W.* There is no fungus present on the vine. The spots are due to lack of ventilation.

GRUBS ATTACKING CAULIFLOWERS: *E. H.* Anthomyia radicum, the Cabbage root fly, is the cause of the injury to the plants. Place nitrate of soda about the roots of the plants at the rate of 2 cwt. per acre; this will check the spread of maggots. If the weather is dry, the soil should be well watered after the nitrate of soda has been applied.

HORTICULTURAL BENEFIT SOCIETIES: *J. S.* The United Horticultural Benefit and Provident Society; secretary, Mr. Collins, 9 Martindale Road, Balham, London. Professional Gardeners' Branch of the Grand U.O. of Oddfellows; secretary, Mr. G. Carver, 75, Northbrook Street, Chapel Allerton, Leeds. We are unable to state whether these are likely to become approved societies under the National Insurance Bill.

NAMES OF PLANTS: *A. S. A.* 1, Pyrus Aria; 2, Fraxinus ornus; 3, Alnus glutinosa var. laciniata; 4, Arbutus Unedo; 5, Phillyrea decora; 6, Thuya dolabrata; 7, Viburnum prunifolium. —*H. F., Penryn.* Pyrus lobata.—*H. R. J.* Acer Pseudo-platanus variety purpureum.—*T. C., Gravesend.* Dendrobium clavatum.—*W. H. Castle.* Orobanche minor.

OAK TREES DECAYED: *W. B. M.* The fungus attacking the trees is Polyporus dryadeus, which is very destructive to Oak trees. Your best plan is to remove the fungus and dress the wound with tar.

PEACH LEAVES FALLING: *E. P. H.* The tree is attacked by Peach leaf-curl. All infected shoots should be cut off and the trees sprayed with liver of sulphur.

PEACH TREE DISEASED: *R. G.* The Peach tree is injured by a fungus (Næmospora crocea). The diseased shoots should be cut out, as these will become cankered in time and infect other branches. Spray the shoots with the Bordeaux mixture in winter.

PEAR GENERAL TODLEBEN: *S. J. T.* The failure of your trees of this variety to fruit may be the result of severe root-pruning in 1911. If the trees are making a free growth, as we gather from your letter they are, summer prune them towards the middle of July, and winter prune after the trees have shed their leaves. We do not advise severe pruning after the trees have been properly formed; once trees have borne good crops of fruit, they require very little pruning except the cutting out of ill-placed shoots and the shortening of over-luxuriant growths.

PEAR LEAVES DISEASED: *G. V. P., Hereford.* Pear-leaf blister mite is attacking the tree. Hand-picking of the diseased leaves is the only remedy, and this should be done in June.

PEAR SHOOTS DISEASED: *W. E. B.* The shoots are destroyed by the Pear midge. Pick off the diseased fruits and burn them. In winter remove about 2 inches of the soil from under the trees and replace it with fresh loam.

PHLOX DEFORMED: *Phlox.* The trouble is caused by eelworm. All diseased plants should be destreyed, and the soil treated with gas-lime.

POTATO SHOOTS DISEASED: *A. J. C.* The shoots are injured by a fungus (Sclerotinia Sclerotiorum). The soil is infected and should be dressed with gas-lime.

SPINACH: *A. C. C., Wandsworth.* Apply sulphate of iron at the rate of 1 ounce in 3 gallons of water, or the same amount on each square yard of ground. Sulphate of iron should be applied when the plants are young and growing actively.

SWEET PEAS DISEASED: *H. E. R., Bath.* The injury is caused by a fungus (Thielavia basicola) attacking the root. The disease is usually introduced into the soil with the stable manure. Do not water the Peas at night-time, as it lowers vitality and affords the fungus a chance to attack the roots.

TULIPS: *G. W.* There is no disease present; the spotting is due to drops of moisture on the leaves becoming chilled at night. Certain varieties of Tulips are very susceptible to this injury.

VINE LEAVES DISEASED: *S. A. P.* The injury is due to a fungus (Botrytis cinerea), caused by too much moisture. Afford plenty of ventilation early in the day, and spray the vine with liver-of-sulphur.

VINES DISEASED: *E. P. H.* The vines are affected with mildew. Spray them with liver of sulphur twice a week.

Communications Received.—A. W. H. (thanks for contribution for R.G.O.F. box)—J. L.—W. B.—J. D., Staffordshire—G. W.—F. E. G.—Gooseberry—A. L.—D. F.—Parkland—E. C.—H. B.—W. D. & Sons—R. C. N.—J. D.—Queensland—M. & C.—W. L. B.—R. A. L.—E. S. V.—J. N.—J. H.—J. W., Rotterdam—G. B.—H. C. L.—W. B. H.—W. I.—W. E.—G. C., Sussex—B. M. W.—Anxious—A. B., Bedford—L. M. S.—E. F. H.—F. H. K.—R. L. C. D.F.—A.W.H.—H.L.G.—Shacas—G.W.J.

MARKETS.

COVENT GARDEN, May 29.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—EDS.]

Cut Flowers, &c.: Average Wholesale Prices.

	s.d.	s.d.
Arums (Richardias)	2 0	—
Bouvardia, per dz. bunches ...	6 0	7 0
Carnations, p. doz. blooms, best American var.	1 6	1 9
— smaller, per doz. bunches	10 0	15 0
— Carola, crimson, extra large	2 6	3 0
— Malmaisons, p. doz. blooms ...	7 0	9 0
— — pink ...	6 0	8 0
— — blush ...	4 0	8 0
— — red	4 0	6 0
Cornflower, p. doz. bunches, pink	3 0	4 0
— white	3 0	4 0
— blue	1 0	1 6
Eucharis, per doz.	2 0	2 6
Gardenias, per box of 15 and 18 blooms... ...	1 6	3 0
Gladiolus, per doz. bchs., Akerman	10 0	12 0
— Blushing Bride	5 0	6 0
— Bride, white ...	5 0	8 0
— Ne Plus Ultra	9 0	10 0
— Peach Blossom	8 0	12 0
Gypsophila, p. dz. bunches:		
— white	6 0	12 0
— pink	4 0	6 0
Iceland Poppies, p. dz. bunches	1 6	2 6
Iris (Spanish), per doz. bunches:		
— white, mauve, yellow & blue	6 0	10 0
Lapagerias, white, per dozen ...	2 0	2 6
Lilium auratum per bunch ...	4 0	5 0
— longiflorum, per doz., long	1 6	2 0
— — short ...	1 6	2 0
— lancifolium alba, long ...	2 0	2 6
— — short ..	1 6	2 0
— speciosum rubrum, per doz., long	1 9	2 0
— — short ...	0 9	1 0
Lily of the Valley, pr. dz. bnchs.:		
— extra special ...	15 0	18 0
— special... ...	10 0	12 0
— ordinary ...	8 0	—
Mignonette, per doz. bunches...	4 0	5 0
Marguerite, per doz. bunches:		
— Yellow... ...	1 6	2 0
Myosotis (Forget-me-not), p. dz. bunches ...	3 0	4 0
Orchids, Cattleya, per doz. ...	9 0	10 0
— Odontoglossum crispum ...	2 0	3 0
Pæonies, per doz. bunches, six blooms in a bunch:		
— red	3 0	4 0
— pink	8 0	10 0
— white	8 0	10 0
Pelargoniums, p. doz. bunches	5 0	6 0
— Double Scarlet	4 0	6 0
Pinks, white, per doz. bunches...	2 0	3 0
Pyrethrums, dble., per doz. bchs:		
— white	3 0	5 0
— coloured ...	2 0	4 0
— single, mixed colours ...	2 0	4 0
Roses, 12 blooms,		
— Bridesmaid,	1 0	1 6
— C. Mermet ...	1 0	1 6
— Frau Karl Druschki ...	1 6	2 6
— General Jacqueminot ...	1 0	1 3
— Liberty ...	2 0	3 0
— Madame A. Chateney ...	1 6	3 0
— Niphetos ...	1 0	1 6
— Richmond ...	1 0	2 6
— Sunrise ..	1 0	1 6
— President Carnot	1 6	2 6
— Lady Roberts	1 0	1 6
— Lady Hillingdon	1 0	1 6
— Franz Deegan	1 0	1 6
— Kaiserine ...	1 0	2 0
Spiræa (Astilbe) japonica, per doz. bunches	4 0	5 0
Statice, mauve, per doz. bunches...	3 0	4 0
Stephanotis (72 pips)	1 6	2 0
Sweet Peas, pr. dz. bunches:		
— coloured ...	4 0	6 0
Violas, small blue, p. doz. bunches	1 0	1 3

Cut Foliage, &c.: Average Wholesale Prices.

	s.d.	s.d.
Adiantum Fern (Maidenhair), best, dz. bnchs.	4 0	5 0
Agrostis (Fairy Grass), per dz. bunches ...	2 0	4 0
Asparagus plumosus, long trails, pr. ½ doz.	1 6	2 0
— medium, doz. bunches ...	12 0	18 0
— Sprengeri ...	10 0	12 0
Carnation foliage, doz. bunches...	4 0	—
Croton foliage, various, per dozen bunches ...	12 0	15 0
Cycas leaves, artificial, per doz.	3 0	12 0
Eulalia japonica, per bunch ...	1 0	1 6
Moss, per gross ...	6 0	—
Myrtle, dz. bchs. (English), small-leaved...	6 0	—
— French ...	1 0	—
Smilax, per bunch of 6 trails ...	0 9	1 0

Plants in Pots, &c.: Average Wholesale Prices.

	s.d.	s.d.
Aralia Sieboldii, p. dozen	6 0	7 0
Araucaria excelsa, per dozen ...	18 0	21 0
Asparagus plumosus nanus, p.dz.	10 0	12 0
— Sprengeri ...	8 0	9 0
Aspidistra, p. dz., green	21 0	30 0
— variegated ...	30 0	60 0
Boronia megastigma, 48's, p. dz.	21 0	24 0
Cocos Weddeliana, per dozen:		
— 60's	6 0	12 0
— larger, each ...	2 6	10 6
Coleus, per doz. ...	4 0	5 0
Croton, per dozen	18 0	30 0
Cyperus alternifolius, per doz.	5 0	6 0
— laxus, per doz.	4 0	5 0
Dracæna, green, per dozen ...	10 0	12 0
Ericas, per dozen:		
— Willmorei, 48's	15 0	18 0
— persoluta ...	27 0	30 0
Ferns, in thumbs, per 100... ...	8 0	12 0
Ferns, in small and large 60's ...	12 0	20 0
— in 48's, doz. ...	6 0	—
— choicer, sorts per doz.	8 0	12 0
— in 32's, per doz.	10 0	18 0
Ficus elastica, per dozen	9 0	12 0
Fuchsias, per doz.	8 0	9 0
Geonoma gracilis, 60's, per dozen	6 0	8 0
— larger, each ...	2 6	7 6
Heliotropes ...	6 0	8 0
Hydrangeas, white, 48's, per dozen	18 0	21 0
— pink	10 0	15 0
— blue, each ...	2 0	5 0
Kentia Belmoreana, per dozen	5 0	42 0
— Fosteriana, 60's, per dozen	4 0	6 0
— larger, per dozen	18 0	60 0
Latania borbonica, per dozen ...	12 0	30 0
Lilium longiflorum per dozen ...	15 0	18 0

Plants in Pots, &c.: Average Wholesale Prices *(Contd.)*.

	s.d.	s.d.
Lilium lancifolium rubrum in pts., per dozen ...	15 0	18 0
— lancifolium alba	15 0	18 0
Lily of the Valley	21 0	24 0
Marguerites, white, per dozen ...	8 0	10 0
Mignonette, 48's, per dozen ...	6 0	8 0
Pandanus Veitchii, per dozen ...	36 0	48 0
Pelargoniums, per dozen	9 0	12 0
Pelargoniums, Ivy-leave l	7 0	9 0
Phœnix rupicola, ea.	2 6	21 0
Rhodanthi, per dz. pots	5 0	6 0
Spiræa japonica, per dozen pots	10 0	12 0
— pink	10 0	12 0
Stocks, white, pink and red ...	6 0	8 0
Verbenas, pink ...	6 0	8 0
— scarlet... ...	8 0	9 0
— white	8 0	9 0
— blue	8 0	9 0

Fruit: Average Wholesale Prices.

	s.d.	s.d.
Apples:		
— Tasmanian per case ...	7 0	10 6
— Australian per case	7 0	10 6
Apricots, French per box ...	0 10	1 0
Bananas, bunch:		
— Doubles ...	10 0	12 0
— No. 1	8 0	10 0
— Extra	10 0	12 0
— Giant	14 0	18 0
— Loose, p. doz.	0 6	1 0
— Red coloured...	5 6	6 6
— Jamaica Giants, per ton ...	£10	£12
— Jamaica Ordinary, per box (9 doz.) ...	4 0	5 0
Cherries, French, ½ sieve... ...	5 6	6 0
— per box	1 0	2 0
Cranberries, per case (30 qts.)...	10 0	11 0
— Cape Cod, per case (30 quarts)	9 6	—
Figs (Guernsey), per dozen ...	3 0	4 0
— English ...	3 0	8 0
Gooseberries, per peck	1 0	2 0
— ½ bushel ...	3 6	4 0
Grape Fruit, case:		
— 96's ...		
— 80's		
— 64's	20 0	25 0
— 54's		
Grapes, Australian, per case ...	12 0	25 0
— English (new) per lb.	1 6	4 0
— Canon Hall ..	6 0	8 0
— Muscats ...	3 0	5 0
Lemons:		
— Messina, per case	7 6	17 0
Limes, per case ...	4 0	—
Mangoes, per doz.	4 0	6 0
Melons (Guernsey)	1 3	2 6
— (English) ...	1 3	3 6
Nuts, Almonds, per bag	52 6	—
— Spanish, per sack	40 0	42 0
— Barcelona, bag	35 6	36 6
— Chestnuts, per bag	3 6	19 0
— Cocoanuts, 100	18 0	23 0
— English Cobs per lb.... ...	0 3	—
— Walnuts (Naples) kiln dried, cwt. cases	54 0	—
Nectarines, per dozen	6 0	24 0
Oranges:		
— Navels... ...	16 0	18 0
— Denia, case ...	17 6	35 0
— Jaffa, per case	12 0	—
— Bitter, per ½ chest	16 0	18 6
— Seville Sour ½ chest ...	15 0	18 0
Peaches (Belgian), per dozen ...	4 0	8 0
— English, dozen	4 0	24 0
Pears (Australian), per case ...	10 0	15 0
Pineapples, St. Michael ...	3 0	5 0
Strawberries, p. lb.:		
— A quality ...	1 6	3 6
— B quality ...	0 9	1 0
— Southamptons, baskets ...	3 0	4 0

Vegetables : Average Wholesale Prices.

	s.d.	s.d.
Artichokes (Globe), per dozen ...	2 0	2 6
Asparagus —		
— Toulouse ...	1 6	2 0
— Montauban ...	2 0	2 3
— Dijon	0 8	1 0
— Lauris ...	0 10	2 0
— (English) bndl.		
— Cambridge ...	0 9	2 6
— Worcester ...	1 0	6 0
Beans, Guernsey Dwarf, per lb.	0 8	1 0
— (English) p. lb.	0 8	1 0
— French, per packet, lb.	0 8	0 10
Beetroot, p. bshl.:		
— Long	2 0	2 6
Celeriac, per doz.	2 6	3 0
Cabbages (French) per dozen ...	1 3	2 0
— Cornish, per dozen	0 9	1 3
— Evesham, pots	3 0	3 6
Carrots (English), pr. doz. bun....	4 0	5 0
— (French) per dozen bunches	5 0	7 0
— per cwt. ...	4 0	6 0
— (washed) p. bag	6 0	7 0
Cauliflowers, per dozen	4 0	5 0
— (Cornish), per crate	12 0	15 0
Celery (washed), p. doz. bndls. ...	8 0	10 0
Chicory, per lb. ...	0 4	—
Cucumbers, p. doz.	1 6	2 6
Endive, per dozen	1 0	1 6
Greens (Spring), p. bag	3 6	4 0
Herbs (sweet), pkts., p. gross	7 0	—
Horseradish, 12 bundles ...	10 0	12 0
Leeks, per doz. ...	2 6	3 0
Lettuce (French), per doz. ...	1 6	2 0
— (English), per tally	2 0	4 0
Mint, p. dz. bunch.	1 6	2 6
Mushrooms, cultivated, p. lb. ...	0 10	1 0
Mustard and Cress, per dozen punnets ...	1 0	—
Marrows, pr. dz. ...	10 0	15 0
Onions (Egyptian)	6 6	7 6
— (Spring), per doz. bunches	1 6	2 0
Parsley, ½ sieve ...	1 6	2 0
— per doz. bun.	2 6	3 0
Peas (French) p. pad	4 0	6 0
— per packet ...	0 6	—
— (Guernsey), lb.	0 4	0 8
— (English), per ½ bushel ...	4 0	5 0
— bushel	6 0	11 0
Radishes (English), per dozen ...	0 6	0 9
— (French) p. dz.	1 0	1 3
— (Jersey) long...	0 4	0 6
Rhubarb, forced, per 12 bundles	1 0	—
— Outdoor, p. dz.	2 6	3 0
Spinach, pr. bshl.	2 0	2 6
Tomatos (Guernsey) per lb. ...	0 6	—
— (English), p. lb.	0 6	0 7
— Seconds ...	3 0	4 0
Turnips (English), per dz. bunches	5 0	6 0
— (French), pr. dz.	7 0	8 0
Watercress, p. dz. bunches ...	0 4	0 6

REMARKS.—The overseas consignments are delayed owing to labour troubles. Hothouse Grapes of Black Hamburgh and Muscat of Alexandria varieties are increasing in quantity and meeting with a good demand. There is also a fair quantity of Grapes arriving from Belgium, including the varieties Gros Colman. The supply of Peaches and Nectarines is gradually increasing; in fact, this holiday week they have exceeded the demand. Melons are arriving daily in plenty, also Figs. Large supplies of Strawberries have reached the market this week from Southampton and France. Spanish and French Cherries are arriving in excellent condition packed in half-sieve baskets and boxes, those in boxes being selected fruits. Consignments of Tomatos increase daily from all sources, and the fruits sell freely. Supplies of Asparagus have not been equal to the demand during the past week; consignments from the Continent are decreasing. There is a fairly good supply of both outdoor and forced vegetables. The porters' strike has not disturbed trade to the extent anticipated. *E. H. R., Covent Garden, May 29, 1912.*

Potatos.

	per cwt. s.d.	s.d.		per cwt. s.d.	s.d.
Lincolns—			**Lincolns—**		
Up-to-Date ...	3 0	3 6	Maincrops ...	3 0	3 6
King Edward ...	2 9	3 3	Blacklands ...	2 0	2 3
Northern Star ..	2 3	2 6	**Dunbars—**		
Evergoods ...	2 3	2 6	Up-to-Date ...	3 9	4 3
			Maincrop ...	3 9	4 3

New Potatos.

Teneriffe	9 6	10 0	St. Malos 11 6 12 0
Jerseys	12 0	12 6	Cherbourgs ... 10 6 11 6

REMARKS.—Trade in old Potatos is quiet; stocks in London are not so heavy as last week. New Potatos have advanced in prices this week, there being a steady demand for them. *Edward J. Newborn, Covent Garden and St. Pancras, May 29, 1912.*

THE WEATHER.

THE FOLLOWING SUMMARY RECORD of the weather throughout the British Islands, for the week ending May 25, is furnished from the Meteorological Office:—

GENERAL OBSERVATIONS.

The *weather*.—The conditions were generally cloudy and unsettled. Rain was experienced on several days in the most northern and western districts, and occasionally in the south and south-east. At many stations in the latter regions, however, the fall was very slight, and in some places no measurable amount was recorded. Thunderstorms occurred about the middle of the week at various places in England, mostly in the midlands and eastern counties.

The *temperature* was from 2° to 3° below the average in most districts, but slightly above it in England E. and the English Channel. The highest of the maxima were registered, as a rule, either early or quite late in the week, and ranged from 71° in the English Channel and 62° in England E. and Ireland S. to 64° in Scotland W. and England N.W. The lowest of the minima, which were generally recorded late in the period, varied from 28° in Scotland E. (at Balmoral on the 22nd), 29° in Ireland N. (at Markree Castle on the 25th) and 31° in England S.W. (at Llangammarch Wells on the 24th or 25th) and in Scotland N. to 36° in England E. to 46° in the English Channel. The lowest grass readings reported were 22° at West Linton, 24° at Crathes and Newton Rigg, and 25° at Balmoral. The temperature of the soil 1 foot below the surface was below the average over the greater part of the kingdom, but at 4 feet it was above it nearly everywhere.

The *mean temperature of the sea*.—At most stations the water was warm for the time of the year, and also warmer than during the corresponding week of last year. The means for the week ranged from about 56·5° at Margate and Eastbourne and 56° at Scilly to 47° at Lerwick and Burnmouth.

The *rainfall* varied greatly in amount in different parts of the kingdom. In England N.E., the Midland counties, England N.W., S.W., and Ireland S. it was in excess of the average, but in the other districts there was a deficit. About an inch fell at Cahir on the 19th and at Rauceby on the 22nd; on the latter date more than an inch was recorded at Huddersfield, and as much as 1·3 inch at Harrogate and 1·5 inch at Scarborough.

The *bright sunshine* was below the normal except in the English Channel and Scotland N. The mean daily duration ranged from 9·6 hours (62 per cent. of the possible) in the English Channel, and 8·1 hours (48 per cent.) in Scotland N. to 4·9 hours (about 30 per cent. of the possible) in England N.E. and N.W., and to 4·2 hours (only 26 per cent.) in the Midland Counties.

THE WEATHER IN WEST HERTS.

Week ending May 29.

The first unseasonably cold week for five weeks.—The first day was very cold, but since then the day temperatures have been rising, and are now quite warm for the time of year. Three nights proved very cold, and on the coldest of these the exposed thermometer registered 3° of frost. The grouund is now 1° warmer at 2 feet deep, and 2° warmer at 1 foot deep, than is seasonable. There was a little rain on the first day of the week, but since then the weather has been dry. The rainfall of the 21st inst. did not effect the soil gauge on which short grass is growing, through which there has been no percolation at all since the end of March, or for two months. The amount, however, was sufficient to start the bare soil gauge, through which there passed, during the next two days, half a gallon of rain-water. The sun shone on an average for 7 hours a day, or for ¾ hr. a day longer than is usual at the same period in May. On one day no sunshine at all was recorded, whereas on one other day the sun was shining brightly for over 12 hours. Throughout the week the wind has been very light; in fact, in no hour did the mean velocity exceed 8 miles. The direction of the wind has been very variable. The mean amount of moisture in the air at 3 o'clock in the afternoon fell short of a seasonable quantity by 3 per cent. A large bush of the Wild Dog Rose growing in my garden came first into flower on the 29th inst., or six days earlier than its average date for the previous 26 years, and earlier than in any of those years since 1896, or for 16 years. *E. M., Berkhamsted, May 29, 1912.*

GARDENING APPOINTMENTS.

[*Correspondents are requested to write the names of persons and places as legibly as possible. No charge is made for these announcements, but if a small contribution is sent, to be placed in our collecting Box for the Gardeners' Orphan Fund, it will be thankfully received, and an acknowledgment made in these columns.*]

Mr. P. SMITH, for some years Foreman in the gardens at Honor House, Shere, Surrey, as Gardener to L. A. HARRISON, Esq., at the same address.

Mr W. J. MIDDLEBROOKE, for the past 8 years Fruit Expert to the King's Acre Nurseries, Ltd., and previously with Messrs. J. VEITCH & Co., as Horticultural Adviser and Fruit Expert to the Locksheath Nurseries, Ltd., near Southampton.

SCHEDULES RECEIVED.

Holyport Cottagers' Horticultural and Industrial Society.—The fifth annual show of this society will be held in the Meadows of the Lodge, Holyport, on Thursday, August 1. Many prizes will be awarded, including four silver challenge cups. Secretary, Mr. J. B. Westropp, The Little House, Holyport.

Altrincham and District Chrysanthemum.—The seventeenth annual show will take place on Friday and Saturday, November 8 and 9, at the Drill Hall, Hale. Secretary, Mr. W. Hazlehurst, 20, Ashley Road, Altrincham.

Croydon Horticultural Society.—The forty-fifth summer show of Roses of this society will be held in the Park Hill Recreation Ground on Wednesday, July 3. The schedule comprises 110 classes. The Croydon challenge cup is offered in the open Rose classes for 48 Roses distinct. There are five other silver cups offered in the Rose classes. Secretary, Mr. A. J. Roffey, 55, Church Road, Croydon.

Newport and District Chrysanthemum Society.—The twenty-fourth annual Chrysanthemum, Orchid, and fruit show of this society will take place on Thursday, November 7, and will be held in the Gymnasium Athletic Grounds. Secretary, A. I. Morgan, 9, Woodland Park Road, Newport.

Stirling Horticultural Society.—The centenary exhibition of this society will be held in the Public Hall, Albert Place, Stirling, on Thursday and Friday, August 29 and 30. Secretary, Mr. William Simpson, 13, Murray Place, Stirling.

Bletchley and Fenny Stratford Horticultural Society.—The third annual show of this society will be held on August 5, in the grounds of Bletchley Park. Secretary, Mr. Thomas Best, Bletchley.

Grand Yorkshire Flower Show and Gala.—The fifty-fourth annual show will be held on June 19, 20 and 21, in Bootham Park, York. Secretary, Mr. Fred Arey, Davyhall Chambers, Davygate, York.

The Sutton Rose Society.—The thirty-first exhibition of this society will be held in the grounds of Manor Park House, Sutton Preparatory School, Carshalton Road, on Saturday, June 29. Seven challenge cups will be offered, also eleven pieces of plate, the N.R.S. and other silver medals and money prizes. Secretary, Mr. F. J. Borland, Stalheim, Brunswick Road, Sutton.

DEBATING SOCIETY.

CROYDON HORTICULTURAL MUTUAL IMPROVEMENT.—The spring show of this society was held at the Horniman Hall on Wednesday, the 8th ult. No show has been held at this time of the year for two years, but the one under notice compared favourably with that held three years ago. An interesting exhibit was a miscellaneous group of plants collected from members and shown by Mr. T. W. Hayden on behalf of the Stanley Cottage Gardens and Allotment Holders' Society. Dr. T. Jackson (gr. Mr. W. Paulley) exhibited splendid specimens of Aspidistra and Nephrolepis, and an interesting contribution was a decorated fire-place shown by Mr. J. Gregory. Mr. J. J. Reid, of Combe Lodge, the president of the society, (gr. Mr. F. Oxtoby), exhibited a group of flowering plants, including examples of Cineraria stellata, King of Denmark variety of Zonal Pelargonium, Rehmannia rosea, Schizanthus and Clarkia. Other exhibitors were :—Mrs. Walters, Park Hill Road, Croydon (gr. Mr. J. Scrivens), Schizanthus; Mr. R. Cleveland, Cacti; Mr. T. W. Hayden, fruit and salad vegetables; Mrs. Hayden, miscellaneous cut blooms; Mr. F. Grose, Chesham Park, Anerley (gr. Mr. C. Thrower), Azaleas and Broccoli; Mr. William Harris, North End, miscellaneous cut blooms, including Carnations, Irises and Tulips; Mr. F. Dyer, Park Hill Road, (gr. Mr. J. Randall), Caladiums; Mr. Thomas Butcher, South Norwood and Croydon, miscellaneous plants; Mr. G. Goodsir, Wallacefield, Croydon (gr. Mr. W. Coles), Broccoli and flowering plants; Mr. F. J. Larcombe, South Croydon, Tomatos; Mr. Hugh Lewis, Mayfield, Croydon, a collection of Alpines; Mr. J. J. Pittman, Waddon Marsh Lane, (gr. Mr. J. Dingwall), Pelargoniums; Mr. J. R. Box, Croydon, Tulips; and Messrs. E. W. and S. Rogers, Croydon, Tulips.

CATALOGUES RECEIVED.

JAMES VEITCH & SONS, Chelsea—Hardy Ornamental Trees and Shrubs.

S. BROADHEAD & SON, Wooldale Nurseries, Thongsbridge, Huddersfield—Herbaceous and Alpine Plants.

FRANK E. SMITH & Co., 15 & 17, High Street, Belfast—Bedding, Herbaceous and Rock Plants.

FOREIGN.

A. G. M. RICHARD, Naarden-Bussum, near Amsterdam, Holland—Populus alba Richardii.

Handbook of Tropical Gardening and Planting.

By H. F. MACMILLAN, Curator of the Royal Botanic Gardens, Peradeniya, Ceylon.

A fine record of progress in tropical agriculture and horticulture, and testifies not only to the fertility of Ceylon, but also to the resource of the author. The home-keeping reader will find much that is of interest in its rich and varied contents.

Nearly 200 illustrations. Post free, 12/-

THE PUBLISHER,
"Gardeners' Chronicle" Offices, 41, Wellington St., Covent Garden, London, W.C.

WEEDS

One application of HARRISON'S Reliable WEED KILLER will keep your Garden Paths, Carriage Drives, etc., free from weeds for at least 12 months. The best Killer for Daisy, Plantain and Dandelion in lawns. Brightens the Gravel. Immense Saving in Labour.

1 Gallon ..	2/8,	drum ..	9d.,	carriage ..	9d.
2 ,,	5/4	,,	1/3	,,	1/-
5 ,,	12/-	,,	3/-	,,	paid.
10 ,,	21/6	,,	5/-	,,	,,
40 ,,	75/-	,,	5/-	,,	,,

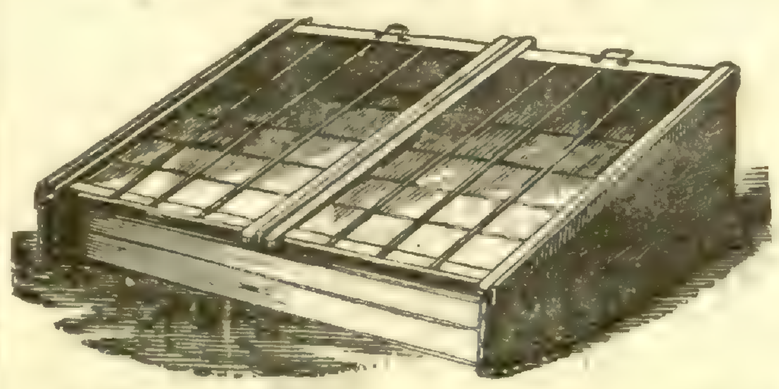
Irish orders are not subject to these carriage terms, but are paid to any English port. Full price allowed for all drums and casks if returned in good condition carriage paid, within 2 months.

N.B.—In the prices of the above, please note that this Weed Killer mixes 1 to 50 of water, being *double* the ordinary strength. One gallon mixed with 50 gallons of water will cover an area of from 150 to 200 sq. yds. *effectively. There is no smell to this Weed Killer.*

Geo. W. HARRISON,
Horticultural Chemist,
READING.

Portable Cucumber Frames.

OUR WELL-KNOWN MAKE.



These Frames are made of the Best Materials, and can be put together and taken apart in a few minutes by any one. Sizes and Prices, Glazed and Painted :—

			£	s.	d.
1-Light,	4 ft. by 6 ft.	CASH PRICES, CARRIAGE PAID.	2	0	0
2 ,,	8 ft. by 6 ft.		3	0	0
3 ,,	12 ft. by 6 ft.		4	2	6
4 ,,	16 ft. by 6 ft.		5	5	0
5 ,,	20 ft. by 6 ft.		6	7	6
6 ,,	24 ft. by 6 ft.		7	10	0

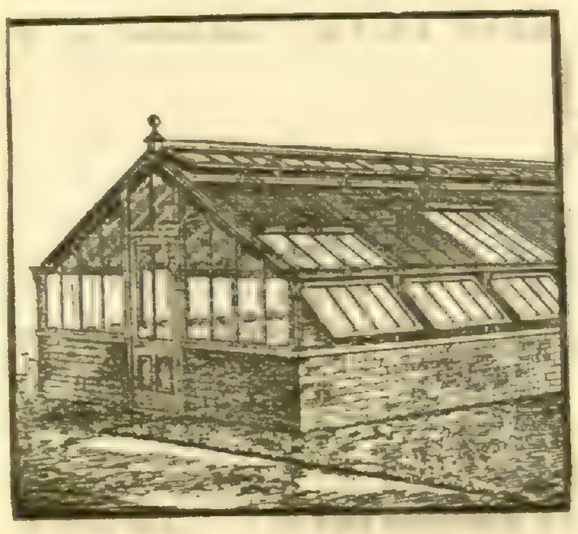
LARGER SIZES AT PROPORTIONATE PRICES.

R. HALLIDAY & CO.,

ROYAL HORTICULTURAL WORKS,
Middleton, Manchester.

PARISIAN {Wood / Lath} BLINDS

MOST DURABLE OUTSIDE SHADING.



SEND FOR ESTIMATE.

SUPPLIED ONLY BY

W. RICHARDSON & Co.,

HORTICULTURAL WORKS,
DARLINGTON.

GARDEN {From Stock} FRAMES

THE REPUTATION of "PUNCH" has been made by keen, clean humour, never coarse and never cruel. It is for this reason that "PUNCH" is acknowledged to be "The Foremost Humorous Journal of the World."

The Cream of English Humour is always to be found in "PUNCH."

¶ *Order it from your Newsagent to-day.*

21

CHESTER & ELAM

(Late with BLACKBURN & HOMER),

Rope, Line & Twine Manufacturers,

AND

Gardeners' Sundriesmen,

IMPORTERS OF

Paper, Raffia, Archangel, and St. Petersburg Mats, Tarpaulins, Sacks, Pea and Potato Bags made to order.

33, GREAT QUEEN ST., LONDON, W.C.

Special Quotations to Large Buyers.

THE GARDENERS' CHRONICLE

ESTABLISHED 1841

No. 3728

No. 1,328.—Vol. LI. {THIRD SERIES.} SATURDAY, JUNE 8, 1912 {Registered as a Newspaper. WITH SUPPLEMENT.} {PRICE 3d. POST-FREE, 3½d.

SUBSCRIPTION—Inland, 15/-; Foreign, 17/6 [22fr. 10c.] [$4 26c.] per annum. Entered at the New York Post Office as second-class matter.

Postal Address—41, Wellington Street, Covent Garden, W.C. Telegraphic Address—"Gardchron, London." Telephone—Gerrard, 1543.

☞ For CONTENTS see page 371.

In consequence of the increase in the circulation, and also of the earlier despatch of the morning trains from London, the hour of going to press has been again advanced, and in future Advertisements received after 5 p.m. on WEDNESDAY will be held over till the following week. On no consideration whatever will any exception be made to this rule.

WEBBS' CHOICE FLOWER SEEDS.—Latest Award: LARGE GOLD MEDAL at the Royal International Horticultural Exhibition for excellence of Flowers raised from Seed.

WEBBS' CHOICE FLOWER SEEDS.—Illustrated Price List of Flower Seeds for present sowing, sent gratis and post free on application.—WEBB & SONS, The King's Seedsmen, Wordsley, Stourbridge.

RIVERS' FRUIT-TREES, ROSES, VINES, FIGS, ORANGES, & ORCHARD-HOUSE TREES. A large and select stock always on view. Illustrated and descriptive Catalogue, post free, 3d.—THOMAS RIVERS AND SON, Sawbridgeworth, Herts. Station: Harlow, G.E.R.

Roses and Herbaceous Plants.

GUNN & SONS were awarded the 25 Guinea Challenge Cup in each collection at the Leamington Show. Up-to-date List for each now ready. Address: Olton, Warwickshire.

BUNYARD'S CATALOGUES, free on application.
BORDER CARNATIONS, 50 varieties.
ROSES AND OTHER CLIMBERS, in Pots.
HERBACEOUS AND AQUATIC PLANTS for present planting.

GEORGE BUNYARD & CO., LTD., Royal Nurseries, Maidstone. Established 1796.

FRUITING VINES IN POTS.—Muscat of Alexandria, and leading Market varieties. We make Vines a speciality.
G. COLEMAN, The Vineries, Burgess Hill, Sussex.

LAXTON'S STRAWBERRIES. — New Catalogue now ready, with particulars of three fine improvements for 1912, including the new "Queen," a gem of the first water, a glorified British Queen. Full particulars on application.
LAXTON BROTHERS, Bedford.

BARR'S SEEDS FOR JUNE SOWING.—Finest strains of Antirrhinums, Aquilegias, Campanulas, Canterbury Bells, Calceolarias, Cinerarias, Delphiniums, Hollyhocks, Lupins, Pansies, Primulas, Stocks, Wallflowers, etc. Special list on application.
BARR & SONS, 11, 12 & 13, King St., Covent Garden, London.

LISSADELL ALPINE & HERBACEOUS PLANTS.—Write for our new illustrated and enlarged List, containing many beautiful novelties at moderate prices. Also List of Seeds collected from above in 1911.
J. A. COOPER, Lissadell (No. 2), Sligo, Ireland.

HARRISON'S "RELIABLE" WEED KILLER.—Best and cheapest. See p. iv. this issue.

SUTTON'S PERFECTION PANSY.
Seed saved only from the finest flowers. Mr. J. BOTTING, Gardener to W. R. Snow, Esq., writes:—"Your Perfection Pansies made a grand show here, and have been much admired. The very large blooms and the wonderful shades of colour were much commented on."
Per packet, 2s. 6d. and 1s. 6d.

SUTTON'S GIANT DOUBLE DAISY.
White, Pink and mixed.
Each, per packet, 1s. 6d.

SUTTON & SONS, The King's Seedsmen, READING.

THE Popularity of "XL ALL" Specialities increases every year. All gardeners proclaim that nothing equals these celebrated preparations. "XL ALL" NICOTINE VAPORISING COMPOUND, the gardeners' favourite Fumigant, both Liquid and Cake. "XL ALL" NICOTINE INSECTICIDE WASH for Syringing, Dipping and Dressing Fruit Trees and Plants; Mealy Bug, Scale, etc., cannot exist where this is used. "XL ALL" INSECTICIDE WASH B (*sine* Nicotine), best non-poisonous Wash on the Market. No licence required to sell this. Other preparations of great renown are:—"XL ALL" WEED KILLER, "XL ALL" FERTILISER, "XL ALL" ROSE MANURE. Richards' GREEN SUNSHADE, finest powder shading on the market, 1s. packet, does 100 feet of glass. Don't forget to ask your Nurseryman or Seedsman for my small pink list.—G. H. RICHARDS, Manufacturer, 234, Borough High Street, London, S.E.

GISHURST COMPOUND is harmless in use; its soluble Sulphur, &c., has for 40 years cured Blights and Fungus on Plants, and is good for washing unhealthy dogs. Gishurstine keeps boots dry in all weathers; they will polish. Good for Harness.
Wholesale from—
PRICE'S PATENT CANDLE CO. LTD., London.

ALPINES & HERBACEOUS PLANTS, —Himalayan and other rare Rhododendrons, rare Shrubs, Construction of Rockeries. Catalogues ready.
G. REUTHE, Keston, Kent.

COOPS, COOPS, for the season. The Keeper's Coop. Best on the market, 5s. 6d. each; 60s. per dozen, carriage paid. Runs, 2s. 6d. each extra. Send for list, showing numerous other designs.
BOULTON & PAUL, Ltd., Rose Lane Works, Norwich.

CHOICEST WALLFLOWERS.—Dicksons selected Dark Blood Red, Dicksons Golden Beauty, Primrose Dame, Eastern Queen, Ruby Gem, Golden Monarch, Vulcan, and Harbinger—all distinct and beautiful varieties, per packet 6d. and 1s., post free.
DICKSONS, Royal Seed Warehouses, Chester.

GREENHOUSE PAINTING & GLAZING "Vitrolite" superior to White Lead Paint, 9/- per gall. "Plastine" supersedes Putty, 16/- per cwt. Full particulars from W. CARSON & SONS, Grove Works, Battersea. Agents throughout the country.

WALTERS & CO., Morland Rd., Croydon, Makers of Lath Roller Greenhouse Blinds; Pinoleums, Scrim, Tiffany; also Garden Trellis, Arches, Rose Trainers, of best designs. New Catalogue 1912, free.

GARDEN PESTS.—Cross's "Clubicide" is the Gardeners' Insurance against damage by Eelworm, Wireworm, Slugs, Maggot, and all Disease Germs and Insect Pests. Kills all harmful Bacteria, reinvigorates the soil, stimulates plant life. In 1s. flasks and ½-gall. and 1 gall. drums. From all Seedsmen.
Sole Manufrs.: A. CROSS & SONS, Ltd., Glasgow.

OSMUNDA for Orchids.—Consignments arrive fortnightly. 2s. 6d. per bushel; per bag, 8s. 6d.
SANDER & SONS, St. Albans.

For Advertisement Charges see page ix.

Now is the time to plant

KELWAY'S GAILLARDIAS, which are among the most brilliant and the most easily grown of the hardy herbaceous perennials; they give abundant bloom in the same year that they are planted, and blossom profusely from June to November. The flowers are on long stems, and last in water for a fortnight. Choice named collections, 12s. a dozen. From pots. Carriage and packing free for remittance with order.—KELWAY & SON, The Royal Horticulturists, Langport, Somerset.

Now is the time to plant

KELWAY'S NEWEST GLADIOLI. These new Gladioli are a revelation. They should be planted by all who want glowing effect of colour in their beds and borders, and flowers for the house in July, August and September. We recommend trial of a selection of our "Cream of the World" collection of named varieties, flowering bulbs, for instance, one dozen for 9s.; per 100, £3 10s. Other choice collections, 30s. and 45s. per 100. Full descriptive list on application. Carriage free for remittance with order.—KELWAY & SON, The Royal Horticulturists, Langport, Somerset.

KELWAY COLOUR BORDERS.—Now is the time to plan these for Autumn planting. Full particulars and estimates for Hardy Borders of any dimension, and to suit any taste, packed ready for planting on arrival, on application. Send information as to measurements, position and soil to KELWAY & SON, The Royal Horticulturists, Langport, Somerset. ——, Berwick House, near Shrewsbury. "The plants in both boxes arrived safely to-day. They are an excellent selection. I cannot speak too highly of the careful way in which they were labelled and packed."

IRON & WIRE FENCING for GARDENS, Tree Guards, Gates, Arches, Espaliers, Rose Stakes, and Ornamental Garden Iron and Wire Work of every description. Send for Illustrated Catalogue, free.
BOULTON & PAUL, Ltd., Manufacturers, Norwich.

WM. DUNCAN TUCKER & SONS, Ltd., 27, Cannon Street, London, E.C.; Works, Tottenham. Conservatories, Winter Gardens, Vineries, Peach-houses, Portable Buildings, etc. Catalogue gratis.

New Phloxes.

GUNN & SONS were Awarded a Silver Cup at the Great Show at Olympia. New Lists now ready. Address: Olton, Warwickshire.

SELECT YOUR ALPINES IN FLOWER. —A large collection, in pots, also Aquatics for present planting. Visitors cordially welcomed.—THE GUILDFORD HARDY PLANT NURSERY, Guildford.

AUTO SHREDS FUMIGANT kills Leaf-mining maggot, insects in greenhouses, frames. For 1,000 cubic feet, 6d.; 10,000, 3s. 6d. No apparatus.
WM. DARLINGTON & SONS, Patentees, Hackney, N.E.

CUTHBERT'S SPECIALITE MUSHROOM SPAWN.—NEW SPAWN NOW READY. We continue to receive the most gratifying testimonials as to the productiveness and good quality of our Spawn. Per bushel, 5s.—R. AND G. CUTHBERT, Seed and Bulb Merchants, Southgate, Middlesex.

NEW GERANIUM, Salmon Paul Crampel, 1s. 6d. each, 15s. per dozen; unrivalled for showy bedding.—KELLAWAY & CO., St. John's Nursery, Blackheath.

ASPARAGUS.—Now is the time to make an Asparagus bed; strong two year roots, 5s. per 100, packed and carriage paid.—BIRD & VALLANCE, Nurserymen, Downham, Norfolk.

SALES BY AUCTION.

Leytonstone.

Unreserved clearance Sale of the whole of the Bedding Plants, comprising Geraniums, Marguerites, Fuchsias, Petunias, Calceolarias, &c. Also Ferns in variety, Tomatos in pots and bedding plants in boxes. Seven Greenhouses, 1,500 ft. of hot-water piping, boilers, brickwork, lights, stabling, &c. Three tip-carts, 2 vans, and 2 sets of thill harness.

MESSRS. PROTHEROE & MORRIS will SELL the above by AUCTION, at 224, Hainault Road, on TUESDAY NEXT, June 11th, at 12 o'Clock, by order of Mr. F. Tyler. On view. Catalogues had on premises and of the Auctioneers, 67 and 68, Cheapside, E.C., and 827, High Road, Leytonstone.

Wednesday next, June 12th, at 2.30 o'Clock.

Liliums, Begonias, Gloxinias, Gladiolus, and other hardy bulbs and tubers.

At 3.30 o'Clock,

100 lots of Ornamental and Decorative Palms and Plants, Standard Bays, &c., from Belgium, Stove, Greenhouse and Bedding Plants, and six dwarf Japanese trees.

MESSRS. PROTHEROE & MORRIS will SELL the above by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C. On view morning of Sale and Catalogues had.

Friday next, June 14th, at 12.45 o'Clock.

A small importation of Cypripedium caudatum, Epidendrum cochleatum and others.

An importation of Brazilian Orchids, comprising 500 Oncidium varicosum Rogersii, 20 Cattleya Walkeriana, 30 Sophronitis violacea, &c.

75 imported Cattleya Dowiana.

A splendid importation of

820 PHALÆNOPSIS GRANDIFLORA AUREA

including many fine specimens.

200 Saccolabium Harrisonianum, 100 clumps of Dendrobium sanguinolentum.

200 lots of choice established Orchids in variety. Orchids in flower and bud.

MESSRS. PROTHEROE & MORRIS will SELL the above by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, E.C. On view morning of Sale and Catalogues had.

In the above Sale will be included an importation of DICKSONIA ANTARCTICA Tree Fern, stems from 6 ft. to 8 ft. in height, received direct, for sale without reserve.

Enfield Highway, Middlesex.

AT LOW RESERVES.

The compact FREEHOLD PROPERTY, DURANTS ARBOUR NURSERIES, with 42 greenhouses, about 5,200 feet run of glass, fitted with hot-water piping heated by 10 boilers. Engine, pumps, 2 aermotors, reservoir, stabling, 4-roomed bungalow. Part of land planted with fruit trees, 15 greenhouses planted with vines. Area about 8¼ acres. To be sold as a going concern with possession.

MESSRS. PROTHEROE & MORRIS will offer the above by AUCTION at the Mart, Tokenhouse Yard, London, E.C., on FRIDAY NEXT, 14th June, at two o'Clock. Particulars of H. B. Wedlake, Esq., Solicitor, London and South Western Bank Chambers, Finsbury Park, N., and of the Auctioneers, 67 and 68, Cheapside, E.C.

Walton-on-Thames.

By order of the Mortgagees.

Important to Market Gardeners, Nurserymen, and Florists. The valuable FREEHOLD NURSERY and MARKET GARDENS, The Nursery, Field Common, area 44 acres, 29 greenhouses with 3,100 ft. run of glass, 17,000 ft. of hot-water piping, 9 boilers, stabling, water tower, engine and pump. Possession upon completion.

MESSRS. PROTHEROE & MORRIS will OFFER the above by AUCTION at the Mart, Tokenhouse Yard, E.C., on FRIDAY NEXT, 14th June, at 2 o'Clock. Particulars of Messrs. Saxton & Morgan, Solicitors, 29, Somerset Street, W., and of the Auctioneers, 67 and 68, Cheapside, E.C.

Grantham.

(Near Station and centre of town).

Compact Freehold Property, Medora Nursery, Stamford Street. Five Glasshouses, useful buildings and 1¼ acres of good land. Possession at Michaelmas.

MESSRS. PROTHEROE & MORRIS will offer the above by AUCTION at the Guildhall, Grantham, on THURSDAY, June 20th, at 4 p.m Particulars of E. Patterson, Esq., Solicitor, Longton, and of the Auctioneers, 67 and 68, Cheapside, London, E.C.

Mickleover House, Mickleover.

(Three miles from Derby and two miles from Uttoxeter Road tram terminus.)

MESSRS. CUMBERLAND, BROWNSON & PAGE are favoured with instructions from H. Charrington, Esq. (who is leaving) to SELL by AUCTION, on the premises as above, on WEDNESDAY, June 12th, 1912, his well-known collection of 92 CHOICE FRUIT TREES in pots, comprising select sorts of Nectarines, Peaches, Plums, Cherries, and Figs.

The trees are all well grown, in a most healthy condition, laden with fruit, which will be maturing shortly after the day of Sale.

Sale at 3 p.m. prompt.

May be inspected on application to Mr. G. Bacon, on the premises.

Catalogues from the Auctioneers, The Wardwick, Derby and Ashbourne.

Bottesford, Leicestershire.

To Horticulturists, Nurserymen, Market Gardeners, &c.

TO BE SOLD BY AUCTION BY

WALKER, WALTON & HANSON,

at the Rutland Arms, Bottesford, on THURSDAY, the 13th day of June, 1912, at 5 o'Clock in the afternoon, precisely, subject to Conditions of Sale to be then produced, the following FREEHOLD PROPERTY, known as

THE NURSERIES, BOTTESFORD,

and comprising Detached Residence of 9 rooms, with good stable and usual out offices; 18 Greenhouses, namely, 6 span-roof houses, 148 ft. by 15 ft., 10 span-roof houses, 148 ft. by 10 ft., stocked with healthy cucumber and tomato plants, a lean-to forcing house, 89 ft. by 6 ft.; all the above being fitted with 4 in. hot-water pipes; a lean-to greenhouse, 215 ft. by 9 ft.; workshop and packing shed, 49 ft. by 14 ft.; 2 other sheds; large fenced-off kitchen garden; enclosed orchard; 2 small paddocks of rich pasture land, one of which, having a frontage to the Nottingham Road of 262 ft., is well adapted for building purposes. The whole property contains 6 acres or thereabouts, and is in a high state of cultivation throughout.

The above will first be offered in one lot, and if not sold, the property will be divided into two lots, viz., the Greenhouses and trade erections and the land they stand upon in one lot, and the Residence, with garden, orchard and paddock near the Nottingham Road in one lot.

The erections are all strongly built and in good condition, and a well-established business is now carried on by the owner. Vacant possession will be given on completion of the purchase. The property is situate in the Parish of Bottesford, and of easy access to London and the most important Provincial Markets in the country. For further particulars, apply to the owner and occupier, Mr. Thomas Page; the Auctioneers, Nottingham and Melton Mowbray; or to Henry Thompson & Sons, Solicitors, Grantham.

BUSINESSES FOR SALE, &c.

FOR SALE, Freehold, THE NURSERIES, Clacton-on-Sea, about 400 feet of glasshouses, heated and well stocked; fine dwelling-house in main road; best position in town; adjoining two new developing estates; 19 years same hands; price low; nearly three-fourths can remain.—SPENCER, Nurseryman, Clacton-on-Sea.

FREEHOLD NURSERY and FLORIST BUSINESS FOR SALE; ¾ acre, chiefly Glasshouses; well built and heated; town water; good opening for active man; immediate possession.—THOMAS, Avenue House, Crediton.

NEAR London, of easy access to markets.—TO BE SOLD, as a going concern, FREEHOLD MARKET NURSERY of about 3½ acres, partly covered with 3,450 feet-run of glass, all heated; modern residence on Nursery; fitted with up-to-date convenience.—Full further particulars on application to C. L., Box 2, 41, Wellington Street, Covent Garden, W.C.

HASTINGS.—Genuine, well-placed NURSERY BUSINESS, without premium, owing to ill-health; rent only £20; contents at value.—ADAMS, Auctioneer, 26, Havelock Road, Hastings.

COMPACT LEASEHOLD NURSERY; freehold house adjoining; established 23 years by present owner who is retiring; 350 feet run glass; shop; jobbing and retail trade.—SHEAHAN, Hartfield Road Nursery, Wimbledon.

EXCELLENT Jobbing Gardening Business, with Fruit, Plant, Cut Flower trade; North London; what offers?—Letters to W. W., Box 3, 41, Wellington Street, Covent Garden, W.C.

FOR SALE, compact FREEHOLD HOLDING of five acres; modern brick-slated seven-room residence; two-stall stabling, coach-house, loft, granary, poultry houses, covered runs, outbuildings, &c.; matured fruit trees, two acres market garden; 200 ft. h. and c. glasshouses, gravel subsoil, abundant water supply, south aspect, splendid position for bee-keeping, healthy neighbourhood, New Forest.—OWNER, Northfield, Poulner, Ringwood.

FOR SALE (Kenilworth),

FREEHOLD NURSERY,

very compact, consisting of about 1,000 ft. of glass, 12 ft. wide, in good condition, and two good Dwelling-houses, one of which has a conservatory fixed to gable end. 27 ft. by 14 ft.; the greenhouses are very suitable for Cucumber and Tomato growing.

For price and particulars apply,

W. JONES, 18, Binley Road, Coventry.

W. A. GARAWAY, Deceased.

FOR SALE,

the old-established BUSINESS of

JAMES GARAWAY & CO.

NURSERY 35 acres at Keynsham;

SEED, BULB & FLOWER BUSINESS at Clifton, Bristol.

Immediate possession at valuation.

Apply, F. J. TARR & SONS, Solicitors, Bristol; or JAMES GARAWAY & CO., Nurserymen, Bristol.

FOR SALE.—Seed, Bulb, Florist and Sundries Business, with small Nursery attached; four houses, well-heated, planted Cucumbers and Tomatos, and grown with Chrysanthemums; shop on main road, exceptionally well fitted and stocked, and large trade done, also good connection in contract and jobbing work; best suburb of Birmingham; price moderate; no agents.—S. B., Box 5, 41, Wellington Street, Covent Garden, W.C.

BUSINESSES TO LET.

TO BE LET or SOLD, small compact NURSERY at Cookham Rise, standing on ½ acre of ground, comprising six large glasshouses, frames, range of sheds, &c.; well stocked with Peaches, Grapes, Cucumbers, Tomatos, Plants, &c.; good market near for disposal of produce; can be seen at any time; fuller particulars on application.—Apply, W. SHERGOLD & SON, Cookham, Berks.

NOTICES.

THE RHODODENDRONS planted in Rotten Row, Hyde Park, are supplied by ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey. Kindly note Christian name and address.

PUBLISHERS' NOTICES.

Present-Day Gardening.

Edited by R. HOOPER PEARSON, Managing Editor of the GARDENERS' CHRONICLE. Now Ready. Post free, **1/9** each.

Numerous Beautifully Coloured Plates are contained in Each Volume.

1.—**SWEET PEAS.** By HORACE J. WRIGHT, late Secretary and Chairman of the National Sweet Pea Society. With Chapter on "Sweet Peas for Exhibition," by THOS. STEVENSON.

2.—**PANSIES, VIOLAS, AND VIOLETS.** By WILLIAM CUTHBERTSON, J.P., and R. HOOPER PEARSON.

3.—**DAFFODILS.** By the Rev. J. JACOB.

4.—**ORCHIDS.** By JAMES O'BRIEN, V.M.H., Secretary of the Orchid Committee of the Royal Horticultural Society.

5.—**ROOT & STEM VEGETABLES.** By ALEXANDER DEAN, V.M.H., Chairman of the National Vegetable Society.

6.—**CARNATIONS & PINKS.** By T. H. COOK, Head Gardener at Sandringham; JAMES DOUGLAS, V.M.H., and J. F. MCLEOD, Head Gardener to Mr. Pierpont Morgan. Contains 8 full-page coloured plates.

7.—**RHODODENDRONS & AZALEAS.** By W. WATSON, with preface by Sir F. W. MOORE, M.A. (the first popular volume published on this subject). Contains 8 full-page coloured plates.

8.—**LILIES.** By A. GROVE, F.L.S., with preface by H. J. ELWES, F.R.S. Contains 8 coloured plates.

9.—**APPLES & PEARS.** By GEORGE BUNYARD, V.M.H. Contains 8 coloured plates.

10.—**ROSES.** By H. R. DARLINGTON, with 8 full-page coloured plates. A double volume, price **2/10**, post free. Special presentation edition, with beautiful cover design, in cloth gilt, gilt top, price **3/10**, post free.

11.—**IRISES.** By W. R. DYKES, M.A., with preface by PROF. BAYLEY BALFOUR. 8 full-page coloured plates.

12.—**ANNUALS, HARDY AND HALF-HARDY.** By C. H. CURTIS, with 8 coloured plates. **1/9.**

THE PUBLISHER,

"Gardeners' Chronicle" Offices, 41, Wellington St., Covent Garden, London, W.C.

EXHIBITIONS.

The National Hardy Plant Society's FIRST SHOW

will be held in the R.H.S. HALL, VINCENT SQUARE,

On WEDNESDAY, JUNE 19th, 1 p.m. to 6 p.m.

ADMISSION ONE SHILLING.

Since publication of the Schedule two classes have been added, one for Six Bunches of Sutton's Pink Sweet William and one for Six Bunches Scarlet ditto.

Messrs. Sutton & Sons offer Prizes, 21/-, 10/- and 5/- in each class.

Entries close June 8th.

Schedule and Particulars from A. J. MACSELF, 52, Beechfield Road, Finsbury Park, N.

THE
Gardeners' Chronicle

No. 1,328.—SATURDAY, June 8, 1912.

CONTENTS.

Agriculture, new chair of... 378
Arsenic in plants ... 378
Australian botanic garden, proposed new ... 378
Bacterial flora of the soil, the... 378
Calceolarias, distinct species of shrubby ... 372
Canadian census ... 378
Corn crops, the 378
Cucumbers, carriage rates for 377
"Fairchild" lecture, the 378
Gardeners and the International Horticultural Exhibition 379
Horticultural education 376
Humus 373
Implements, garden, notes on the history of... 371
International Horticultural Exhibition ... 378
Nesting place, a curious 379
Obituary—
Ranger, Hugh ... 381
Shingler, William ... 381
Rhododendron show in Regent's Park ... 377
Saxifraga Probynii ... 379
Scotland, notes from ... 378
Societies—
Royal Horticultural... 379
Royal Meteorological 381
South Africa, notes from 372
Trees and shrubs—
Cornus florida var. rubra... 372
Week's work, the—
Flower garden, the ... 374
Fruits under glass ... 374
Hardy fruit garden, the 374
Kitchen garden, the... 375
Orchid houses, the ... 374
Plants under glass ... 375

ILLUSTRATIONS.

"Chase" continuous clôche, the ... ... Supp. xl
Flowering plants shown by Messrs. E. Webb & Sons ... ... Supp. xliii
Fruit grading and sorting machine ... ... Supp. xlii
Greenhouses and boilers, an exhibit of ... ... Supp. xl
Holland, view in the tent containing exhibits from Supp. xxxvii
Horticultural boxes shown by Messrs. C. H. Glover & Co. ... ... Supp. xlii
Lælio-Cattleya Lustre var. Lavingo... 373
Rhododendrons exhibited by Messrs. J. Waterer & Sons 377
Rock-garden, view of Messrs. Cutbush & Son's Supp. xxxix
Rose garden arranged by Mr. R. C. Notcutt Supp. xxxvi
Rose Mme. Edouard Herriot ... ... Supp. xxxv
Roses exhibited by Messrs. G. Mount & Sons Supp. xxxiv
Sweet Pea Dobbie's True Lavender ... Supp. xxxviii
Trained specimen plants shown by Messrs. J. Cypher & Co. ... ... Supp. xlviii
Tuber-bearing Solanums, Messrs. Sutton & Sons' exhibit of, in the Scientific Section ... ...Supp. xlvii
Vegetables shown by Messrs. J. Veitch & Sons Supp. xlvii
Well-head, an old Italian ... ... Supp. xli

NOTES ON THE HISTORY OF GARDEN IMPLEMENTS.

IT would be interesting to know what form the first implement for the cultivation of the soil may have taken—interesting, but probably quite impossible. It is permitted, however, to hazard an opinion; and it may be guessed that the unshod semi-barbarian would either employ a forked stick to tickle the virgin soil, or, when once the use of metals was discovered, loosen the earth to a greater depth by the use of a single-pronged mattock.

The spade, in its present form, with a clamp for foot pressure, would be useless until civilisation had advanced to the stage of the wearing of shoes; so that probably all the tools used for digging were sharp-pointed, in the nature of a fork. Even as late as the 17th century, a spade of triangular shape was used, as portrayed in *Husbandry Spiritualized*. In Lawson's *New Orchard*, of earlier date, a round-mouthed spade is shown.

All the ancient nations of the East possessed husbandry implements of an advanced kind, including pumping machinery for the raising of water with which to irrigate gardens. They had spades, forks, rakes, shears for the clipping of hedges and shrubs, hooks, and scythes; all these by no means inferior to those in use here, at any rate, up to a not-far-distant date. Fitzherbert (1534) tells his readers that forks were made of wood as well as of iron, and describes the right kind of branch for making them. Rakes were often toothed with willow wood. He also mentions knives used for various purposes, and scythes, staff-hooks, sickles, hooks, mallets, saws of different kinds, hatchets and billhooks. Tusser (1573) notes, among other tools, the trowel and the dibble. In an early engraving of garden tools, there is a composite tool of wonderful ingenuity, of which the head is a hammer, the shaft a file, and the end a gimlet! The knives of this period did not shut, but were made, like other small tools, with an eye for hanging on the workman's belt.

At one time knives were imported from Liège, and were known in the north as "joctelegs," or "joclegs."

An ancient forefather of the garden engine is shown in one of the gardens in the *Gardeners' Labyrinth*: a labourer is represented watering a flower-bed by means of this engine, which is merely a movable force pump. In another engraving, water is being drawn from a well by means of a pail. For watering small seeds, a primitive and yet highly scientific method was employed. An earthenware pot, with perforated bottom and a very narrow opening, was dipped into a cistern or pool; when full, the hole at the top was stopped with the thumb. This prevented the egress of the water until the spot was reached at which it was intended to be used, when, the thumb being withdrawn, the water descended like rain.

The training of fruit trees to walls and espaliers did not become customary until the reign of Elizabeth, and the first ligatures were made of the inner bark of Elm, or the small twigs of Willows, the material of which the espaliers was made being wood. Long before this period, however, a practical knowledge of outdoor gardening was quite common. The garden was, in the main, the care of the housewife; but we read of trenching and other operations, which show that the benefit of deep cultivation was well understood, and this work must have been performed by male labourers.

It is interesting to note, in connection with the subject of digging, that the old name for spade was "spitter," a word now obsolete. From this word we derive the expression "a spit of turf," the word used in Scotland being "spading."

Forcing used to be carried out in a very primitive manner. Melons were planted on hot-beds composed of manure or other suitable material, and were protected by coverings of glazed paper. The next step was the forcing of wall fruit and Grapes by banking the heated manure against the opposite side of the wall—wood was used, hence "pales," the better word—to that on which the trees were trained. Next we have the idea of a flue carried beneath the floor of a greenhouse (roofed with slate!); and Evelyn, who described the method with enthusiastic admiration, thought it so vast an improvement on the old open, charcoal fire that he took the trouble to have the whole system illustrated with engravings. A few years later, the flues which heated the vine walls at Belvoir were supplemented with glazed sashes placed against the walls. There we have at once the germ of the modern greenhouse, all later developments being merely improvements on the original idea. It was not long before Pineapples and tender exotics began to be cultivated, and the flues were arranged to meet the varying demands of horticulturists. The flue-heated structures were extremely satisfactory in many ways. The structures were adapted in 1788 (at first) to steam heating, but when, about 1827, hot-water heating became more usual, they served this purpose equally well, and even now one may find, here and there, a flue-heated hothouse.

The proper form of boiler has always been a serious question. The saddle was early introduced, then there was a conical form, so early as 1840, and the tubular, an improvement on the conical, introduced not long subsequently by Weeks, of Chelsea. More than 40 years ago the veteran, Henry Cannell, invented the sectional boiler, and the Trentham, so usual in large establishments, was an even earlier introduction. With our perfected screw-down valves, we can scarcely comprehend the difficulties the early heating engineers experienced. It was not unusual to have a boiler for each structure, and an early attempt at heating more than one consisted in leading the heated water to an elevated tank with metal plugs, which were withdrawn to allow the water to circulate through the apparatus in the various houses.

The main principles of circulation were soon discovered, though it was long before the arrangement of pipes was sufficiently simplified. It seems amazing now to think that, quite a short while ago (1829-30), the question was seriously discussed whether iron or earthenware is the better material for the conveyance of the hot water!

The advent of the lawn mower marks a definite stage of advance. Until about 1831, all grass had to be cut by means of a scythe, or some other hand-worked instrument; but at that time an adaptation of Budding's machine for removing the inequalities of cloth came into use. The principle of all lawn mowers is the same as that of the original one, but many improvements have been made in the carrying out of the idea.

Syringes and garden engines have been in use for very many years; but it was not until Reid invented the ball-valve that the type of syringe appeared which is now universally used. This method is adapted to garden engines of all kinds, and has been employed for nearly a century. Vermorel's "Eclair" sprayer is another great improvement, and so ingenious and satisfactory are now most of the sprayers in

use that it would seem almost impossible to make further advances in this direction.

Fumigating methods, again, have undergone tremendous changes during the present century. The old way was to sit by an iron fumigating pan, feeding the fire with strong-smelling tobacco paper, until the building was sufficiently disinfected. At the present day, it is only necessary to arrange the vaporising equipment, apply a lighted match to the fuse, and walk out, knowing that the deadly nicotine will do its work untended.

In the direction of pruning instruments, the advance made has not been quite so striking. A century ago there were secateurs, averruncators, tree-pruners, and flower and fruit gatherers, and these were quite as common as garden shears, forks, and spades. Of course, the secateurs and French branch-pruners of the present day are superior to the old type. In these, as in most implements, the advance has been in the direction of greater lightness, combined with equal or, perhaps, greater strength.

If we compare the clumsy methods the early transplanters employed, one of which was to prepare the tree to be lifted, and leaving it till a hard frost had rendered the ball of soil hard and unbreakable, with the systems which have been in use now for a number of years, the advance will be seen to be very great. The first great step in advance was that by which Sir Henry Stewart studded his park with large trees, the machine used being composed of two wheels and a long pole, what is now termed a janker. It is first illustrated and described in Menteath's *Planter's Guide* (1824). A little later, McNab, of Edinburgh, invented a system of raising the trees or shrubs. Then, about 50 years ago, Charles Kelly, in Cheshire, successfully, but at great expense, moved large trees up an inclined plane, and lowered them into position in the same way. I am not sure whether Baron or Kelly was the earlier, their systems being on similar lines.

Space does not permit of drawing attention to the numerous modern expedients for pot-washing, weed-killing, vermin extermination and other necessary operations. All these have been placed at the disposal of the gardener within a comparatively short period, and have wonderfully lightened his labour and shortened his hours. *B.*

TREES AND SHRUBS.

CORNUS FLORIDA VAR. RUBRA.

A FLOWERING branch of Cornus florida var. rubra has been sent us by Mr. Bence-Jones, of Lisselan, Clonakilty. Unfortunately, the plant which is considered to be one of the most decorative shrubs of the United States, rarely develops its full beauty in the British Isles. The principal attraction is not the flower, but the showy bracts which surround each flower head. In the variety rubra the bracts are red; those of the type, however, are white. It is probable that the profusion of flowers on the plant in question this year is due to the thorough ripening of the wood last summer.

SOUTH AFRICA.

MODE OF EXHIBITING FLOWERS.

I THINK that it is time that the horticultural societies, more especially the Royal Horticultural Society, set an example by doing away with the show board. The Carnation is crammed into a collar and dressed out of all recognition; the Cactus Dahlia is shown on a board wired or pegged down in the cup; it is a different bloom altogether when seen in its natural state. Another great point is that visitors to shows—and in most cases they are prospective buyers of anything that may take their fancy—are completely ignorant as regards the habit of the plant they intend to purchase. They see the flower on the show board and they get it, but after cultivation they fail to recognise the flower as anything like the one they saw at the show. Many of the blooms of Cactus Dahlias shown at the present time would be of no use if there were no show boards. Why? Because, in the garden, the blooms are stowed away amongst the foliage, and have no neck or stem. Such blooms can be placed on the show board and get the Society's gold medal, hence the deception. If each bloom was exhibited in a vase, with its foliage, it would be far more instructive to the public, and tend to make more people take an interest in horticulture.

The exhibitor can have his 24 Roses, Dahlias, or Carnations, each bloom to be shown in separate vases, with their foliage, not less than 12 inches of stem and not more than 24. Carnations should only be shown this way, or else, how is a prospective buyer of a special variety to know whether it has a long and stiff stem, and a calyx that does not split? I am quite prepared to hear that the extra cost will prevent any alteration being made, but I do not admit it. The trade, seeing the trend of events, would have, in a short time, some light vases, made of papier-maché or some other durable substance, placed on the market. The packing of the blooms is not much difficulty in a country of short distances and the best of railway facilities. In this country an exhibitor wanting to show in Cape Town would have 1,000 miles to travel with his blooms, and I have seen blooms packed in the Cape arrive very fresh in Johannesburg with only ordinary care. It is all very well for the societies to say that they have to cater for the professional man. Well, let them do so. If the professional man's ideas of beauty do not extend beyond the show board, by all means give him separate classes. The great majority of the public have broader ideas of beauty. So let us follow the old saying, "You cannot improve on Nature," only assist it, and try with all the means in our power to cultivate the beautiful and not the artificial.

In regard to new varieties, I think it is time the authorities, who have the welfare of the Dahlia, Carnation, Rose, and other flowers in their keeping, adopted the plan of the National Sweet Pea Society, and took all the new varieties and gave them a trial before granting certificates or medals. At the present time, a new Rose is announced; the nurseryman introducing it has spent money on artificial heat, feeding and nursing it. The result is a beautiful Rose; it gains the Society's gold medal; the nurseryman sells his stock at a high price, and the public buy it because it received the gold medal, with this result, in two years it may be consigned to the rubbish heap. Now, if the National Rose Society had taken that Rose tried it in ordinary conditions in their grounds for a year or two, it would never have been placed before the public, never have got a gold medal, and the public would have been growing something more useful, proved in the National Rose Society's trial grounds. The same applies in every particular to Carnations, Dahlias, and Chrysanthemums.

I trust that a more able pen than mine will bring these matters into prominence. *A. H. Gibbins, Superintendent of Parks, Germiston, Transvaal.*

DISTINCT SPECIES OF SHRUBBY CALCEOLARIAS.

THE garden varieties of Calceolarias are so numerous, and so generally employed for greenhouse and conservatory decoration, as well as for other purposes, that the merits of some of the original species are apt to be overlooked. Take, for instance, Calceolaria integrifolia, which in the favoured parts of this country forms a delightful out-door shrub, though according to Mr. Fitzherbert it was severely blackened during the cold snap experienced in February. Where the weather is too severe for it to be regarded from an outdoor standpoint, good-sized plants in large pots or tubs are extremely useful in the conservatory, or they may, during the summer, be stood out on balconies or terraces. Added to this C. integrifolia is also of service for the furnishing of flower-beds, more particularly where large plants are required. This species contrasts strongly with C. Burbidgei, which is so universally met with. It is decidedly strange that C. integrifolia, which is said to be quite an old plant in gardens, should have only been brought prominently forward within the last decade or two.

C. violacea, which forms such a delightful feature in the greenhouse during the spring months, is totally unlike the commonly-grown members of the genus. Its usual habit is that of a much-branched bush, whose slender shoots are clothed with coarsely-serrated, hairy leaves, while the flowers are more open than is usual in Calceolarias, being smaller, and in shape a good deal like a helmet. In colour they are a kind of violet-mauve, dotted inside with purple, while there is also a central yellow tinge. Commencing in the spring, it continues to flower for some time. A valuable winter-blooming species is C. deflexa, or C. fuchsiæfolia, as it is often called. The foliage of this is somewhat suggestive of a Fuchsia, and a succession of its golden blossoms is kept up from autumn till the spring. It is less robust in constitution than many other Calceolarias.

Another yellow-flowered species—C. amplexicaulis—is too well known and appreciated as a bedding plant to need anything said concerning its distinctive features. It is not liable to die off suddenly, as many bedding varieties are. The flowers of C. amplexicaulis are of a light yellow colour.

C. alba is quite unlike any of the others, as the flowers are white, while the excessively-narrow-toothed leaves form a further distinguishing feature. It is considerably less in stature than some of those named. According to the *Hortus Veitchii* this species was introduced by William Lobb, when collecting in Chili. He sent home seeds, and the plants obtained therefrom flowered for the first time in Messrs. Veitch's nursery at Exeter in 1844. After that it would appear to have been lost, or nearly so, till re-introduced by, I believe, the late Max Leichtlin, of Baden-Baden.

Of other species C. Pavonii is not regarded as of much importance from an ornamental standpoint, but it is particularly noteworthy as being one of the parents of C. Burbidgei, which is now so much grown, both as large plants for summer bedding and also for winter flowering. This was raised by the late F. W. Burbidge, of Trinity College Gardens, Dublin, and he regarded it as a hybrid between C. Pavonii and C. deflexa. The appearance of the plant would, however, lead one to suppose that the parents were Pavonii and ampiexicaulis, and this is the opinion held by the compilers of the Kew *Hand-List* of tender dicotyledons. *W. T.*

HUMUS.

Every gardener knows that humus is formed by the decay of animal and vegetable matter, the most familiar forms in which it is seen being the well-rotted heap of leaf-mould and the remains of the old hot-bed, which are such valuable ingredients of potting composts. The difficulty of humus, and these increase year by year until, in the course of time, there appears a thin layer of dark soil, and a layer of partially-ameliorated soil below that, resting upon the original light-coloured soil. The function of humus and the maintenance of an adequate supply of it are of such importance that it will be best to deal with the subject under three heads:

Fig. 180.—Lælio-Cattleya Lustre "Lavingo" in the Westonbirt Collection: petals and sepals deep rose-pink, lip marked with crimson.
(First-class Certificate. See p. xxi. Second Exhibition Supplement.)

ference between the top layer of black garden soil—1, 2, or 3 feet thick as the case may be—and the lighter-coloured subsoil is almost entirely due to the quantity of humus present in the former and its comparative absence from the latter. Anyone can observe this dark layer of soil in gradual process of formation during a number of years in the case of a heap of soil resulting from the sinking of a well or the making of a railway embankment or cutting. The gravel, clay, chalk, or whatever it may consist of, becomes covered with grass and weeds, the decaying residues of which cause the surface soil to become permeated with veins of dark mould. The latter is composed of minute particles of humus. It is the lightest constituent of the soil, a cubic foot of the pure, dry material weighing less than one-quarter of the same quantity of sand. It is spongy in texture, and is capable of absorbing two or three times its own weight of water, while sand can only hold about one-quarter of its weight of water, in consequence of which properties humus not only keeps heavy soil open, but enables light soils to hold more water. Thus it facilitates the access of air to the roots of plants in heavy soils, while the fermentation of the humus helps to warm the soil, in addition to which its darkening of the colour of soils enables them to absorb more of the sun's heat. This latter effect accounts for the fact that Corn sown in the early spring comes up more quickly on a dark soil—other things being equal—than on lighter soils. In addition to all this, a good proportion of humus in a clay soil, by facilitating the passage of water through it, lessens the amount evaporated from the surface, the latter being a process which, as everyone knows, absorbs a vast amount of heat, and thus keeps the soil cold. Another great quality of humus, perhaps the greatest, is that it serves as a store of plant-food in the soil, and this brings us to its

Chemical Activities.

Humus, like all organic matter, is gradually undergoing decay and being broken up into its original elements. Amongst the products of its decomposition are various organic acids, the presence of which in quantity restricts the further breaking up of its substance, and may stop it altogether, as in the case of peat. When we apply lime or chalk to a rich garden soil it neutralises these acids and accelerates the breaking down of the humus, thus setting free stores of plant-food. The stock of humus may in this way be rapidly diminished if it is not kept up by the application of animal manures or other organic substances. Farmers in the Fen country find that the application of lime or basic slag to the sour peats promotes such a rapid breaking down of the peat that its thickness above the underlying clay gets appreciably less in the course of a few years. As humus contains all the elements of plant-food, its decomposition sets them free for the use of plant life. Moreover, the acids produced attack the minute particles of soil and set free a further store of potash and phosphate. The operations above described, however, are not wholly chemical, but of a

Biological Nature,

the breaking down of the humus being itself brought about, as we have most of us learned in comparatively recent years, by myriads of soil organisms. We can only just touch upon this large subject here. Though some of these microbes can do their work without air, it is generally held that those which need oxygen for their vital processes are the most beneficial. Some break down organic matter into humus, others break up humus into ammonia, &c., while others convert ammonia by two stages into nitrates which serve for the direct feeding of plants. The important thing to remember is that the acids produced in the early stages of humus decomposition act as poisons and arrest the vital processes, both of the roots of plants and of the beneficent soil-bacteria. So one of the things we have to do is to keep the soil sweet by aeration and the supply of lime when it is deficient. It is only during the present generation that we have seen the full reason for the benefit of the tillage our ancestors have practised for ages.

Thus lime is removed in large quantities from a soil which is rich in humus, as anyone can test for himself by the hardness of the water draining from such a soil. The breaking down of the humus and the formation of nitrate go on very rapidly in hot weather, especially if the soil is damp; hence the luxuriant growth of weeds in late summer, when the soil is still warm from the accumulation of the summer's heat, and often damp. If there is no crop on the soil, much of the nitrates may be washed out before the spring comes, and it therefore behoves the gardener to have something growing on the soil during August and September to absorb the plant-food waiting for them, even if it is only Mustard, to be afterwards dug in to increase the store of humus and thereby supply the needs of the soil microbes. The amount of humus present in a soil is not only a measure of its fertility, but it is a great factor in retaining artificial manures in the soil. *Alger Petts.*

The Week's Work.

THE FLOWER GARDEN.

By J. G. WESTON, Gardener to Lady NORTHCOTE Eastwell Park, Kent.

BORDER CARNATIONS.—The dry weather has been very unfavourable for these plants. The Dutch hoe should be used constantly to stir the soil, and, after affording the plants a thorough watering, mulch with manure from an old Mushroom bed to assist in conserving the moisture in the soil. As the flower-spikes elongate they should be staked and tied neatly, taking care to select stakes of a length to suit the different varieties. If extra good flowers are required, the spikes should be disbudded early, although for general purposes disbudding is unnecessary.

PERPETUAL-FLOWERING CARNATIONS.—Experience has proved that this type of Carnation is suitable for flowering out-of-doors in summer. Given a suitable position they will grow healthy and vigorous, commencing to bloom very early in the season and continuing until destroyed by frost. The quantity of bloom produced by these Carnations is far greater than from border Carnations, and the plants are rarely without flowers. In gardens where they have not been tried for summer flowering out-of-doors a trial should be made with old plants; if treated properly they may be relied upon to give good results. Loop the growths occasionally to a centre stick, but do not tie them tightly. Wire supports are to be recommended, as they save much labour and answer their purpose well. Hoe the ground between the plants and apply a mulch as recommended for the border varieties. Give the roots a good watering occasionally.

BIENNIALS AND PERENNIALS.—The present is a suitable time for sowing many biennials and perennials. Well-cultivated ground, which has not been manured recently, should be selected for the seed-bed. If the ground is dry, it should be watered thoroughly overnight, and will then be in a capital condition next morning for sowing the seed. Fork the soil lightly, afterwards raking it to a fine tilth. Draw the drills at a distance of 1 foot apart and about 1 inch deep. After the seed is covered with fine soil, the ground should be rolled lightly with a wooden roller or made firm with the back of a spade. By these means the soil is pressed around the seeds, which, in consequence, germinate better. Aubrietias, Daisies, Œnothera Lamarckiana, Œ. taraxacifolia alba, Myosotis, Canterbury Bells, and Silene orientalis may all be sown now. Choice strains of Pansies and Aquilegias should be sown in boxes and placed in cold frames, where they may receive a little extra care and attention until they are large enough for transplanting.

WALLFLOWERS.—Where spring bedding is carried out extensively, Wallflowers should be sown in quantity. The variety Fire King has flowers of a vivid orange colour and shows up well in contrast with its own foliage, while Cloth of Gold, Improved Belvoir Castle, Phœnix, and Blood Red are standard varieties, suitable for massing in large beds or borders. The dwarf strains are also valuable for edging beds filled with the taller varieties.

POLYANTHUSES AND PRIMROSES.—If seeds have not been sown already, they should be inserted now, in order to have strong plants by the autumn. The blue Primrose is very popular; young stock should be raised annually, as the colour deteriorates in old plants, usually becoming a dull and unattractive purple shade. The Munstead strain of Polyanthus includes a magnificent range of colour, the flowers being of large size and developed on long stalks.

DIANTHUS BARBATUS.—Sweet Williams may now be had in distinct colours, and are most attractive when planted in masses in large beds or borders. Pink Beauty, Scarlet Beauty, Giant White, and Rich Crimson are superior forms of this popular flower, whilst a packet of mixed seed will give plants of a remarkable variety of shades, ranging from white to dark crimson.

FRUITS UNDER GLASS.

By E. HARRISS, Fruit Foreman, The Royal Gardens, Windsor.

EARLY "MUSCAT" VINES.—To assist the berries to ripen and colour perfectly, the foliage should be drawn aside in order that plenty of light may reach the bunches. All laterals should be removed as they appear unless they are required for filling bare spaces. If the borders are well drained, the roots will require to be watered liberally, and if it has not been done already, a surface mulch should be applied. In most districts the foliage of Muscat of Alexandria vines is very subject to scorching; this may be avoided by covering the glass with a light shading. A double thickness of fish netting or a little weak lime-wash syringed over the glass will answer the purpose.

EARLY PEACHES.—As soon as all the fruits have been gathered, no time should be lost before washing the trees by means of the hose or garden engine. If red spider or thrip is present on the foliage, the leaves should be drenched several times with a strong solution of soft soap and sulphur at intervals of two or three days. It is important to clear the trees of these pests in order to keep the foliage in a healthy condition for as long a period as possible. The roots should receive a thorough watering, and the foliage should be sprayed each afternoon. The young growths may be loosened from the trellis, that they may be exposed as much as possible to light and air. Remove all surplus growth, being careful, when doing this work, to leave sufficient young wood to replace worn-out branches.

MID-SEASON PEACH TREES.—Trees with fruits nearing the ripening stage should be afforded a thorough watering, so that no more moisture will be required till the fruits are all gathered. All the fruits should, if possible, be placed on the upper side of the trees, where they will obtain the maximum amount of sunlight and air. Certain varieties need a slight protection from bright sunshine when the fruits are ripening, to prevent scalding. During the ripening stage the house should be kept dry, and plenty of air admitted through both the top and bottom ventilators.

LATE TREES.—The weather for the past few weeks has been unusually warm and sunny. This has caused all fruit crops under glass to be a week or ten days earlier than usual. To retard the ripening of late Peaches under these conditions, it will be necessary to admit an abundance of air to the houses both day and night. Thoroughly drench the trees with rain-water in the mornings and afternoons, and endeavour to keep the atmosphere cool and moist by damping the walls and paths frequently. Old-established trees carrying heavy crops of fruit should be afforded plenty of stimulants, and the borders mulched with rich, well-decomposed farmyard manure. It will be safe now to finally thin the fruits. Young trees which are inclined to make gross wood may be allowed to carry a heavier crop than the others, as the energies of the tree will be diverted to the fruits. Old-established trees will ripen one fruit to each square foot of space, provided they are properly attended to in the matters of watering and feeding.

THE HARDY FRUIT GARDEN.

By F. JORDAN, Gardener to Lady NUNBURNHOLME, Warter Priory, Yorkshire.

PEACH BLISTER.—This disease usually appears at this season, and is commonly supposed to be brought about by cold north-east winds and sudden changes in the temperature. It is much more prevalent in some seasons than others. Diseased leaves should be removed as soon as they appear, or, better still, where practicable, the entire shoots should be burned. Many remedies are recommended; those who have not tried Medela should do so, but more especially should it be used when the trees are dormant.

MILDEW.—This disease spreads quickly from the leaves to the fruits and must be checked as soon as it is detected. Sudden changes in the temperature, an excessively dry or too moist atmosphere, also dryness at the roots, are among the chief causes of its appearance. Dusting the affected leaves with sulphur, or syringing them with liver of sulphur, will soon check this fungus if the application is made early.

WATERING.—Very little rain has fallen in these gardens since March. All trees, and especially those on walls, or newly planted, are experiencing ill effects from drought. Special attention has been necessary in order to save the trees from permanent damage, and only those that have been well supplied with water and mulched have made much progress in growth. Diluted liquid manure should be applied when procurable to all trees that require extra food, but on no account must it be applied to trees that are very dry; a good soaking of water should be afforded first, and the liquid stimulant applied afterwards.

THINNING FRUITS.—This operation must be given constant attention. Apricots should be thinned finally, and the trees examined frequently for maggots and any other insects, such as woodlice, taking measures to trap and destroy the pests before the fruits get any larger. Thin the fruits of Pears and dessert Plums on walls where they have set thickly, but leave plenty of fruits to permit of a final thinning later, especially in the case of Pear trees where the Pear midge is in evidence. Early varieties of Apples, such as Lady Sudeley and Beauty of Bath, should, if the trees have set a too heavy crop, have their fruits thinned. Early thinning of the fruits assists the trees and increases the size of the fruits that form the crop.

GOOSEBERRIES.—Caterpillars have appeared on Gooseberry bushes, in spite of every precaution. Many specifics have been recommended for destroying this destructive pest, chief among them being poisonous substances, including Hellebore powder. There are now many excellent summer fruit-tree washes of a non-poisonous nature which are safe to use and equally effective.

GENERAL HINTS.—Keep the hoe at work freely to keep the surface of the ground free from weeds and well stirred. There will now be no further use for protecting materials such as scrim and Frigi Domo; these should therefore be dried thoroughly, tied up carefully, and stored for another season. Before this is done, repairs should be made if the materials are torn. Nets will be still required for protecting Sweet Cherries and other fruits from birds.

THE ORCHID HOUSES.

By J. COLLIER, Gardener to Sir JEREMIAH COLMAN, Bart. Gatton Park, Surrey.

DENDROBIUM.—Plants of the evergreen section of Dendrobium, such as D. thysiflorum, D. chrysotoxum, D. Bronckhartii, D. densiflorum and D. Farmeri, should, for a short period after they have passed out of flower, be kept cool and the roots maintained on the dry side. The necessary repotting or resurfacing should be attended to as soon as fresh roots develop from the base of the young growths. The plants should not be subjected to root disturbance until it is found to be really necessary, as they flower much more freely when pot-bound than when afforded a liberal rooting space. Plants that show signs of deterioration should be removed from their receptacles, and have all the old compost shaken from their roots, repotting them in a medium composed of A1 fibre and Sphagnum-moss in equal parts, adding a suitable quantity of crushed crocks and coarse silver sand. The pots should be filled two-thirds of their depth with clean crocks for drainage purposes, and the compost should be put in firmly. After potting, the plants should be placed in the ordinary plant stove or Dendrobium house, where they may remain during the summer months. They should be watered carefully until the roots are growing freely in the new compost, at which stage they may be afforded a more liberal supply of moisture. When the season's growth is completed, water should be withheld gradually, and the plants rested during the winter months in a warm greenhouse or a house of a similar temperature. Young shoots of Dendrobiums of the deciduous and semi-deciduous sections are rooting freely and developing new roots quickly. The plants should be more liberally supplied with water at the roots, and supports should be afforded the young growths by looping them to the older pseudo-bulbs or to neat sticks, not allowing them to bend over the sides of the pots, as they might become permanently injured. If any of the plants have filled their receptacles with roots, the present is a suitable

time to shift them into larger pots. They should be taken out without unduly disturbing the ball, placed in larger pots, and the space around should be filled with the compost mentioned above.

ODONTOGLOSSUM CITROSMUM. — Plants of this species should, as they pass out of flower, receive attention at the roots. If the compost they are growing in is found to be in a good condition, and there is sufficient room in the pot for the present season's growth, a little of the old potting materials should be removed from the surface by means of a pointed stick and replaced by fresh compost. Plants growing in exhausted soil should be taken out of their pots and repotted. Use a compost consisting of equal parts of Osmunda fibre and A1 fibre chopped up rather short, with chopped Sphagnum-moss, a little silver sand and some crushed crocks added. The flowers of this species are borne on pendulous spikes, and for this reason the plants are best grown in shallow pans suspended from the roof rafters of the intermediate house. The pan should be filled to one-third its depth with clean crocks for drainage purposes, placing a few pieces of Fern rhizomes on the top. The plants should be potted rather firmly. Water should be applied very sparingly until the new roots have grown well in the new compost, but the surface of the soil should be kept moist by overhead sprayings.

MILTONIA.—Plants of Miltonia vexillaria and its varieties should, as they pass out of flower, be allowed a short period of rest. The cool Odontoglossum house well suit their requirements until the commencement of the autumn. Miltonias such as M. Bleuana, M. Endresii, M. vexillaria Leopoldii, and others should, as they commence to form their new growths, be repotted if it is found necessary. These are surface-rooting plants, and should be afforded liberal pot room. A mixture of two parts A1 fibre, one part chopped Sphagnum-moss, and one part half-decayed Oak leaves, with the addition of silver sand and crushed crocks, suits them admirably.

PLANTS UNDER GLASS.

By THOMAS STEVENSON, Gardener to E. MOCATTA, Esq., Woburn Place, Addlestone, Surrey.

WINTER-FLOWERING BEGONIAS.—Cuttings of winter-flowering Begonias may be inserted as they become large enough, and these are often found to be more free in growth than the earlier rooted ones. Plants raised at this date will prove very useful for growing in small pots, and the present is also a good time for propagating the variety Gloire de Sceaux. The earlier cuttings should now be ready for potting in small 60's, using a very light compost. They should be grown in a house or pit where a moderate temperature is maintained, and where the young plants may receive plenty of shade. Yellow thrip is sometimes troublesome on the newer, large winter-flowering varieties, therefore, in addition to syringing the plants freely with clean water spray them occasionally with an insecticide, or, if more convenient, the house should be lightly fumigated occasionally. Spring-struck cuttings of foliage Begonias, such as B. Haageana, B. metallica, and B. John Heal, should be encouraged to make growth by repotting them as often as the roots require increased room. As the weather becomes warmer, it is not necessary to keep these subjects in the stove; a semi-shady position in the intermediate house is suitable, provided the plants are not moved into it too soon after they are potted. They should not be afforded too much fresh air at the start.

TORENIA FOURNIERI GRANDIFLORA. — This somewhat old-fashioned decorative plant is very useful during August and September in the conservatory. If seed was sown as advised during March, the young plants should be in a suitable condition for transferring into 48 pots. The soil recommended for Gloxinias and Streptocarpus will suit these plants, and their subsequent treatment may be similar to that given to the latter plants. If bushy plants are required it may be advisable to stop the shoots once or twice during the growing season; in this way a much larger and more effective mass of flower is obtained.

GARDENIA.—In many instances plants of Gardenia are passing out of flower, and a certain number of those in pots may be repotted. Those that have flowered for the first time in 8½-inch (24's) pots may be shifted into 11½-inch pots (12's), and will provide good specimens for next season. Cuttings that were rooted a month or two ago should be repotted, as they require increased root room. Rich loam and peat pulled apart roughly will provide a suitable compost. They should be grown in a very warm house, syringing them freely to keep down insect pests. Plants that have been planted out in pits or beds indoors should receive attention. In many instances these plants will be the better for a fairly hard pruning, to ensure a free growth, as young shoots will produce better flowers than stunted growth. After this pruning, the plants should receive a thorough cleansing, especially if they are infested with mealy bug; if the foliage and shoots are periodically sprayed with a fairly strong paraffin emulsion, this pest may be entirely eradicated. The surface soil should be removed, and a light top-dressing afforded, adding a little Clay's fertiliser if a stimulant is required.

RHODODENDRON (AZALEA) INDICUM.—These plants having finished flowering, no time should be lost before overhauling them thoroughly, repotting where this is necessary. The old flower-stems should be removed, taking care not to damage the young shoots, which are growing freely. Repotting should not be undertaken unless it is absolutely necessary, as Azaleas are slow-growing subjects and must not be placed in too large pots. Generally, a top-dressing will suffice, but if a larger pot is necessary, one that provides an extra half-inch space around the old ball should be sufficient, and will suffice for the next two or three years, provided the plants are attended to carefully in regard to watering. Good sandy peat, mixed with a little loam, should be employed as a rooting medium, and the compost should be made very firm in the pots with a rammer. After the potting is finished, return the plants to the house or frame, and afford them a little shade during the hottest part of the day, keeping them well damped or syringed, in order to keep down insect pests.

CANNA.—These plants are growing very freely, and many of the earlier batch are sending up their flower-spikes. Water should be afforded freely during hot weather, and, if the plants are growing in small pots, they will require plenty of liquid and artificial manures. Should the house in which the plants are grown be rather dry, a sharp watch should be kept for red spider, which is sometimes very troublesome to Cannas, causing the foliage to appear sickly.

ANNUALS.—In gardens where flowering plants are likely to be scarce during the next month or two, it is a good plan to lift a batch of annuals from the beds where they have been pricked out and pot them direct into their flowering pots. It is astonishing what good results are obtained with many summer-flowering annuals when treated in this manner: all they require is the shelter of a cold frame from the time they are potted until they flower. Ten-week Stocks, Chinese Asters, Larkspurs, Coreopsis, Statices, Lupins, Godetias, Petunias, Salpiglossis, annual Chrysanthemums and Antirrhinums may all be grown in pots. If afforded a little shade for a few days after they are potted, they will soon recover from the check caused by shifting them. The lights should be placed on the frames during the hottest part of the day, so as to provide a little shade.

THE KITCHEN GARDEN.

By EDWIN BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

CELERY. — Continue to plant Celery during showery weather, if possible. If these conditions are not available, lift only a few plants as required, and give them a good soaking with water immediately after they are planted. Damp the foliage each evening, and sprinkle it frequently with fresh soot, which is an excellent preventive of the Celery fly.

CAULIFLOWERS. — The earliest Cauliflowers planted out-of-doors will need soakings of water and liquid manure. Place a mulch of rotten manure round the base of each plant, and, as the heads commence to swell, either break down a leaf or two over them, or tie up the leaves much in the same manner as Cos Lettuces are treated. Continue to set out plants of later sowings, and, where clubbing is prevalent, fill in the holes with fine cinder ashes. Where continuous supplies are required, make small sowings frequently to provide for successional plantings.

PARSLEY.—Encourage a free growth in the plants by loosening the surface soil frequently. Occasional dustings with soot not only stimulate the growth, but also prevent slugs eating the plants, and impart that dark green colour which is so much admired in this herb. Another sowing of Parsley should be made this month in the open ground. For winter supplies, it will suffice to make a sowing in a couple of months' time. The flower-spikes should be picked out as they form at all seasons, whilst the leaves should be gathered regularly and at intervals.

POTATOS.—The soil between the rows of the main crop of Potatos should be kept well hoed before the earth is drawn up; if the growths are too numerous, the weaker ones should be removed. Dust the plants with soot during showery weather, and, when sufficient growth is made, support the stems by drawing the soil up to them with the draw hoe. Early Potatos growing in cold frames may, if not wanted immediately, be lifted and stored in a cool place in soil; this will permit of the frames being utilised for other purposes, prevents the tubers growing too large, and, to a certain extent, preserves their newness.

CUCUMBERS.—The plants must receive constant attention, otherwise the crop will suffer. Red spider, which is a troublesome pest at all times, is especially in evidence at this stage; vigorous syringings, accompanied by frequent damping of the beds and bare spaces, will do much to check its spread. Dryness at the roots is one of the chief causes of red spider appearing; therefore, guard against this by affording liberal supplies of moisture and occasional applications of manure. If the growth shows signs of attack from red spider, syringe the plants in the evening. Cut the fruits as soon as they are a suitable size, and, if not required immediately, stand the stalk end in water. Regulate the growths at least once weekly, removing all useless shoots. Continue to top-dress the plants with suitable matrial as often as is necessary. If seed is to be saved from any particular variety, the present is the best time to pollinate the flowers, marking them for purposes of identification. Plants growing in pits and frames will need the growths regulated and pegged down. Syringe the foliage each afternoon and close the frame early or late in the day according to the weather. When the fruits commence to form, top-dressings should be afforded and stimulants when watering, exactly as recommended for the plants in houses.

ENDIVE.—Towards the middle of the present month make a sowing of Endive for autumn supplies. Sow thinly in shallow drills, and, for preference, on a shady border. A row of this vegetable may often be accommodated quite close to pyramidal Apples or other small fruit trees in well-worked ground. Thin the plants as soon as they have attained a sufficient size.

MUSHROOMS. — In a cool shed continue to make and spawn fresh beds as the material becomes available. The rudest shed that is light, waterproof, and in a north aspect will produce the best results. It is necessary to have the structure as cool as possible, for which reason double walls of wood, lined with straw, are best, and an earth path will keep the internal conditions suitable. Damp the walls and paths twice daily, and any beds that are dry should be watered copiously; beds that have been in bearing for some time may be watered with liquid manure with advantage. Any mulch applied to the beds after spawning should be removed as soon as the fungus commences to grow. Guard against slugs, cockroaches, and crickets, all of which injure the Mushrooms. When ready for gathering, do not cut the Mushrooms, but sever them by twisting.

RUNNER BEANS.—Another sowing of Runner Beans may be made. The earliest-sown plants in pots or planted out will be benefited by dampings on warm evenings; during showery weather apply a dusting of soot. Watering is accomplished most easily when the seeds are sown in trenches. Place a mulch of strawy litter between the rows.

GENERAL REMARKS.—Continue, as becomes necessary, to thin the various crops, and keep the Dutch hoe frequently employed between the rows. Water newly-planted vegetables well, and leave a depression in the soil about the roots for that purpose. Sow Spinach and Turnips for succession, and mulch all crops where possible.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, JUNE 10—
United Hort. Benefit and Prov. Soc. Com. meet.

WEDNESDAY, JUNE 12—
Royal Cornwall Sh. at Penzance (2 days).

FRIDAY, JUNE 14—Richmond Horse Sh. (2 days).

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—58·2°.

ACTUAL TEMPERATURES:—

LONDON.—*Wednesday, June 5* (6 P.M.): Max. 64° · Min. 46°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—*Thursday, June 6* (10 A.M.): Bar. 29·6°; Temp. 67°; *Weather*—Sunshine.

PROVINCES.—*Wednesday, June 5:* Max. 62° Cambridge; Min. 50° Aberdeen.

SALES FOR THE ENSUING WEEK.

TUESDAY—
Clearance Sale of the whole of the Bedding Plants and Ferns, Greenhouses, Piping, &c., Carts and Vans, at 224, Hainault Road, Leytonstone, by Protheroe and Morris, at 12.

WEDNESDAY—
Hardy Bulbs and Tubers at 2.30; Palms and Plants, Ferns, &c., at 2.30; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

FRIDAY—
Importations of Orchids in variety, also Established Orchids, Tree Ferns, &c., at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.45.

Freehold Property, Durant's Arbour Nurseries, Enfield Highway, with 42 greenhouses, 5,200 feet glass, 10 boilers, &c., 8¼ acres, at Protheroe & Morris, at 2.

Freehold Nursery and Market Gardens, Walton-on-Thames, area 44 acres, 29 Greenhouses, 3,100 feet glass, 17,000 feet Piping, 9 boilers, &c., by Protheroe & Morris, at the Mart, London, E.C., at 2.

Horticultural Education.

It is recognised on all hands that the time is opportune for the organisation of horticultural education. Such organisation, if it is to be productive of good effects, must be planned on broad but not on rigid lines. It must have regard to the large bulk of excellent work which is being done, at the present time, in private gardens, by county councils, by our colleges, and by Imperial institutions such as Kew. Further, it must utilise to the full the institutions which gardeners themselves have established in every part of the country for the purposes of mutual improvement. Above all, the gardeners, county council lecturers, park superintendents—in short the whole body of practical horticulturists—must themselves play a large part in this organisation. If the last proposition be admitted—and it is difficult to believe that it will be denied, at all events overtly—then it follows that one of the first essential steps toward the organisation of horticultural education is the formation of a National Institute of Gardeners. The present chaos resulting from the separate and multitudinous expressions of opinion on the problems of education would be replaced, with the advent of such an institute, by relative order. The members of that institute would confer both with one another and with others, and would arrive at definite and invaluable conclusions as to what they believe is wanted in order to advance the status of gardeners and the science of horticulture. That alone would mark a great step forward. But it has to be remembered that horticultural education has many aspects and involves many different things. First of these things is the training of gardeners, under which head have to be considered not only the method whereby gardeners of all kinds and grades shall gain their indispensable and fundamental practical skill, not only the mode by which they shall have ready access to scientific knowledge; but also the ways in which the most capable men may widen their experience and fulfil their capacities so that they may become the leaders and teachers of their fellow horticulturists. To this end the existing rungs of the ladder of horticultural education must be put each in its proper place and higher rungs must be added. Assuming, however, that this not inconsiderable work be accomplished much more remains to do. The present position of horticultural instructors attached to county councils and other public bodies is by no means satisfactory. Their scope is limited and their careers are circumscribed. The abler among them must often long for wider opportunities and greater freedom. If this branch of horticultural education were strengthened, if, to give but one example, means were provided for instructors to receive training in the art of teaching and demonstrating, the county and other secretaries under whom they work would recognise in time that amateur assistance and advice and control are unnecessary and the men would have that larger opportunity and better position, without which no capable man can do himself justice. Nor in this connection may the colleges which give instruction in horticulture be omitted from review. If we are to have collegiate institutions of university rank concerning themselves with horticultural education, then those institutions must specialise. For it is apparent to everybody that unless such institutions can maintain large staffs of experts in all the branches of horticulture, they cannot aspire to teach by example as well as precept the highest craft of gardening. If, on the other hand, each collegiate institution undertakes to specialise in some department of horticulture there is no reason why the several institutions should not provide shining examples of perfect art and practice—allure to brighter worlds and lead the way. There is ample room for such specialisation. For example, landscape gardening, of which no school exists in this country, could be done better nowhere than in one of the colleges; nor could more suitable institutes be found for the purpose of giving instruction in the art of teaching, demonstrating, and carrying out trials of an experimental kind. Similarly there must be considered in any scheme of organisation the problems attaching to research. These again are not simple, but complex. Some there be who would maintain that research, like charity, covers a multitude of sins; but such critics have the worst faults of their tribe—those of impatience and ungenerosity. Certain is it, nevertheless, that research covers several different and progressively graded operations, extending from the discovery of new principles to the demonstration of good practice. There would appear to be no reason whatever why a start in the organisation of research should not be made in England. Here, in London and the immediate neighbourhood, we have Kew, the John Innes Institute, the Imperial College of Science, the University of London, and, above all, the Royal Horticultural Society. The last-named institution has shown itself acutely alive to the need for furthering horticultural education, and can, we know, be relied upon to take as heretofore a leading part in this work. If the various bodies just enumerated were brought together in conference, there is little doubt but that means for higher education in horticulture would be devised; but it is useless for such a conference to be held unless some, at all events, of the conferring individuals are clear about what they want. Thus we are brought to the chief consideration of all, the part which the horticultural branch of the Board of Agriculture must play in this work.

The announcement of the formation of such a branch means undoubtedly that the Board intends to place at the head of the horticultural branch a thoroughly competent and experienced man. The head and his staff must between them not only be in touch with horticulturists and horticultural problems, but also be in a position to take a leading part in developing horticultural education in all its varied aspects. The branch will need to have clear understanding and co-operation with the Board of Education with respect to the elementary part of horticultural education. It must also play a leading part in maturing the proposals put before it by the National Institute of Gardeners, the existence of which we regard as vital. It should also take the lead in convening the conference on higher education and research and the drafting of the programme for that conference should be one of its first duties. Nor would its work cease here, for there are other pressing subjects for the consideration of the Horticultural Branch of the Board of Agriculture. We cannot afford to lag behind other countries with respect to phytopathological research, and though it is not the function of a Department of State to undertake research, it is its function to provide adequately for such research, and not for research only, but also for the safeguarding of the legitimate interests of traders. Therefore to build up an efficient Phytopathological Institute with branches all over the country is another of the functions which it must fulfil in the near future. It is impossible within the limits of what must, by the nature of the case, be a mere sketch, to deal with all of the immediate educational needs. Nor is it our purpose to prescribe schemes; but rather to indicate how ripe is the time for considered, concerted, and resolute action. In that action the institutions we have mentioned, and doubtless also others, must play an important part; but the mainspring of action must be found in the horticultural branch of the Board of Agriculture. Given a wise and strong lead by the Board, it will be found that there are plenty of helpers willing and eager to co-operate in the ambitious, yet perfectly feasible, aim of making this country as supreme in all branches of horticulture as it is in the art of gardening.

A RHODODENDRON SHOW.—The annual exhibition of hardy Rhododendrons which Messrs. J. WATERER & SONS, the American Nurseries, Bagshot, hold in the dell of the Botanic Gardens, Regent's Park, was opened on May 31, and will remain open for three weeks. Rhododendrons, in common with all hardy flowers, have hastened into bloom this season, and the greatest difficulty has been experienced in retarding the larger plants until this date. As a rule the public is not admitted to inspect the display until most of the plants are fully out, but there is an advantage in seeing the flowers a little earlier, which never obtains at the ordinary shows, because of the beautiful gradations of colour found in the same truss of bloom, from the richness of the bud to the softness of the expanded flower. This variety of colour is a feature of many of the best sorts, and is especially noticeable in Pink Pearl, George Hardy, and other pale, flesh-coloured varieties. At the same time, it is important to remember that colour is not by any means the only consideration in choosing Rhododendrons for the garden, where, for 11 months of the year, they must rely for effect on their evergreen foliage and give pleasure only according as this is bold, of good colour, and well placed. Some of the popular varieties need discarding; they have unusually brilliant flowers, but they branch so erratically and show so much unfurnished wood that they are never satisfactory. Princess of Wales is a good example of this, which is shown. The old-fashioned types are often very satisfying in this respect, presenting dense, compact, bushy specimens, but the point is not overlooked by the breeder, and some of the new sorts are also excellent. In selecting varieties for standards, this bushy habit is still more important, as the head should be compact when borne on a long, stout stem. The varieties in cultivation are so numerous that a rigid selection is necessary if only the best sorts are to be included. There is a wide range of colour, from white to crimson and purple. Sappho is, perhaps, the most beautiful of the blotched whites, but in Francis B. Hayes the blotching is more conspicuous. Mme. Carvalho (blush-white with greenish-yellow spots) is beautiful. Queen, also blush-white, has flowers of fine texture. George Hardy (pinkish-white with pink buds) is shown especially well. Baroness Henry Schröder shows the development of the spotting of the upper petal more beautifully than any other variety. The best white novelty is Gomer Waterer, with large flowers of fine texture and handsome foliage. Among the pinks, the great trusses of Pink Pearl are easily supreme. Lady Eleanor Cathcart (rose-pink with marked chocolate blotch) is very fine, and is seen at its best in old plants that have reached 8 or 10 feet in height. Concessum is a pretty rose-pink flower with paler centre. Lady Clementine Walsh (soft pink) and Mrs. William Agnew (pale rose) are other choice sorts. Mrs. Holford (salmon pink) has extra good trusses. Michael Waterer has scarlet-crimson flowers, whilst those of John Waterer are a rich crimson. Doncaster is, perhaps, the nearest approach to scarlet. These brilliant colours are often unsatisfactory at close quarters, and need to be seen at a distance, where their intense reds give wonderful patches of colour. Some of the older sorts are still invaluable for special purposes. The semi-double mauve-coloured fastuosum is still the best of its kind and has immense trusses of flower. No variety is more free-flowering than the old rosy-lilac Everestianum. To-day the hybridist is trying to introduce new forms and colours, and a longer flowering season by crossing with the Himalayan species, but our present standard varieties have been derived more or less exclusively from R. caucasicum, R. catawbiense, and R. ponticum.

FIG. 181.—RHODODENDRONS EXHIBITED AT CHELSEA BY MESSRS. JOHN WATERER AND SONS, LTD.

(See p. xii. First Exhibition Supplement.)

CARRIAGE RATES FOR CUCUMBERS.—As the outcome of negotiations between the Agricultural Organisation Society and the railway companies, an official intimation has been received from the Railway Clearing House to the effect that the companies have agreed to make special provision for Cucumbers in the general railway classification of goods by entering "Cucumbers, in cases or boxes, or in baskets with wicker or wooden lids, owner's risk," in Class 2. This announcement is of interest from the point of view of the market-gardening industry and of the circumstances under which the concession has been secured. The production of Cucumbers, mainly under glass, has undergone very considerable expansion of late years in various parts of the country, and more especially at Worthing, where the glasshouses devoted to the raising of vegetables, fruits, and flowers for the market have a total length of over 30 miles, and the output of Cucumbers alone, apart from other commodities, is estimated at about 1,200 tons a year. Hitherto, however, there has been no special entry of Cucumbers in the general railway classification, in which they have counted as "vegetables," either "hot-house" or "not hot-house." Inasmuch as all the Cucumbers at Worthing are grown under glass, they have thus come under the definition of "vegetables, hot-house," and have been allotted to Class 4, and charged the rates of that class when consigned from Worthing; though it is alleged that from London the Cucumbers are reconsigned by Metropolitan dealers to northern markets as "vegetables, not hot-house," thus coming under Class 2, and so being carried at cheaper rates. It has also been a subject of complaint by the Worthing market gardeners that they have paid much higher rates than the growers in the Broxbourne, Enfield Lock, and Waltham Cross districts of Hertfordshire, Middlesex and Essex respectively, who have the

advantage of sending their Cucumbers to the northern markets, as "vegetables packed," at "exceptional" and certainly much lower rates; though, in point of fact, these exceptional rates apply only to minimum consignments of either one ton or two tons, which allow of the railway company running a through truck to destination. The rail traffic in Cucumbers from the districts in question to the north generally moves in these quantities, while the average consignment from Worthing is between 1 cwt. and 5 cwts. To the Covent Garden Market the growers in the three districts mentioned—situate at distances of from 12 to 17 miles from London—can forward by road motor, and from Broxbourne, it is understood, no Cucumbers at all are sent to London by goods train. The Worthing growers have hitherto been unable to consign direct to the northern markets, and they have had to submit to seeing the advantages of those markets gained by growers in the Broxbourne and other districts, by wholesale dealers in London handling the Worthing supplies, or by importers of Dutch Cucumbers received viâ Hull, and distributed by rail throughout Lancashire and Yorkshire under the designation "not hot-house." Certain material concessions were obtained from the London, Brighton, and South Coast Railway Co., but the Worthing growers especially desired that Cucumbers should be placed in Class 2 of the general railway classification (on the same basis as Tomatos in wicker baskets) and thus be charged, on all the railways alike, a lower rate than if they were carried in Class 4. At the request of the Worthing and District Market Growers' Association, the Agricultural Organisation Society—to which the Worthing Association is affiliated—took the matter up, while, on the suggestion of the railway goods managers, a deputation representing the two societies mentioned waited upon them at the Railway Clearing House, the final outcome of the negotiations being the making of the desired concession. The fact that this result should have been brought about through the instrumentality of the Agricultural Organisation Society affords evidence of the useful purpose which that body is able to fulfil, not only in its efforts to improve the general agricultural conditions of the country, but, also, as an intermediary between growers and railways companies in the attainment of improved transport facilities on an organised basis. The granting of the concession asked for is, also no less evidence of the desire of the railway companies to encourage the efforts which the federated agriculturists are making to better their economic outlook. Under the new arrangement in regard to classification, Worthing growers will be able to consign their Cucumbers to Liverpool, Manchester, Sheffield, Leeds, Bradford, Nottingham, and Leicester, instead of having to be content to forward them only to London dealers, who themselves would undertake the further distribution; and in this way there should be, in addition to a saving in railway rates, (1) a saving in intermediate profits, (2) decreased risk of gluts in the Covent Garden Market, and (3) the obtaining of better prices, not only on this account, but through the direct dealings with the great centres of population in the north.

AGRICULTURE AT ABERDEEN UNIVERSITY.—Mr. JAMES HENDRICK, B.Sc., lecturer in chemistry at the Aberdeen and North of Scotland College of Agriculture, has been appointed to the chair of agriculture in the Aberdeen University. Lord STRATHCONA, an old lord rector of the University, has endowed this new chair of agriculture with a gift of £10,000. The high qualifications and wide experience of the new professor encourage the expectations that agricultural education in the area under his jurisdiction will be greatly strengthened.

THE FAIRCHILD LECTURE.—The Master and the Court of the Gardeners' Company attended Shoreditch Parish Church on Tuesday, May 28, when the Archdeacon of London (Dr. HOLMES) delivered the 183rd FAIRCHILD lecture.

THE CORN CROPS.—The May number of the *Bulletin* of Agricultural Statistics has just been issued by the International Institute of Agriculture. The figures published in April with regard to the areas sown to winter cereals in the northern hemisphere are confirmed in the May number, additions having been made in the form of the areas sown in Italy (Wheat, 11,732,000 acres; Rye, 301,000 acres; Barley, 605,000 acres; Oats, 1,235,000 acres), and the area of Wheat abandoned in the United States and Canada (United States 20 per cent.; Canada 31 per cent). The weather during April has had a somewhat unfavourable effect upon vegetation, with the result that development is, in general, rather backward. The condition of the crops, however, on May 1, was, for the greater part good, except in the United States, where the condition figure was below that of the corresponding period of 1911. (Winter Wheat, 93 on May 1, 1912, as against 100 on May 1, 1911; winter Rye, 98 as against 100.) The germination of spring Wheat, Rye, Barley, and Oats has been, on the whole, uniform, except in Austria. In the May *Bulletin*, Flax has been included for the first time in the list of products considered, information having been received this month from Belgium, Bulgaria, Ireland, Hungary, Italy, Roumania, Japan, and India. The general condition of the Flax crop is good, the area sown being as follows:—Belgium, 32,850 acres; Italy, 19,750 acres; India, 3,463,000 acres as against 3,100,000 acres sown last year. Information is also given in regard to vineyards, the vines having suffered in Austria, France, Hungary, and Italy through damage caused by the late frosts. The *Bulletin* closes with the publication of the results of the live stock censuses in Argentina, Cuba, United States, and Egypt. In Italy the area sown with winter Wheat is 11,737,000 acres; winter Rye, 301,000 acres; winter Barley, 605,000 acres; and winter Oats, 1,235,000 acres. In Hungary (including Croatia and Slavonia) the area sown with spring Wheat is 226,000 acres; spring Barley, 2,442,000 acres; and spring Oats, 2,782,000 acres.

CANADIAN CENSUS.—A special report on the census of Canada taken June 1, 1911, shows that the rural population of the Dominion in 1911 was 3,924,083 and the urban population 3,280,444. In 1901 the rural population was 3,369,018 and the urban population 2,002,297. The increase of the rural population in 10 years is therefore 550,065 and of the urban 1,278,147, which is 16.48 per cent. for the former and 63.3 for the latter. According to this return the rural population of Canada is 55 per cent. of the total population. Industrial expansion has been a marked feature of the past decade in Canada, and accounts for the extraordinary growth of the urban population.

ARSENIC IN PLANTS.—The distinguished French chemist, M. GUIGNARD, finds that arsenic is present in all fruits and vegetables (C. R. Acad. Sci., April, 1912). Lest this fact should disturb the minds of the timid, we hasten to add that the amount of arsenic present in plants is extremely small. Thus of Bananas, which contain least of all, it would be necessary to eat a thousand pounds in order to introduce into the system one grain of arsenic. Even in the case of Truffles, the epicure may continue to regale himself without stint, for although they contain more arsenic than most plants, the actual amount is so small that no matter how many he ate, indigestion and not arsenic poisoning would be his portion.

THE BACTERIAL FLORA OF THE SOIL.—Investigations carried out by Mr. D. RIVAS, and published in vol. iii (No. 3, 1911) of *Contributions from the Botanical Laboratory of the University of Pennsylvania*, demonstrate that no less than the plants which grow on the surface, the microscopic organisms which flourish below ground are subject to seasonal change in kind and number. As Poppies spring up after the Corn is cut, so apparently the micro-organisms which lie in the soil succeed one another in ordered rotation. One kind flourishes apace for a while and then gives place to other kinds, which also have their day and cease to be. Mr. RIVAS finds that the soil is poorest numerically in bacteria during the winter months, November to February. They increase gradually during spring and summer, to reach their greatest numbers in September and October.

PROPOSED NEW AUSTRALIAN BOTANIC GARDEN.—A leading article in the *West Australian* for April 11 last draws timely attention to the fact that whilst all the other Australian capitals, and some provincial towns, have long possessed botanic gardens, the metropolis of Western Australia is singular in not being provided with so valuable an institution. Attention is drawn to the university about to be established in the State, and persons interested are reminded that its educational value will be greatly curtailed if the professors and lecturers in biology and forestry find no conveniences for imparting instruction in plant life in accordance with modern ideals which require museums, laboratories and plant houses, in addition to growing trees, shrubs and plants, all of which are at present imperfectly represented in Perth.

PUBLICATIONS RECEIVED.—***Farm, Garden, and Birds.*** (London: The Royal Society for the Protection of Birds.) Price 1s.—***The Practical School Garden,*** by John Weathers. (London: Longmans, Green & Co.) Price 6d.—***Dictionary of Botanical Names and Terms,*** by Geo. F. Zimmer. (London: Geo. Routledge & Sons, Ltd.) Price 2s. 6d.—***How to Increase Your Sales:*** A Useful Summary of Areas, Population, Trade, and Press of the British Empire. (London: Sell's Advertising Agency, Ltd., 168, Fleet Street.)—***Plantae Wilsonianae,*** by Charles Sprague Sargent. Part II. (Arnold Arboretum, Harvard University, Jamaica Plain, Massachusetts, U.S.A.) Price $2.50.—***Mushroom Cultivation,*** by J. Bide, (Farnham: S. Bide & Sons, Ltd.) Price 6d.—***Sixth Annual Report of the Horticultural Societies of Ontario for the year 1911.*** (Toronto: Ontario Department of Agriculture.)—***Hortus Mortolensis,*** Alphabetical Catalogue of Plants growing in the garden of Sir Thomas Hanbury, at La Mortola, Ventimiglia, Italy. Compiled by Alwin Berger, Curator. (London: West, Newman & Co.) Price 4s. paper; 5s. cloth.—***The Single-handed Gardener.*** (London: Temple Press Ltd.) Price 1s. net.—***London and South Western Railway.*** The Company's Official Illustrated Guide and List of Hotels, Boarding Houses, and Apartments.—***A Popular Dictionary of Botanical Names and Terms,*** by George Frederick Zimmer. (London: George Routledge & Sons, Ltd.) Price 2s. 6d. net.

SCOTLAND.

PRESENTATION OF MEDALS TO HOLYROOD PARK KEEPERS.

ON the afternoon of May 29, Lord Glenconner, the Lord High Commissioner to the General Assembly, presented, by command of his Majesty King George, in the Throne Room, Holyrood Palace, Edinburgh, medals to 11 park keepers of Holyrood Park. The medals were struck to commemorate the Coronation and the visit of the King and Queen to Edinburgh last year.

PRESENTATION TO A GARDENER.

MR. JOHN JOHNSTONE, for 43 years gardener at Barjarg Towers, Dumfries, has been presented with a sum of money by friends to mark the occasion of his retirement.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

THE ROYAL INTERNATIONAL HORTICULTURAL EXHIBITION.—I do not apologise for asking the honour of a little space in your valuable paper in connection with the above matter, inasmuch as your columns testify generously to the importance you attach to the Chelsea demonstration. The chief results of the Exhibition, to my mind, are: (1) A general appreciation of the solidarity of the interests of the horticultural community; (2) the formal recognition by the Government of the claims of horticulture; (3) the bestowal of the honour deservedly gained by Sir Harry Veitch; (4) the great impetus given to the industry of horticulture by a tour de force; (5) the alleged financial success of the venture, and finally the complete uplifting of the plane upon which horticulture rests, as well as a great triumph for the principle of holding an international exhibition. A period of nearly half a century has divided the two great efforts in this direction in Great Britain, and it is obvious that no such interval can be allowed to separate the Exhibition of 1912 from its successor. It would be an equal mistake to invite too frequently such exhausting efforts as have been entailed in bringing to perfection the Show at Chelsea. Although the support of the public could be confidently counted upon, it is certain that neither the trade exhibitors nor the amateur element necessary for the organization of such a great undertaking would face the labour involved. An interval of 10 years at the most, or of seven at the least, is generally held to be reasonable, and it would appear to be of advantage to the science and industry of horticulture if it were fore-ordained that every decade should bear its own witness to progress. During this limited number of years the lessons of the last exhibition could not be easily forgotten or mislaid, and such regularly-disposed guide-posts would sufficiently indicate the ground already covered, while the "next" exhibition would always be a goal for the ambitious. The difficulty ever present in the organisation of such an affair is the question of finance. If rumour is correct, a fairly substantial surplus has been realised on this occasion, but if the Directors were pressed they would probably admit that they consider themselves wonderfully lucky to have come so well out of their enterprise. Financial failure is a contingency always to be faced, and it would be most unwise on a future occasion to count upon a simultaneous recurrence of all the fortunate circumstances which have favoured the Exhibition at Chelsea. It would appear from a preliminary pronouncement that it was proposed to devote any surplus funds to some worthy project germane to horticulture. The pith of my letter is the suggestion that the profits, if any, may be used to form the nucleus of a fund for decennial international horticultural exhibitions. The Royal Horticultural Society would doubtless consent to act as trustees. In 10 years, if left to accumulate, the surplus funds might provide the wherewithal to ensure the financial success of the next venture and to lay the foundation for triumphs recurring after the manner of the Quinquennial Exhibition of Ghent, naturally, however, upon a scale of greater magnitude. *Excelsior.*

THE INTERNATIONAL EXHIBITION, AND THE GARDENER.—The high excellence of the many varied exhibits brought together at Chelsea during the past week has been a subject of much praiseworthy comment. Horticulture is slowly but surely gaining the full recognition which it deserves. It is at such times as the period of this great Exhibition that the social position of the gardener is bound to be discussed. Thanks to the noble and just bearing of many owners of large gardens, the conditions under which the gardeners labour have of late years been much improved. Unfortunately, however, there is still room for much further improvement in this direction. Circumstances over which many of the present generation of gardeners have no control did unfortunately, it is to be feared, do much to destroy confidence between employer and employees in private service, and for some unaccountable reason the gardener was looked upon as the worst sinner. Surely all must fully recognise that the profession of gardening is no sinecure, and that the best results can only be obtained by full confidence existing between employer and employee, and due consideration must be given by the employer to the conditions under which his employees are labouring. It is obvious to all that the most noted gardens are those whose owners take a real interest not only in the gardens themselves, but in the general welfare of those entrusted with their care. *Roamer.*

A CURIOUS NESTING-PLACE.—This spring a grey wagtail has built a nest in a tub containing a large Agave in a greenhouse in these gardens. The parent bird hatched the five eggs and reared the young birds successfully, taking practically no notice of the attendant when performing his various duties in the house. I find, on the authority of W. Swaysland, that such an instance is not unique, but it may be of sufficient interest to record in your pages. *J. Gardner, Batsford Park Gardens, Moreton-in-Marsh.*

SAXIFRAGA PROBYNII (see p. 367). — I was pleased to read the remarks of *W. I.* in reference to this Saxifrage, which is apparently none other than the well-known S. valdensis (of gardens), or, as your correspondent puts it, S. cochlearis minor. Upon what grounds it has been raised to specific rank I do not know, hence, probably, the authority for the name will enlighten those who desire to be up-to-date in these and kindred matters. I, for my part, have been unable to detect any difference in the plants bearing the above names. *E. H. Jenkins.*

SOCIETIES.

ROYAL HORTICULTURAL.

JUNE 4.—The attendance and exhibits at this meeting of the Royal Horticultural Society exceeded expectations. Orchids were well shown, and amongst the many hardy flowers the Delphiniums and Pæonies excited admiration. Messrs. DOBBIE & Co. exhibited a large collection of Sweet Peas and were awarded a Gold Medal. Messrs. BEES LTD. won the "Farrer" Cup, which was offered for six new or rare dwarf rock plants, with a meritorious collection of novelties.

The ORCHID COMMITTEE awarded one First-class Certificate and four Awards of Merit.

The FLORAL COMMITTEE awarded 22 Medals, a First-class Certificate, 11 Awards of Merit, and a Cultural Commendation.

At 3 p.m. in the Lecture Room Prof. Bayley Balfour, F.R.S., delivered the Eighth Masters' Memorial Lecture before a large audience; the subject, "Problems of Propagation," was illustrated by lantern slides and specimens.

Floral Committee.

Present: H. B. May, Esq. (in the Chair); Messrs. C. T. Druery, G. Reuthe, J. Dickson, C. Dixon, W. Cuthbertson, F. Page Roberts, C. E. Shea, Chas. E. Pearson, J. T. Bennett-Poë, R. C. R. Nevill, W. P. Thomson, E. H. Jenkins, W. J. James, George Paul, W. B. Cranfield, W. J. Bean, J. W. Barr, C. Blick, W. Howe, C. R. Fielder, Arthur Turner, J. Jennings, Geo. Gordon, W. T. Ware, J. F. McLeod and R. Hooper Pearson.

Messrs. DOBBIE & Co., Edinburgh, staged a large number of varieties of Sweet Peas. The flowers were exceedingly fine, and displayed a wide range of fresh, distinct colours. Dobbie's Scarlet, with intense colour, compelled admiration. Rosabelle, Earl Spencer, Mrs. Cuthbertson (large blooms of shades of pink), and Inspector are only a few of the excellent varieties shown, of which three received Awards of Merit. (Gold Medal.)

Messrs. E. W. KING & Co., Coggeshall, Essex, arranged Sweet Peas in a novel and attractive manner. The blooms were stated to have been cut from the open fields. (Silver Banksian Medal.)

Messrs. S. BIDE & SONS, Farnham, Surrey, also exhibited many different varieties of Sweet Peas.

Mr. JAMES DOUGLAS, Great Bookham, showed choice border Carnations and Pinks. The Pinks possessed delightful markings, and a most pleasant perfume. Carnation "Daffodil" is well named as regards its colour; the flowers are large and of good substance.

Mr. H. BURNETT, Guernsey, again exhibited Carnations. As is usual in his collections, the blooms were large and fresh, and were borne on long, stout stalks. (Silver-gilt Flora Medal.)

Mr. CHARLES BLICK, The Warren Nurseries, Hayes, Kent, arranged a choice collection of cut Carnation blooms. Two varieties received Awards.

Messrs. STUART LOW & Co., Bush Hill Park, Middlesex, exhibited Carnations in pots, as well as many cut blooms.

Messrs. G. PAUL & SON, The Old Nurseries, Cheshunt, who filled one length of staging with decorative varieties of Roses, included the varieties Irish Glory, Double Scotch Rose and Thusnelda. Messrs. PAUL also showed Pæonies and many fine spikes of Heuchera. (Silver-gilt Flora Medal.)

Messrs. FRANK CANT & Co., Braiswick Rose Gardens, Colchester, displayed a great variety of Roses largely of the free-flowering, garden types. Braiswick Beauty, Anne of Geierstein and Braiswick Fairy are good examples. The deep yellow Tea Rose "Lena" possesses considerable merit. (Silver Banksian Medal.)

Messrs. B. CANT & SONS, The Old Rose Gardens, Colchester, had a delightful exhibit of Roses. The tall plants of Blush Rambler, Hiawatha and Minnehaha, were smothered with flowers. The Austrian Yellow, a Briar variety, bore rich-golden flowers, the colour of which was equalled by the double variety Persian Yellow. Amongst the large-flowered Roses we noticed Claudius, Lady Reay (a new seedling H.T.) and St. Helena. (Silver Flora Medal.)

Mr. G. PRINCE, Longworth, displayed cluster Roses in the annexe. (Silver Flora Medal.)

Mr. E. J. HICKS, Twyford, also showed good varieties of Roses. (Silver Banksian Medal.)

Messrs. J. VEITCH & SONS, Chelsea, made a very effective display with profusely-flowered standard Fuchsias and Heliotropes rising above groups of Cannas, hybrid javanico-jasminiflorum Rhododendrons, Calceolaria Clibranii and Lobelia tenuior. A batch of Elæocarpus cyaneus (reticulatus), which received a First-class Certificate, attracted much attention. On the opposite side of the pathway Messrs. VEITCH showed Nemesias in blocks of distinct colours. At the end of this exhibit a small batch of Lavatera assurgentiflora found many admirers. (Silver Flora Medal.)

Messrs. JOHN PEED & SON, West Norwood, London, contributed excellent plants of Gloxinia and Streptocarpus. The Gloxinias were all of the erect form, and bore numbers of high-quality flowers. (Silver Flora Medal.)

Messrs. WM. CUTBUSH & SON, Highgate, London, arranged a large semi-circular group of Palms, Codiæums (Crotons), Dracænas, and Hydrangeas.

Messrs. H. CANNELL & SONS, Swanley, Kent, again contributed trusses of Zonal Pelargoniums. Next to these bright flowers, Messrs. CANNELL displayed a good selection of Fuchsias in pots and some splendid Cannas.

Messrs. H. B. MAY & SONS, Upper Edmonton, showed Lantanas Drop d'Or and Chelsea Gem; Heliotropes bearing large trusses of bloom, Ixoras in variety; Swainsonia galegifolia and bedding Verbenas. (Silver Banksian Medal.)

VIVIAN PHILLIPS, Esq., Crofton Court, Orpington (gr. Mr. T. Hobbs), displayed a group of excellent Calceolarias. (Silver Flora Medal.)

Messrs. BEES LTD., Liverpool, showed a small but choice collection of rock plants nicely arranged in the annexe. Dracocephalum bullatum, Weldenia candida, Primula yunnanensis, P. pulchella and P. membranifolia were all good. This exhibit was awarded the Silver Cup offered by Mr. Reginald Farrer (see *Gardeners' Chronicle*, May 4, 1912, p. 304).

Messrs. WHITELEGG & PAGE, Chislehurst, Kent, made a bright show with Geums, Heucheras, Delphiniums, Anchusas and Calceolarias. (Bronze Flora Medal.)

Mr. AMOS PERRY, Enfield, Middlesex, showed some exceptionally good varieties of the Oriental Poppy, strong spikes of Dictamnus caucasicus and other hardy plants. (Silver Flora Medal.)

Messrs. BAKER, Wolverhampton, exhibited well-flowered spikes of herbaceous Lupins; varieties of Papaver orientale, and Iris. In the middle of this good display we noted profusely-flowered sprays of the Rambler Rose "Dorothy Jeavons"—a desirable variety. (Bronze Banksian Medal.)

Mr. L. R. RUSSELL, Richmond, arranged a very attractive length of rockwork nicely planted with Alpines in quantity. The long stretch was broken by batches of Campanula Backhousei with large white blooms, and various rock plants.

G. FERGUSON, Esq., The Hollies, Weybridge (gr. Mr. F. W. Smith), showed many excellent varieties of Delphiniums, including Floreat (white, with clear primrose eye), Santolina and Lysander (both pale blue varieties), Valetta (deep blue), Mouche Bleue, Miss Grace Morley (large-flowered white, with brown eye), and a long spike of the blue Vinora. (Silver Flora Medal.)

Mrs. LLOYD EDWARDS, Llangollen, showed a collection of the fine Saxifragas which we have admired on several previous occasions. (Silver Banksian Medal.)

Messrs. PHILLIPS & TAYLOR, Lily Hill Nurseries, Bracknell, Berkshire, showed Water Lilies in a large tank surrounded by a good variety of border flowers.

Messrs. GEO. BUNYARD & CO., LTD., Maidstone, set up various border flowers in a very attractive manner. There was a good selection of Papaver orientale varieties, graceful spikes of several varieties of Heuchera, many good Pæonies and a number of Delphiniums.

Messrs. T. S. WARE, LTD., Feltham, Middlesex, exhibited exceedingly good spikes of Eremurus robustus amongst Delphiniums, Papavers and Irises. A small group of Alpines in pots at the end of the cut flowers included Œnothera speciosa rosea and Lychnis Lasgascæ rosea. In another part of the Hall, Messrs. WARE staged an exhibit of hardy border flowers. (Silver Flora Medal.)

Messrs. REAMSBOTTOM & Co., Gleashill, King's County, Ireland, again staged exceedingly fine flowers of their double St. Brigid Anemones.

Messrs. WM. FELLS & SON, Hitchin, Hertfordshire, showed Pyrethrums and Irises.

Messrs. KELWAY & SON, Langport, Somerset, arranged a splendid collection of Pæonies. There was a good sprinkling of the decorative, single-flowered varieties: the soft pink Princess; Heart's Desire, of a darker shade of the same colour; Nellie, also pink in colour; Cherry Ripe and Tinted Venus have delightful flowers. Amongst the double-flowered varieties we especially admired the double pink Mrs. Lutwyche. Messrs. KELWAY also arranged two sets of splendid Delphiniums; the varieties Lovely (blue and mauve, with a white eye), and Zinfandel were exceptionally fine. (Silver-gilt Flora Medal.)

The Misses HOPKINS, The Mere Gardens, Shepperton-on-Thames, set up a small rockery furnished with appropriate plants. Mr. L. GREENING, Richmond, also exhibited a small rock-garden.

Messrs. JOHN PIPER & SONS, Bayswater, London, displayed many interesting hardy subjects on one of the tables.

Mr. JAMES BOX, Lindfield, Sussex, arranged an attractive collection of hardy herbaceous flowers in one corner of the Hall.

C. B. BLAMPIED, Esq., La Fosse, St. Martin's, Guernsey, showed several good Gladiolus. The varieties Queen of Night, Queen Bess and Mrs. Atkinson were very attractive.

Messrs. R. H. BATH, LTD., Wisbech, displayed herbaceous plants, including Pæonies, Delphiniums, Irises, and Pyrethrums, making an attractive display.

Messrs. CARTER PAGE & Co., London Wall, arranged decorative Dahlias and a large assortment of Violas.

On behalf of the King of the Belgians, A. DELMARD, Esq., exhibited an interesting collection of pictures, for which a Silver Banksian Medal was awarded.

AWARDS.

FIRST-CLASS CERTIFICATE.

Elæocarpus cyaneus (reticulatus).—A floriferous greenhouse evergreen shrub. The dark-green glabrous leaves are 5 inches long and 2 inches broad. The white flowers have prettily fimbriated petals, which are freely produced on axilliary racemes. This is a valuable greenhouse shrub, and, in addition to the value of its flowers, the young shoots have attractive pale-purple colouring. Shown by Messrs. JAMES VEITCH & SONS.

AWARDS OF MERIT.

Delphinium Dusky Monarch.—An exceptionally fine variety, which grows to a height of 10 feet. The flower-spikes are well furnished with large, pale-purple flowers, which have a suspicion of magenta in their colouring. The flower-buds are a trifle ugly in colour, but the fully-expanded blooms amply atone for this defect. Shown by Messrs. KELWAY.

Carnation Queen Mary.—A very attractive border Carnation of a pleasing old-rose colour, described by the exhibitor as salmon-rose. The flowers possess the old Clove scent; they are large, and borne on stout, erect stalks.

C. Attraction.—A pure-white border Carnation. The flowers are of good form, and the petals possess plenty of substance. These are two desirable border Carnations, and should also prove to be good greenhouse varieties. Both were shown by Mr. BLICK.

C. Margaret Lennox.—A beautiful yellow-ground Picotee-like border Carnation; the petals are edged with deep pink. Shown by Mr. JAMES DOUGLAS.

Silene Hookeri.—A species which will find favour with lovers of Alpine plants, but which does not appear to be suitable for growing in flower-borders. The flowers are of a beautiful rose colour. Shown by Messrs. T. S. WARE.

Wahlenbergia gentianoides.—A very pretty herbaceous perennial bearing relatively large blue flowers on slender stalks 9 to 12 inches high. The flowers are more like those of a Campanula than the Gentian. Shown by Messrs. PIPER.

Pelargonium Champion.—A very fine Zonal Pelargonium, bearing very large, stout trusses of deep-pink blooms. A seedling of Paul Crampel, and may well be described as a pink Paul Crampel. Shown by Messrs. LADDS.

Gladiolus Rosina.—A graceful decorative variety, much after G. Colvilei, with very pale-pink flowers, which have deep-pink markings. Shown by Mr. BLAMPIED, Guernsey.

Sweet Pea Dobbie's Lavender George Herbert.—A very fine variety. The large flowers are freely borne on long, stout stalks; their colour is lavender, edged with bluish-pink.

Sweet Pea Thomas Stevenson.—The now well-known bright orange-scarlet variety; one of the best.

Sweet Pea May Campbell.—A very distinct variety. The ground colour is cream, the standards are marked with carmine, and the wings are slightly veined with the same colour; a combination which impresses the beholder more after acquaintance. All these fine forms were shown by Messrs. DOBBIE.

CULTURAL COMMENDATION.

Utricularia montana.—This interesting stove exhibit was exceedingly well shown by Mr. BENNETT-POË. The plants bore large numbers of their quaint spurred, pure white flowers, relieved by yellow on the lip.

Orchid Committee.

Present: Sir Harry J. Veitch (in the Chair); and Messrs. Gurney Wilson, Richard G. Thwaites, F. Sander, Fred. J. Hanbury, A. McBean, Walter Cobb, J. C. Cypher, W. H. Hatcher, J. E. Shill, H. G. Alexander, A. Dye, W. H. White, J. Wilson Potter, W. Bolton, de Barri Crawshay, and C. J. Lucas.

Lieut.-Col. Sir GEORGE HOLFORD, K.C.V.O., Tetbury (gr. Mr. H. G. Alexander), was awarded a Gold Medal for an extremely fine exhibit of specimen Orchids. The Lælio-Cattleyas included Aphrodite, Martinettii, The Prince (a magnificent variety bearing 15 flowers), Canhamiana with 25 to 30 good flowers, and the elegant luminosa "Canary." Of the specimen Dendrobiums which occupied the back rows, mention must be made of Euterpe, chrysotoxum and the yellow-flowering capillipes. A feature of the group was the collection of specimen varieties of Miltonia vexillaria which were placed along the front row. These included two plants having respectively 51 and 67 flowers, M. v. Snowflake (a large plant with 73 flowers), and M. v. Empress Augusta Victoria, of which eight specimens were shown. The Cattleya species included special varieties of Mendelii, Warscewiczii with five spikes carrying 20 flowers, and Mossiæ Wagneri "Westonbirt variety."

H. S. GOODSON, Esq., Fairlawn, Putney (gr. Mr. G. Day), was awarded a Silver-gilt Flora Medal for a well-arranged group containing many meritorious specimens. In the centre was Odontoglossum Goodsonii with a spike of 12 flowers, and the distinct O. crispum Lady Jane. Other good Odontoglossums were eximium Leopoldii, Lambeauianum St. David, and blotched crispums. Several excellent varieties of Miltonias, the large-flowering Brasso-Catt.-Lælia Veitchii, and Cattleya Mendelii H. A. Tracy were shown in excellent form.

Messrs. SANDER & SONS, St. Albans, obtained a Silver Flora Medal for a large group. In the centre was Cattleya Mendelii alba, a magnificent form with pure-white flowers, the throat being chrome-yellow veined with white. Along the back row were good plants of Thunia Veitchii superba, Oncidium macranthum, and Dendrobium superbiens. Cochlioda hybrids were well represented. Maxillaria Sanderiana and Ornithocephalus grandiflorus, with its greenish white flowers, were well shown, and a strong plant of Dendrobium Goldei received an Award of Merit.

Messrs. CHARLESWORTH & Co., Haywards Heath, were awarded a Silver Flora Medal for an excellent exhibit of Lælio-Cattleyas, including Fascinator, Aphrodite, and Canhamiana, and numerous Odontoglossum hybrids. The rare and interesting Bulbophyllum virescens, Sobralia Cliftonii with its delicate flowers, and the elegant Trichopilia Backhouseana were also shown in good form. The centre of the group was composed of many excellent plants of Phalænopsis Rimestadiana and numerous Cochlioda hybrids.

Messrs. J. & A. MCBEAN, Cooksbridge, received a Silver Banksian Medal for a group containing fine plants of Miltonia vexillaria, a distinct form of M. Bleuana, and the scarce M. Phalænopsis. A very beautiful hybrid between My Hyeana and M. Bleuana was also shown.

Messrs. STUART LOW & Co., Bush Hill Park, Enfield, were awarded a Bronze Banksian Medal for a good group. Included in it were some fine forms of Vanda teres, many excellent varieties of Miltonia vexillaria and the pretty Cypripedium Maudiæ.

Messrs. HASSALL & Co., Southgate, received a Silver Banksian Medal for an interesting exhibit of distinct varieties of Cattleya Mossiæ, one named Reineckiana vestalis being very beautiful.

Mr. S. FLORY, Tracy's Nursery, Amyand Park Road, Twickenham, was awarded a Bronze Banksian Medal for a good group containing the interesting Liparis Ugandæ, Cattleya Mendelii with white sepals and petals, Disa Luna, and many useful species of Dendrobium.

The LIVERPOOL ORCHID NURSERY Co. obtained a Bronze Banksian Medal for an excellent group of hybrid Orchids. Included in it were distinct varieties of Lælio-Cattleya Cowanii (cinnabrosa × Mossiæ), a hybrid between Cattleya Mendelii and Lælia Jongheana.

Mr. A. W. JENSEN, Lindfield, Haywards Heath, was awarded a Bronze Banksian Medal, for a good group of Cattleya Mendelii and Odontoglossum crispum.

DE BARRI CRAWSHAY, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), exhibited Odontioda Carmen (Cochlioda Noezliana × Odontoglossum nebulosum), O. Devossiana with a spike of richly-coloured flowers, O. rosefieldiensis with two spikes having a total of 34 flowers, and Odonto-glossum Leonidas, a good hybrid with gol yellow flowers marked with reddish-brown.

W. WATERS BUTLER, Esq., Southfield, l folk Road, Edgbaston, exhibited Catt Mossiæ The Queen, a good plant with s pure-white flowers having a slight rose tin the labellum, and Lælio-Cattleya Martinetti amber-yellow colour with a purple veined li

WALTER COBB, Esq., Normanhurst, Ru (gr. Mr. Salter), exhibited Odontoglos Leonard Cobb, a good hybrid of the exim section, with a spike of 11 flowers handsor blotched with claret-purple.

E. D. QUINCY-QUINCY, Esq., Oakwood, Chislehurst (gr. Mr. G. B. Lees), exhibited a good form of Odontoglossum Fascinator.

AWARDS.

FIRST-CLASS CERTIFICATE.

Miltonia vexillaria Snowflake, from Lieut.-Col. Sir GEORGE HOLFORD, K.C.V.O., Westonbirt (gr. Mr. H. G. Alexander).—A very beautiful variety with large, white flowers of excellent shape. The specimen carried 13 spikes with a total of 73 flowers.

AWARDS OF MERIT.

Odontoglossum Lambeauianum Princess Mary, from H. S. GOODSON, Esq., West Hill, Putney (gr. Mr. G. Day).—A distinct variety, with pure-white sepals and petals, the labellum being marked with purple.

Odontoglossum Thais Glebe var., from C. G. PHILLIPS, Esq., The Glebe, Sevenoaks (gr. Mr.

R. J. Bucknell).—An excellent hybrid, with well-shaped flowers handsomely marked with reddish-purple. The spike had 19 flowers.

Lælia-Cattleya Aphrodite Cowan's var., from the LIVERPOOL ORCHID NURSERY CO.—An excellent hybrid, with erect petals of good substance, the labellum having the front lobe heavily blotched with purple.

Dendrobium Goldei, from Messrs. SANDER & SONS, St. Albans.—A very elegant Australian species, with terminal spikes of dark claret-purple flowers.

CULTURAL COMMENDATIONS

To Mr. H. G. Alexander, Orchid grower to Lieut.-Col. Sir GEORGE HOLFORD, K.C.V.O., for a grand specimen of Miltonia vexillaria Snowflake.

To Messrs. ARMSTRONG & BROWN, Tunbridge Wells, for a remarkable plant of Cœlogyne pandurata with a spike of 16 flowers.

Fruit and Vegetable Committee.

Present: G. Bunyard, Esq. (in the Chair); and Messrs. J. Cheal, C. G. A. Nix, E. Beckett, A. Dean, J. Willard, A. R. Allan, G. Kelf, A. W. Metcalfe, H. H. Williams, A. Bullock, P. D. Tuckett, G. Wythes, and W. Poupart.

Messrs. LAXTON BROTHERS, Bedford, submitted fruits of their new Strawberry The Queen; also fruits of Royal Sovereign and Bedford Champion for comparison in flavour. The fruits of The Queen seemed insufficiently coloured, but they were of good size, pointed and handsome. The Committee expressed a wish to see fruits of The Queen from the open garden later, also Royal Sovereign, as a truer test of merit would then be furnished. A fruiting plant of The Queen lifted from the open ground was also exhibited.

ROYAL METEOROLOGICAL.

MAY 22.—The first of the afternoon meetings of this society for the session was held on this date, Dr. H. N. Dickson, president, in the chair.

Mr. C. J. P. Cave gave an account of the severe thunderstorm which occurred on the afternoon of March 11 in east Hampshire and west Sussex. The storm was not of the line-squall type, but was of the type of summer thunderstorms, with very little movement; and besides being severe, the storm appeared to be very local. One of the peculiarities of the storm was the intense darkness that occurred near the centre, which was accompanied by black rain. The author believes this to be due to soot from London. He is also of opinion that the cause of the storm was the flowing of a cold current under a warmer one, as is the case with line-squalls.

Obituary.

HUGH RANGER.—We regret to have to record the death of Mr. Hugh Ranger, for nearly 34 years manager of Messrs. Robt. Ker & Sons, Aigburth Nursery, Liverpool. Deceased commenced his gardening career as an apprentice with Messrs. Wheeler, of Warminster, and was afterwards engaged by Messrs. R. Smith & Co., Worcester (where he stayed some 12 months), Mr. Cranston, Hereford, and Messrs. T. Saltmarsh & Son, Chelmsford, finally settling at the Aigburth Nurseries in 1879. He devoted considerable attention to the cultivation and raising of Cyclamens. He also cultivated Crotons with equal success, and he raised such excellent varieties as Golden Ring, Aigburth Gem, Aigburthensis and Newmannii. In later years he started the Aigburth collection of Amaryllis, in which he was greatly helped by the late Mr. R. Wilson Ker, many of the fine pink shades shown at the recent International Exhibition being raised by him. He was a good all-round gardener. The funeral took place on May 31.

WILLIAM SHINGLER.—We regret to announce the death on Monday last, the 3rd inst., at Walsall, of Mr. William Shingler, at the age of 58 years. Mr. Shingler had been head gardener to Mr. T. G. Baker, at Waterdale, Compton, Wolverhampton, for eight years. Previously he was for 10 years gardener to Mr. Salter, at Springfields, West Bromwich. Deceased was a successful grower and exhibitor of Chrysanthemums.

MARKETS.

COVENT GARDEN, June 5.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—EDS.]

Cut Flowers, &c.: Average Wholesale Prices.

	s.d.	s.d.
Arums (Richardias)	2 0	—
Bouvardia, per dz. bunches	6 0	7 0
Carnations, p. doz. blooms, best American var.	1 6	2 0
— smaller, per doz. bunches	10 0	15 0
— Carola, crimson, extra large	2 6	3 0
— Malmaisons, p. doz. blooms:		
— — pink	5 0	7 0
— — blush	4 0	6 0
— — red	4 0	6 0
Coreopsis, per doz. bunches	2 6	3 0
Cornflower, p. doz. bunches, pink	2 6	3 0
— white	2 6	3 0
— blue	1 0	1 6
Eucharis, per doz.	2 0	2 6
Gaillardia, per doz. bunches	1 6	2 0
Gardenias, per box of 15 and 18 blooms	1 6	3 0
Gladiolus, per doz. bchs., Akerman	10 0	12 0
— Blushing Bride	5 0	6 0
— Bride, white	5 0	8 0
— Ne Plus Ultra	9 0	10 0
— Peach Blossom	8 0	12 0
Gypsophila, p. dz. bunches:		
— white	3 0	5 0
— pink	3 0	—
Iceland Poppies, p. dz. bunches	1 6	2 6
Iris (Spanish), per doz. bunches:		
— white, mauve, yellow & blue	6 0	10 0
Lapagerias, white, per dozen	2 0	2 6
Lilium auratum per bunch	4 0	5 0
— longiflorum, per doz., long	1 6	2 0
— — short	1 0	1 6
— lancifolium alba, long	2 0	2 6
— — short	1 6	2 0
— speciosum rubrum, per doz., long	1 9	2 0
— — short	0 9	1 0
Lily of the Valley, pr. dz. bnchs.:		
— extra special	15 0	18 0
— special	10 0	12 0
— ordinary	8 0	—
Marguerite, per doz. bunches:		
— white	3 0	4 0
— yellow	1 6	2 0
Mignonette, per doz. bunches	4 0	5 0
Myosotis (Forget-me-not), p. dz. bunches	3 0	4 0
Orchids, Cattleya, per doz.	9 0	10 0
— Odontoglossum crispum	2 0	3 0
Pæonies, per doz. bunches, six blooms in a bunch:		
— red	6 0	8 0
— pink	6 0	8 0
— white	8 0	10 0
Pelargoniums, p. doz. bunches	5 0	6 0
— Double Scarlet	4 0	6 0
Pinks, white, per doz. bunches	1 6	2 0
Pyrethrums, dble., per doz. bchs:		
— white	2 6	3 0
— coloured	2 0	3 0
— single, mixed colours	2 0	2 6
Roses, 12 blooms,		
— Bridesmaid,	1 0	1 6
— C. Mermet	1 0	1 6
— Frau Karl Druschki	1 6	2 6
— General Jacqueminot	1 0	1 3
— Liberty	1 6	2 6
— Madame A. Chateney	1 6	3 0
— Niphetos	1 0	1 6
— Richmond	1 0	2 6
— Sunrise	1 0	1 6
— President Carnot	1 6	2 6
— Lady Roberts	1 0	1 6
— Lady Hillingdon	1 0	1 6
— Franz Deegan	1 0	1 6
— Kaiserine	1 0	2 0
Spiræa (Astilbe) japonica, per doz. bunches	5 0	6 0
Statice, mauve, per doz. bunches	3 0	4 0
Stephanotis (72 pips)	1 6	2 0
Sweet Peas, pr. dz. bunches:		
— coloured	3 0	5 0
Violas, small blue, p. doz. bunches	1 0	1 3

Cut Foliage, &c.: Average Wholesale Prices.

	s.d.	s.d.
Adiantum Fern (Maidenhair), best, dz. bnchs.	4 0	5 0
Agrostis (Fairy Grass), per dz. bunches	2 0	4 0
Asparagus plumosus, long trails, pr. ½ doz.	1 6	2 0
— medium, doz. bunches	12 0	18 0
— Sprengeri	10 0	12 0
Carnation foliage, doz. bunches	4 0	—
Croton foliage, various, per dozen bunches	12 0	15 0
Cycas leaves, artificial, per doz.	3 0	12 0
Eulalia japonica, per bunch	1 0	1 6
Moss, per gross	6 0	—
Myrtle, dz. bchs. (English), small-leaved	6 0	—
— French	1 0	—
Smilax, per bunch of 6 trails	0 9	1 0

Plants in Pots, &c.: Average Wholesale Prices.

	s.d.	s.d.
Aralia Sieboldii, p. dozen	6 0	7 0
Araucaria excelsa, per dozen	18 0	21 0
Asparagus plumosus nanus, p.dz.	10 0	12 0
— Sprengeri	8 0	9 0
Aspidistra, p. dz., green	21 0	30 0
— variegated	30 0	60 0
Cocos Weddeliana, per dozen:		
— 60's	6 0	12 0
— larger, each	2 6	10 6
Coleus, per doz.	4 0	5 0
Croton, per dozen	18 0	30 0
Cyperus alternifolius, per doz.	5 0	6 0
— laxus, per doz.	4 0	5 0
Dracæna, green, per dozen	10 0	12 0
Ericas, per dozen:		
— Willmorei, 48's	15 0	18 0
— persoluta	27 0	30 0
Ferns, in thumbs, per 100	8 0	12 0
Ferns, in small and large 60's	12 0	20 0
— in 48's, doz.	6 0	—
— choicer, sorts per doz.	8 0	12 0
— in 32's, per doz.	10 0	18 0
Ficus elastica, per dozen	9 0	12 0
Fuchsias, per doz.	8 0	9 0
Geonoma gracilis, 60's, per dozen	6 0	8 0
— larger, each	2 6	7 6
Heliotropes	6 0	8 0
Hydrangeas, white, 48's, per dozen	18 0	21 0
— pink	10 0	15 0
— blue, each	2 0	5 0
Kentia Belmoreana, per dozen	5 0	42 0
— Fosteriana, 60's, per dozen	4 0	6 0
— larger, per doz.	18 0	60 0
Latania borbonica, per dozen	12 0	30 0
Lilium longiflorum per dozen	15 0	18 0

Plants in Pots, &c.: Average Wholesale Prices (*Contd.*).

	s.d.	s.d.
Lilium lancifolium rubrum in pts., per dozen	15 0	18 0
— lancifolium alba	15 0	18 0
Lily of the Valley	21 0	24 0
Marguerites, in 48's, per doz., white	8 0	10 0
— yellow	10 0	12 0
Mignonette, 48's, per dozen	6 0	8 0
Pandanus Veitchii, per dozen	36 0	48 0
Pelargoniums, per dozen	9 0	12 0
Pelargoniums, Ivy-leaved	7 0	9 0
Phœnix rupicola, each	2 6	21 0
Rhodanthi, per dz. pots	5 0	6 0
Spiræa japonica, per dozen pots	10 0	12 0
— pink	10 0	12 0
Stocks, white, pink and red	6 0	8 0
Verbenas, pink	6 0	8 0
— scarlet	8 0	9 0
— white	8 0	9 0
— blue	8 0	9 0

Fruit: Average Wholesale Prices.

	s.d.	s.d.
Apples:		
— Tasmanian per case	7 0	10 6
— Australian per case	7 0	10 6
Apricots, French per box	1 3	1 6
Bananas, bunch:		
— Doubles	10 0	12 0
— No. 1	8 0	10 0
— Extra	10 0	12 0
— Giant	14 0	18 0
— Loose, p. doz.	0 6	1 0
— Red coloured	5 6	6 6
— Jamaica Giants, per ton	£10	£12
— Jamaica Ordinary, per box (9 doz.)	4 0	5 0
Cherries, French, ½ sieve	5 6	6 0
— per box	1 0	2 0
— English, ½ bshl.	8 0	10 0
Cranberries, per case (30 qts.)	10 0	11 0
— Cape Cod, per case (30 quarts)	9 6	—
Figs (Guernsey), per dozen	2 0	3 0
— English	2 0	4 0
Gooseberries, per peck	1 0	2 0
— ½ bushel	2 6	3 6
Grape Fruit, case:		
— 96's	20 0	25 0
— 80's		
— 64's		
— 54's		
Grapes, Australian, per case	12 0	25 0
— English (new) per lb.	1 6	4 0
— Canon Hall	6 0	8 0
Grapes:		
— Muscats	3 0	5 0
Lemons:		
— Messina, per case	7	17 0
Limes, per case	4 0	—
Mangoes, per doz.	4 0	6 0
Melons (Guernsey)	1 3	2 6
— (English)	1 3	3 6
— Canteloupe	3 6	7 6
Nuts, Almonds, per bag	52 6	—
— Spanish, per sack	40 0	42 0
— Barcelona, bag	35 6	36 6
— Chestnuts, per bag	3 6	19 0
— Cocoanuts, 100	18 0	23 0
— English Cobs per lb.	0 3	—
— Walnuts (Naples) kiln dried, cwt. cases	54 0	—
Nectarines, per dozen	4 0	18 0
Oranges:		
— Navels	16 0	18 0
— Denia, case	30 0	40 0
— Mercia	15 0	18 0
Peaches (Belgian), per dozen	4 0	8 0
— English, dozen	4 0	18 0
Pears (Australian), per case	10 0	15 0
Pineapples, St. Michael	3 0	5 0
Strawberries:		
— Southamptons, baskets	1 3	2 0
punnets (outdoor), per doz.	9 0	10 0

Vegetables: Average Wholesale Prices.

	s.d.	s.d.
Artichokes (Globe), per dozen	2 0	2 6
Asparagus—		
— Toulouse	1 3	1 6
— Montauban	1 6	2 0
— Dijon	0 8	1 0
— Lauris	0 9	1 6
— (English) bndl.		
— Cambridge	1 0	2 6
— Worcester	1 0	5 0
Beans, Guernsey Dwarf, per lb.	0 8	1 0
— (English) p. lb.	0 8	1 0
— French, per packet, lb.	0 8	0 10
Beetroot, p. bshl.:		
— Long	2 0	2 6
Celeriac, per doz.	2 6	3 0
Cabbages (French) per dozen	1 0	2 6
— Evesham, pots	3 0	3 6
Carrots (English), pr. doz. bun.	2 6	3 6
— (French) per dozen bunches	5 0	7 0
Cauliflowers, per dozen	4 0	5 0
— Dutch, dozen	4 0	5 0
Celery (washed), p. doz. bndls.	8 0	10 0
Chicory, per lb.	0 4	—
Cucumbers, p. doz.	2 0	3 0
Endive, per dozen	1 0	1 6
Greens (Spring), p. bag	3 0	4 6
Herbs (sweet), pkts., p. gross	7 0	—
Horseradish, 12 bundles	10 0	12 0
Leeks, per doz.	2 6	3 0
Lettuce (French), per doz.	1 6	2 0
— (English), per tally	2 0	4 0
Mint, p. dz. bunch.	1 6	2 6
Mushrooms, cultivated, p. lb.	0 8	0 10
Mustard and Cress, per dozen punnets	1 0	—
Marrows, pr. dz.	6 0	10 0
Onions (Egyptian)	6 6	7 6
— (Spring), per doz. bunches	4 0	—
Parsley, ½ sieve	1 6	2 0
— per doz. bun.	2 6	3 0
Peas (French) p. pad	4 0	6 0
— per packet	0 6	—
— (Guernsey), lb.	0 4	0 8
— (English), per ½ bushel	2 6	4 0
— bushel	3 6	8 0
Radishes (English), per dozen	0 6	0 9
— (French) p. dz.	1 0	1 3
— (Jersey) long	0 4	0 6
Rhubarb, forced, per 12 bundles	0 4	0 6
— Outdoor, p. dz.	1 0	2 0
Spinach, pr. bshl.	1 6	2 6
Tomatos (Guernsey) per lb.	0 5	—
— (English), p. lb.	0 5	0 6
— Seconds, p. lb.	0 2	0 3
Turnips (English), per dz. bunches	2 0	3 0
Watercress, p. dz. bunches	0 4	0 6

REMARKS.—About 200,000 boxes of Tasmanian and Australian Apples and Pears are being offered for sale this week, comprising the cargoes of four vessels, which have been held up in consequence of the Dock strike. English, Channel Islands and Continental Grapes are available in larger quantities; their prices have been well maintained. Peaches and Nectarines are very plentiful, the supply being in excess of the demand. There continues to be a good supply of Melons, the Canteloupe varieties being very plentiful and most popular. The crops of forced Strawberries finished this week. Heavy arrivals from the Southampton district have reached the market, as many as 7,000 chips (4 lbs.) per day. There are, in addition, supplies from Kent, packed in peck baskets, holding 12 lbs. The average quality of the fruits is very good. Cherries (Rivers's Early) are also arriving from the same county. Large quantities of Continental fruit are also in evidence, including Apricots. Green Figs are now a shorter supply. English and Channel Island Tomatos are now arriving in bulk and selling well. Vegetables generally have been sufficient for the demand. *E. H. R., Covent Garden, June 5, 1912.*

Potatos.

	per cwt. s.d. s.d.		per cwt. s.d. s.d.
Lincolns—		**Lincolns—**	
Up-to-Date ...	3 0– 3 6	Maincrops ...	3 0– 3 6
King Edward ...	3 0– 3 6	Blacklands ...	1 9– 2 3
Northern Star ...	2 3– 2 6	**Dunbars—**	
Evergoods ...	2 0– 2 6	Up-to-Date ...	3 9– 4 3
		Maincrop ...	3 9– 4 6

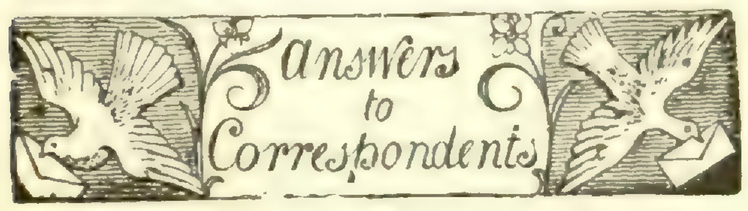
New Potatos.

Teneriffe	8 0–10 0	St. Malos	14 6–15 0
Jerseys	15 0–16 0	Cherbourgs ...	12 6–13 0

REMARKS.—Trade is very fair for old Potatos on account of new Tubers being dear, partly owing to the rains in St. Malo and Jersey this week. Stocks of old Potatos in London are becoming much smaller. *Edward J. Newborn, Covent Garden and St. Pancras, June 6, 1912.*

ENQUIRY.

RARE IRIS.—Will anyone who has flowered, or who now has in bud, an Iris which the late Max Leichtlin offered in one of his last lists as an unnamed species from Hazara, be so good as to communicate with me? *W. R. Dykes, Charterhouse, Godalming.*



*** *The Editors will be glad to receive, for consideration, large photographs of horticultural subjects, suitable for reproduction in this Journal.*

ADDRESS: *Sweet Pea.* The secretary of the National Sweet Pea Society is Mr. C. H. Curtis, 2, Adelaide Road, Brentford.

ALGÆ IN PONDS: *T. L.* One part of sulphate of copper in 50,000,000 parts of water is harmless, and is used in numerous places where the water is primarily intended for drinking. For practical purposes put 2 lbs. of sulphate of copper in large lumps in a coarse sack, which should be dragged in the water at a quick rate at distances of 3 yards apart. If there is much Algæ, it should be raked out first, otherwise the quantity killed will cause the water to be offensive for a few days.

APPLE TREES: *G. W. J.* The injury to your trees is caused by aphides. It will be a difficult matter now to destroy the pests with an insecticide, as the curled leaves will protect them from the spray. Wash the trees next spring with the Bordeaux mixture when the leaves are unfolding.

BLIGHT: *R. L.* The injury is caused by aphis. Spray the plants thoroughly with an infusion of Quassia chips.

BRANCHED TULIPS: *A. E. M.* Every season we receive numbers of branched Tulips. As a rule these stems bear two, three, or four flowers; six flowers are rarer, but in a garden at Chelsea a Tulip produced seven blooms from a single bulb in 1910. In the *Gardeners' Chronicle* dated May 15, 1909, we illustrated some branched Tulips raised by Mons. Bony, Clermont-Ferrand, France, which were exhibited at the fortnightly meeting of the R.H.S. on the previous May 4. In these Tulips the branching was stated to be perfectly fixed when the plants were propagated by offsets, and a large proportion of seedlings also produced branched spikes. As a rule, four flowers were borne on each stem, but as many as seven had been produced from a single bulb. These branched Tulips showed considerable variation in colour.

CELERY FLY: *S. H.* Remedies for this pest consist of pinching the maggots which are found on the leaves, and in removing all leaves badly attacked and burning them. Syringe the plants with Quassia extract, which will make the leaves distasteful to the flies, and prevent them from laying their eggs thereon, or scatter lime, &c., on the leaves whilst in a damp condition. The plants should be fed liberally and flooded with water or manure water during dry weather. When the crop has been lifted, trench the ground and bury the top spit deeply in order that the flies which are then in the pupal stage will be unable to get through the depth of soil. If the attack has been very bad, apply a little fresh gas-lime to the soil, fork this in to the depth of about 4 inches, and take care not to plant another crop upon this ground until two months have elapsed.

DANDELIONS IN LAWNS: *L. M. B.* A weed extractor consisting of a hollow steel cylinder should be used to exterminate Dandelions from lawns. The cylinder should be placed over the crown and forced deeply down into the soil, then when it is withdrawn the entire root, with a little of the soil, will be removed. A pinch of salt should then be placed in each hole and filled up with good soil. An iron skewer may also be used, dipped into a bottle of sulphuric acid, forcing the skewer well into the centre of the root. Gloves should be worn when using the acid, so that the hands are protected from the fluid. Another method of getting rid of this weed is to fill an oil-can having a long spout with carbolic acid, and pouring a small quantity of acid on the crown of each plant.

GARDENING EMPLOYMENT IN AUSTRALIA: *A. J. D.* See reply to *Australian* in the issue for January 6, p. 15.

GOOSEBERRIES DISEASED: *Gooseberry.* The bush is attacked by Botrytis cinerea; spray with Bordeaux mixture.

GRAPES DAMPING OFF: *E. C.* In all probability the acid in the bones is injurious. Dust the border with a small amount of quicklime and fork it lightly into the soil.

GRAPES DISEASED: *J. D., Staffordshire.* The vines are attacked with Botrytis cinerea. Spray them with liver of sulphur and keep the house as dry as circumstances will permit.

GREENHOUSE: *A. R.* The law as to the right to remove a greenhouse is very vague and somewhat complicated, but you will find it fully dealt with in *Gard. Chron.*, September 29, 1906, p. 221. In the circumstances which you have described, it is impossible to advise you that you would be quite safe in removing even the upper part of the structure, if the landlord chose to bring an action against you. It is a matter that needs a definite decision in the Law Courts.

GRUBS IN YOUNG APPLE TREES: *A. C. D.* The grub is that of the leopard moth. Your best plan will be to find out the holes in which caterpillars are boring, and pass a piece of wire into them for the purpose of killing the caterpillars, or inject into the holes paraffin emulsion.

MEALY BUG: *E. C.* This pest cannot be eradicated when the plants are in active growth. Add one liquid ounce of carbolic acid to one gallon of lime water.

NAMES OF PLANTS: *D. F.* 1, Pyrus Aria; 2, Cratægus orientalis; 3, Pyrus (Mespilus) germanica; 4, Viburnum Lantana; 5, Quercus Ilex; 6, Berberis vulgaris; 7, Prunus Padus; 8, Pyrus torminalis.—*A. W. H.* 1, Carex pendula; 2, Anchusa sempervirens; 3, Anemone sylvestris flore pleno; 4, Pyrus arbutifolia; 5, Cytisus albus; 6, Bulbine sp.; 7, Spiræa van Houttei; 8, Camassia Leichtlinii. *H. L. G.* 1, Sedum spathulifolium; 2, S. lydium; 3, Antennaria dioica; 4, Saxifraga Lindleyana; 5, Sedum album.—*Shacas.* 1, Veronica gentianoides variegata; 2, V. teucrium variety dubia; 3, Helianthemum polifolium; 4, Omphalodes nitida; 5, Centaurea montana; 6, Asphodeline lutea.—*Puya.* 1, Senecio Doronicum; 2, Lychnis Viscaria; 3, Salix Lantana; 4, Wahlenbergia saxicola var.; 5, Lychnis Lagascæ; 6, Helenium Hoopesii; 7, Rhamnus alaternus maculata.—*W. B.* Pyrus angustifolia fl. pl.—*W. W.* Liriodendron tulipifera aureo-marginatum and Cercis Siliquastrum (in flower).—*C. A.* Fraxinus Ornus. *A. L.* 1, Pyrus Aria; 2, Coronilla Emerus.—*H. C.* Spiræa trilobata.—*Thanet.* Laburnum vulgare var. involutum.—*F. E. G.* Roses: 1, Ards Pillar; 2, Gloire de Dijon; 3, Conrad F. Meyer; 4, send when in flower.—*G. B., Belford.* Desfontainia spinosa.—*W. M., Italy.* The Rose is apparently Tuscany; a very old Damask variety. The shoot is badly infested with red rust or Orange fungus (Uredo rosæ). Burn all the infested leaves and shoots, and spray the plants with postassium sulphide.—*Constant Reader* and *Rugby.* Ceanothus Veitchianus.—*G. W.* 1, Tradescantia zebrina; 2, Pelargonium (known in gardens as Dandy, Little Gem and Little Dorrit); 3, Chlorophytum elatum variegatum.

PICTORIAL SEED POCKETS: *Enquirer.* These are manufactured by Messrs. Blake & McKenzie, Printers, Islington, Liverpool.

PRESERVING GREEN PEAS: *A. L.* A method of bottling Green Peas is to shell the Peas, put them into dry, wide-mouthed bottles, and shake them together so that they may lie in as little space as possible; cork the bottles closely, and seal the corks. Bury the bottles in the driest part of the garden, and take them up as they are wanted. They ought to keep good for some months. Another recipe is: Choose Peas which are large and fully grown, though not old. Put them into perfectly dry, wide-mouthed bottles, shake them down, cork securely, and cover the corks with bladder. Tie a wisp of hay round the lower part of the bottles to prevent their knocking against each other, put them side by side in a large saucepan, and all water up to the necks of bottles. Place the saucepan on the fire, and let the bottles remain standing in the water for two hours after it has reached boiling point, then take the saucepan off, but do not remove the bottles until the water is cold. Seal the corks, and store in a cool, dry place.

PROPAGATION OF TREES FROM CUTTINGS: *C. G. & Co.* The mode of propagation of forest and ornamental trees varies considerably; the number that can be increased from cuttings is somewhat limited, and include Catalpa, Cotoneaster, Corylus (Hazel), Elæagnus, Hippophæ, Ilex (Holly), Mulberry, Laurel, Poplar, Plane, Robinia (root-cuttings only), and Willow. Of Conifers, Cephalotaxus, Cupressus, Cryptomeria, Juniperus, Taxus, and Thuya may be increased by means of cuttings, but they require a special treatment, and a knowledge of the proper time to insert the cuttings to ensure success.

RECORD STRAWBERRIES: *F. W. C.* Reference to our record book shows that a fruit of the variety Keen's Seedling, which was 7½ inches round, and weighed 1¼ ounce, held the record, so this must now give place to your 10 fruits which weighed just over 1 lb.

SPRAYING ROSE TREES: *L. M. S.* We do not think the rather strong solution of Cyllin soft soap was altogether the cause of your partial failure. All the more so because such tender foliaged varieties as Joseph Hill and Marquis de Sinety were uninjured. At the date mentioned the weather was very chilly, and this, in conjunction with insect pests and mildew, would cause the burnt appearance. The injury is not likely to be permanent, and will not affect the future growth. Remove the leaves if they do not fall naturally. A frequent use of weak solutions is safer than strong doses and generally as effective. In future use only one ounce of Cyllin soft soap to each gallon of water when spraying tender foliage.

TROPÆOLUM AND YEW HEDGE: *Anxious.* You need entertain no fears of the roots of Tropæolum speciosum damaging the roots of the Yews, but if the growths of the climber are at all luxurious, they will very likely kill portions of the hedge.

VINE LEAVES: *Constant Reader.* The warty appearance of the leaves (known as warty disease) is due to an excess of moisture in the atmosphere and surroundings. Afford plenty of ventilation, and keep the conditions drier.

VINE LEAVES INJURED: *E. C., Portishead.* The leaves are merely scorched. Ventilate the house as early in the day as possible.

VIOLAS DISEASED: *A. B.* The injury is caused by a fungus Puccinia violæ. Spray the plants with liver of sulphur. The soil will also be infected, and should not be used for growing Violas again unless it is sterilised by heating.

WOODLICE IN VINE BORDERS: *L. M. B.* See answer to *B. B.* in our issue of May 18, p. 346.

Communications Received.—A. W. S.—H. T. G.—Constant Reader—C. A.—A. C., Prestonkirk—R. H. C.—W. L.—C. W.—J. T. B.—F. B., Sunderland—T. S.—G. S.—F. C.—D. P.—Chorley—W. H. B.—A. B., Bedford—W. T. J.—Anxious—A. M. C.—R. D. S—W. F.—A. T. B.—E. M. M.—E. J. Q.—A. P.—F. B.—W. T.—A. G.—A. H.—H. K., Dorchester—J. A. W.—A. D.—W. B. H.—T. S.—H. W.—M. B., Java—H. C. L.—C. T. D.—F. H. N.—W. A. C.—R. P. B.—J. W. B.—A. J. D.—A. H.—W. K.—H. M.

WM. DUNCAN TUCKER & SONS, Ltd.,

Horticultural Engineers, Etc.

AWARDED

LARGE GOLD MEDAL

HIGHEST AWARD for Conservatory, Orchid House, Plant Houses, Garden Frames, Garden Seats, Dove Cote,

AT THE

ROYAL INTERNATIONAL HORTICULTURAL EXHIBITION, 1912,

CHELSEA, LONDON.

27, CANNON STREET, LONDON, E.C.

By Special Appointment *To His Majesty The King.*

LAWN MOWERS. GREEN'S AND ROLLERS.

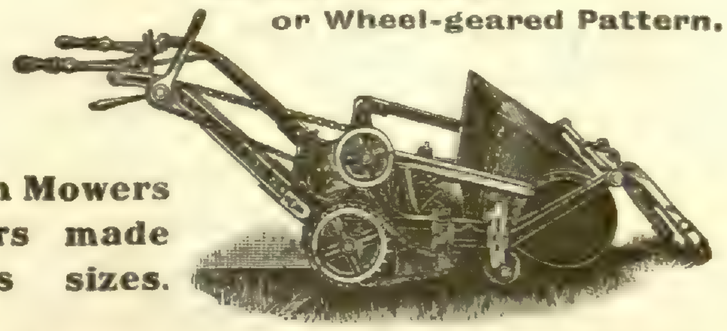
STAND PRE-EMINENT.

Hundreds of Thousands in use.

Highest Awards, Royal Botanic Society, Royal Horticultural Society, and numerous others.

GREEN'S "SILENS MESSOR" LAWN MOWERS

PONY AND HORSE MOWER.
"Silens Messor"
or Wheel-geared Pattern.

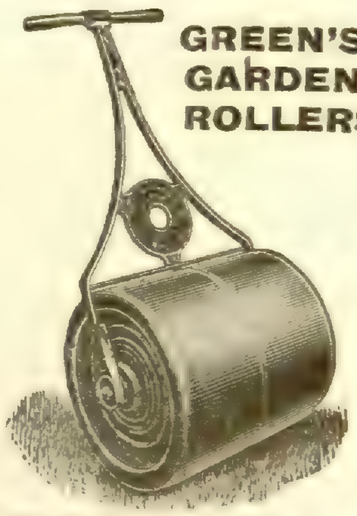


Motor Lawn Mowers and Rollers made in various sizes.

May be had from any Ironmonger or Seedsman in the United Kingdom.

PLEASE WRITE FOR ILLUSTRATED PRICE LIST No. 4 FREE.

GREEN'S GARDEN ROLLERS



THOMAS GREEN & SON, Ltd., Smithfield Ironworks, Leeds, and New Surrey Works, Southwark St., London, S.E.

THOMSON'S Celebrated MANURES

FIRST, alike for quality and results.

SAFE, SURE & LASTING.

The result of many years' **practical** experience.

VINE, PLANT AND VEGETABLE MANURE.—1 cwt., 20/-; ½ cwt., 10/- ¼ cwt., 6/-; 14 lbs., 3/6; 7 lbs., 2/6; Tins, 2/6, 1/- & 6d. Car. paid on 1 cwt. anywhere.

SPECIAL TOP-DRESSING MANURE.—½ cwt., 20/-; ¼ cwt., 11/-; 14 lbs., 6/- 7 lbs., 3/6; Tins, 1/- Carriage paid on ½ cwt. anywhere

Also Thomson's Book on the Vine. **Thomson's Styptic.**

1868 1912 **SOLD BY NURSERYMEN & SEEDSMEN EVERYWHERE.**

Write for Pamphlets, Price Lists, etc., to

Sole Makers: WM. THOMSON & SONS, Ltd., Clovenfords, Scotland.

Special Strawberry & Peach Packing Boxes,

fitted with our Plaited Punnets (samples sent).

Garden, Tennis & Boundary Nettings always in stock.

Makers of all kinds of **Shading & Conservatory Blinds.**

QUOTATIONS FREE.

MEREDITH BROS., 141, Richmond Terrace, DERBY.

REDNALL'S INSECTICIDE.

An ideal spraying fluid for the Garden and Greenhouse. Instant death to all insect life, but absolutely non-injurious to plant life. Non-poisonous, pleasant odour, no trouble to prepare, mixes readily with cold water. Trial bottles, 9d., post free; quarts, 2/6; 1 gallon, 7/6 (car. paid), of all Seedsmen, or direct from REDNALL, WOKINGHAM. Agents wanted.

THE WEATHER.

THE FOLLOWING SUMMARY RECORD of the weather throughout the British Islands, for the week ending June 1, is furnished from the Meteorological Office:—

GENERAL OBSERVATIONS.

The *weather* continued fine and dry generally until after the middle of the week, when there was a change to a showery and thundery condition. Thunderstorms were experienced over a large area in England on May 30 and 31, and in some localities on June 1. At Markree thunder was reported every day, and at Foynes a thunderstorm occurred on Saturday.

The *temperature* was rather more than 1° below the average over the kingdom generally, but slightly above it in Scotland W. and the English Channel. The highest of the maxima were recorded on somewhat irregular dates, and ranged from 74° in England E., and 73° in the Midland Counties to 67° in England N.E. and Ireland N., and to 65° in Scotland N. The absolute minima, which were generally registered early in the week, were as low as 29° in England S.W. (at Llangammarch Wells), 30° in Scotland E., and 32° in Scotland W. and England S.E. to 36° in Scotland N., England N.E., and Ireland S., and to 41° in the English Channel. The lowest grass readings reported were 24° at Greenwich and West Linton, 25° at Crathes and Birmingham, and 26° at Newton Rigg, Aberystwyth, and Dublin. The temperature of the earth at a depth of 4 feet remained above the average at almost all stations, but at the depth of 1 foot it was below the normal over the greater part of the kingdom.

The *mean temperature of the sea*.—The water was colder than during the corresponding week of last year very generally, but at most stations its temperature was above the average. The means for the week ranged from 58° at Eastbourne, 57° at Margate, 56½° at Scilly to 48° at Lerwick, and to 47° at Burnmouth.

The *rainfall* was less than the average except in England N.E., the Midland Counties, and the English Channel, the deficit being large in Scotland. At Aberdeen the week was rainless, and at some other places in Scotland and the northern parts of England and Ireland the fall was less than 0·1 inch. During a thunderstorm on Saturday 1·09 inch fell at Foynes.

The *bright sunshine* varied considerably in the different parts of the kingdom, being more prevalent in the western than in the eastern section. The daily mean equalled 10·4 hours in the English Channel, nearly 9 hours in England S.W. and Ireland S., and 7·5 hours in England S.E.; in England N.E. it was only 3·8 hours. The percentage of the possible duration ranged from 66 in the English Channel, and 56 in England S.W. to 27 in Scotland E., and to 23 in Scotland N. and England N.E.

THE WEATHER IN WEST HERTS.

Week ending June 5.

The wettest week for three months.—The first day of the week was very warm, but since then there has been only one moderately warm day, and but two warm nights. On the coldest night the exposed thermometer fell to within one degree of the freezing-point. The ground is at the present time 1° colder at 2 feet deep, and 3° colder at 1 foot deep, than is seasonable. Rain fell on each of the last six days, to the total depth of 1¼ inch—equivalent to six gallons on each square yard of surface in my garden. This was the wettest week since the beginning of March, or for three months. On one day there occurred a sharp fall of hail. There has been no percolation during the week through the soil gauge on which short grass is growing, but on the last six days 2¼ gallons of rainwater passed through the bare soil gauge. The sun shone on an average for five hours a day, which is more than an hour a day short of the mean duration for the early part of June. Calms and light airs alone prevailed during the week. The mean amount of moisture in the air at 3 p.m. exceeded a seasonable quantity for that hour by two per cent.

MAY.

Remarkably warm, and even more exceptionally calm.—There have been only three warmer Mays in the last 26 years. The days were, as a rule, rather more unseasonably warm than the nights. On the warmest day the temperature in the thermometer screen rose to 77°, and on the coldest night the exposed thermometer registered 7° of frost. Neither of these extremes is very unusual for the month. Rain fell on 14 days, to the total depth of 2¼ inches, which is slightly in excess of the May average. The sun shone on an average for 5½ hours a day, which is nearly three-quarters of an hour a day short of the mean duration for the month. This was the calmest May of which I have here, during the past 26 years, any record. In no hour did the mean velocity exceed 15 miles—direction W.N.W. There was a seasonable amount of moisture in the air at 3 o'clock in the afternoon.

THE SPRING.

Very exceptionally warm, and rather wet and sunny.—In the last 26 years there has been here only one warmer spring, and that was in 1893, or 19 years ago. All the months of the season were warm, but March proved the most unseasonably warm of the three. The total rainfall was slightly above the mean amount for the quarter. In March about twice the average rainfall was deposited. In April there was scarcely any rain at all, and in May the fall was about seasonable. This spring, taken as a whole, was rather a sunny one. In both March and May there was much less sunshine than usual, whereas April proved exceptionally sunny. *E. M., Berkhamsted, June 5, 1912.*

GARDENING APPOINTMENTS.

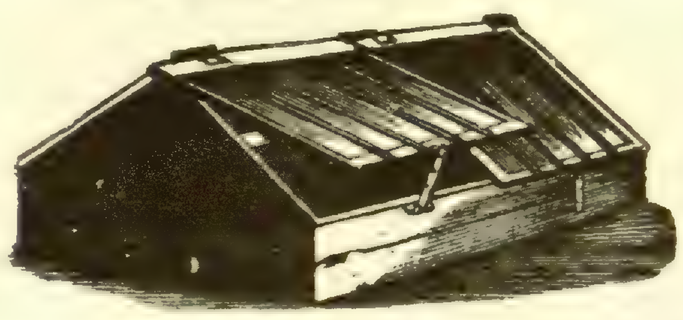
Mr. E. W. HAYWARD, for the past 8 years Gardener to Lord DENMAN, as Gardener to O. E. COLES, Esq., Denham Mount, Denham, Bucks.

Mr. F. SELMES, for the past 2 years in charge of the glasshousesat Royden Hall, Tonbridge, Kent, as Gardener to W. F REEMAN, Esq., Otford, near Sevenoaks, Kent.

SUPPLIED TO HIS MAJESTY'S GOVERNMENT
• • • VALLS • • •
BEETLECUTE
The Great Exterminator
of Beetles, Cockroaches,
Ants, Woodlice, Crickets, etc.
Beetlecute is superior to every other preparation as an exterminator of the above insects in Private Houses, Gardens, Hothouses, Propagating Frames, etc.
A powder eagerly devoured by these pests causing them to shrivel up and disappear.
Non-Injurious to Foliage, Fruit and Flowers. Harmless to Human Beings & Domestic Animals.
In Tins, 6d., 1s. and 2s. 6d.
Sold by Florists, Grocers, and Chemists, or direct from
VALLS & CO., 20, Little Britain, London, E.C.

By Appointments to His Majesty KING GEORGE. H.M. Queen Alexandra and the late KING EDWARD.
SANKEY'S famous GARDEN POTS
THE BEST AND CHEAPEST.
SPECIAL POTS for Chrysanthemums, Roses, Vines, Clematis, Orchids, etc.
ARTISTIC FERN PANS & BULB BOWLS
at slightly more than ordinary pots.
State quantity of each size required and have carriage paid quotation (carriage is sometimes as much as 50 % of value of pots), or write for Price List, free.
RICHARD SANKEY & SON, LTD.,
Bulwell Potteries, NOTTINGHAM.

PORTABLE PLANT FRAMES.
OUR WELL-KNOWN MAKE.



These Frames are made of the Best Materials, and can be put together and taken apart in a few minutes by anyone.

Sizes and Prices, Glazed and Painted.			£	s.	d.
6 feet long,	3 feet wide	CASH PRICES, CARRIAGE PAID.	2	0	0
6 feet ,,	4 feet ,,		2	5	0
6 feet ,,	5 feet ,,		2	15	0
12 feet ,,	4 feet ,,		4	0	0
12 feet ,,	5 feet ,,		4	15	0
12 feet ,,	6 feet ,,		5	12	6

Larger Sizes at Proportionate Prices.

R. HALLIDAY & CO.,
ROYAL HORTICULTURAL WORKS,
Middleton, Manchester.

THACKERAY wrote in 1849 in praise of
"PUNCH"
"THERE were never before published in this world so many volumes that contained so much cause for laughing and so little for blushing, so many jokes and so little harm."

¶ This is no less true to-day. Why not tell your Newsagent to deliver "Punch" to you each week?

GARDENING CHARITIES

GARDENERS' ROYAL BENEVOLENT INSTITUTION.
GEO. J. INGRAM, Sec.,
92, Victoria Street, S.W.
Telephone—Westminster 5142.

ROYAL GARDENERS' ORPHAN FUND
B. WYNNE, Sec.,
19, Bedford Chambers, Covent Garden, London, W.C.

The Gardeners' Chronicle

SCALE OF CHARGES FOR ADVERTISEMENTS.

Advertisements intended for insertion in the next issue MUST reach THE PUBLISHER not later than

WEDNESDAY, 5 p.m.

	£	s.	d.
Ordinary Positions ... ... per page	10	10	0
Facing matter and Back page ... ,, ,,	12	12	0

Half and quarter pages, column and half column spaces, pro rata.

	£	s.	d.
4 line space, about 20 words, single column ...		3	0
Per inch, single column		7	0
Per inch, across 2 columns		14	0
Per inch, across 3 columns	1	1	0

SERIES DISCOUNTS.

For three insertions, 5%; thirteen, 10%; twenty-six, 15%; fifty-two, 20%.

Front page (no display allowed) **1/-** per line space.

SITUATIONS WANTED.

26 words, **1s. 6d.**, and **6d.** for every additional **8** words or fewer.

These Advertisements must be prepaid, **AND APPLY ONLY TO GARDENERS, &c., OUT OF EMPLOYMENT.**

Advertisers may have replies to their advertisements addressed to the "GARDENERS' CHRONICLE" Office. A Box Office fee of 6d. is charged for each advertisement, and replies are forwarded post free at the end of each day.

The boxes for answers to advertisements are provided for the use of advertisers only, and no matter will be forwarded which is not, in the opinion of the Publisher, a bona-fide or specific answer to an advertisement. The boxes are not to be used for the distribution of printed or written announcements, or for the benefit of competing businesses. All advertisements and replies are accepted subject to the above conditions.

SUBSCRIPTIONS:—

THE UNITED KINGDOM ... .. **15/-** per annum.
ABROAD ... ... **17/6** ,,

Cheques and P.O.'s to be made payable to "GARDENERS' CHRONICLE, LTD."

41, WELLINGTON STREET, COVENT GARDEN, LONDON, W.C.

Telegrams "GARDCHRON, LONDON."
Telephone: GERRARD 1543.

SITUATIONS VACANT.

Four Lines 3s. (Head-line counted as Two), 6d. for each succeeding line.

PRIVATE.

WANTED, GARDENER-ATTENDANT; single man; practical Gardener; willing to make himself useful; wages commence £30, with board, lodging, washing; no uniform.—Applications, stating age, height, particulars, enclosing copies of testimonials or references, to Dr. RICHARDSON, Lunatic Asylum, Isle of Man.

WANTED, GARDENER (GENERAL); Hot and Cold Houses; knowledge of Orchids preferred; must be thoroughly competent and skilful, with good references; salary 35s. to 40s. per week, no rooms; Stamford Hill district.—Full particulars to G290, care of Deacons, Leadenhall Street, E.C.

WANTED, LADY GARDENER for private family, to take entire charge of Forcing Pit, Greenhouse and Indoor Winter Garden; also sowing and planting outside crops and supervision of man assistant; meals with family; private bed and sitting-rooms; state age, salary, reference, and enclose photo.—Mrs. SENIOR, The Bungalow, Sturminster Newton, Dorset.

WANTED, for Bodnant Gardens, Talycafn, N. Wales, a good working, intelligent, married man, to take the LEAD in extensive Pleasure Grounds; age 35 to 40; good wages and cottage to a suitable man.—Apply, with particulars of experience, to GURNEY, above address.

WANTED, good Kitchen Garden MAN; take LEAD under Head; good Bothy, &c.; age not under 25; good character essential; cricketer preferred; state wages.—BENNETT, The Gardens, Bradfield, Cullompton, Devon.

WANTED, single MAN for Pleasure Grounds; well up in Rockery Alpines and Herbaceous Plants; take duty.—Please state age and wages required to A. CHALK, Glanmawddach Gardens, Dolgelly, North Wales.

WANTED, MAN who thoroughly understands growing Hardy Fruit; no other need apply; age about 30; state married or single; Gardener's recommendation preferred; wages and all particulars.—Apply, T. SMITH, Cadland Gardens, Southampton.

WANTED, intelligent MAN for Inside and Out; wages £1 with cottage; duty.—References and full particulars of experience to A. LEVATTON, Myddleton House Gardens, Waltham Cross, Herts.

WANTED, steady, reliable MAN to take charge of Houses under Head Gardener; wages 17s. and Bothy.—HALL, Roydon Hall, Tonbridge.

WANTED, GARDENER (SINGLE-HANDED) for a small Flower and Kitchen Garden in Sussex; cottage with four rooms; wages 20s. per week; situation vacant on July 6th, 1912.—Reply to LORD E. GORDON-LENNOX, Blenheim Barracks, Aldershot.

WANTED, GARDENER (SINGLE-HANDED), married, for Chislehurst; Greenhouse, Flower Garden, &c; must understand something about Orchards; cottage found.—Write, stating age, wages, and length of character, to "P. G. F.," care of Street's, 30, Cornhill, E.C.

WANTED, GARDENER (SECOND), with knowledge of electric light plant worked by gas engine; must be unmarried; age about 22.—Apply to Mr. SEPTIMUS CROFT, St. Margaretsbury, Ware.

JAMES VEITCH & SONS, LTD., require for a private establishment in Kent a first-class FOREMAN (Working, Outside); wages £1 per week, Bothy, milk and vegetables.—Apply, with fullest particulars of experience, etc., to Royal Exotic Nursery, Chelsea, S.W.

WANTED, FOREMAN GARDENER (OUTSIDE) for good place in Ireland; wages 20s., Bothy, and perquisites.—Apply, with copies, stating age, religion, JOSEPH ORR & SON, Seedsmen, Belfast.

WANTED, GARDENERS.—JOURNEYMEN (Outside); first-class places.—Apply, STEWART & CO., 13, South Saint Andrew Street, Edinburgh.

WANTED at once, JOURNEYMAN (FIRST) for Fruit, Inside; 17s., Bothy, Sunday duty extra.—LEARMOUTH, Sherfield Manor Gardens, Basingstoke.

WANTED, JOURNEYMAN; chiefly Herbaceous, Roses, &c.; able to take duty; age about 22; 18s. per week; Bothy.—C. CAWKELL, Angerton Gardens, Morpeth, Northumberland.

WANTED, JOURNEYMAN for Fruit and Plant Houses; must be well recommended; wages 17s. per week and Bothy.—Apply, T. LEACH, Ratton Gardens, Willingdon, Sussex.

WANTED, JOURNEYMAN for the Hardy Herbaceous Department, Shrubs, &c.; state age, experience and wages required.—CURATOR, Botanical Gardens, Birmingham.

WANTED, JOURNEYMAN for Inside; strong and active, with knowledge of his work; wages 15s. and Bothy.—H. ADAMS, Hemsted Gardens, Cranbrook, Kent.

WANTED, JOURNEYMAN for Pleasure Grounds and Hardy Fruit; must be well up in his work; wages 20s. to begin.—Apply, by letter only, to J. F. McLEOD, Dover House Gardens, Roehampton, Surrey.

WANTED, JOURNEYMAN (OUTSIDE); not under 21, with experience under glass; duty alternate weeks; wages 17s. per week and Bothy, vegetables, &c.—T. DICKIE, The Gardens, Voelas, Bettws-y-Coed.

WANTED, JOURNEYMAN (OUTSIDE); and help Inside, to take turn of fires; must be over 20; good references required.—Apply by letter to D. MARSHALL, Rosehill Cottage, Caversham, Reading.

WANTED, as LEADING HAND, Young Man about 26 for Fruit and Plant Houses; must be capable and reliable; wages 20s., Bothy.—W. STRUGNELL, Rood Ashton, Trowbridge.

WANTED, strong, active YOUNG MAN for Kitchen Garden; knowledge of Scythe; duty every third Sunday; wages 21s.; state age, with copies of testimonials.—F. HICKS, Duneevan Lodge, Oatlands Drive, Weybridge.

WANTED, active YOUNG MAN for Kitchen Garden and Lawns; duty every fourth week; wages 20s. per week, no Bothy.—Apply, stating experience and age, to LEWENDON, Spring Place, Bexley, Kent.

WANTED, YOUNG MAN for Kitchen Garden and Pleasure Ground; wages 20s. to 22s. per week, no Bothy.—Apply R. FREEMAN, Walwick Hall Gardens, Humshaugh, Northumberland.

WANTED, strong, experienced Young Man for Kitchen Garden work; wages 16s., Bothy, milk, and vegetables.—Apply, with copies of testimonials, &c., to W. G. CLEAVER, Blankney Hall Gardens, Lincoln.

WANTED, strong, active YOUNG MAN for Inside and Out; about 23; wages 18s.; no Bothy.—Apply, stating age, height and experience, H. JACKSON, The Villa Gardens, Effingham, Surrey.

WANTED, strong, active YOUNG MAN for Outside and take duty; 16s. and Bothy.—J. WINCHESTER, Windle Hall Gardens, St. Helens, Lancs.

WANTED, two Garden LABOURERS for Pleasure Grounds; must be strong and active, understand Mowing Machine and Scythe; Bothy; wages 15s. weekly; not under 21 years; knowledge cricket preferred.—BENNETT, Bradfield, Cullompton, Devon.

TRADE.

WANTED, GENERAL NURSERY FOREMAN, to take entire supervision of a large Outdoor Nursery; must thoroughly understand the growing of Forest Trees, Ornamental Trees, Roses, &c., in all their details, and be able to handle labour to the best advantage; only capable, energetic men need apply.—Full particulars, stating age, experience, and salary expected, with copies of any references, to "NORTH," Box 7, 41, Wellington Street, Covent Garden, W.C.

WANTED, FOREMAN, end of June; must be good grower general Stuff and Raising Ferns, and Forcing; North of Yorkshire.—T. F., Box 27, 41, Wellington Street, Covent Garden, W.C.

FOREMAN (OUTSIDE), in general provincial Nursery; must be well acquainted with all Outside Nursery stock; good wages and a permanency.—State age, expectations, and if married, to FOREMAN, Box 22, 41, Wellington Street, Covent Garden, W.C.

WANTED, two MEN for Market Nursery, one to act as Foreman; must thoroughly understand growing Tomatos, Chrysanthemums, Carnations, Bedding Plants, Forcing Bulbs, and general market plants under glass.—Apply, stating age, experience, with copies and wages expected, without Bothy, to "BELFAST," Box 1, 41, Wellington Street, Covent Garden, W.C.

WANTED, ORCHID GROWER; well up in potting and watering and giving air; wages to commence, 25s.—Apply, with references, C. F. WATERS, The Nurseries, Balcombe.

WANTED, PROPAGATOR; Man with some experience in the handling of Hardy Plants and Alpines.—Write, stating age, experience, wages required, copies of references, BARR & SONS, Taplow.

WANTED, Mushroom, Tomato, Carnation, and Chrysanthemum Grower for small Nursery and private garden.—WEST, Box 2, 41, Wellington Street, Covent Garden, W.C.

WANTED, GRAPE THINNERS (two); also permanent HAND for Vines.—State age, height, experience, Mr. BULLEN, Hangleton Nurseries, Goring, near Worthing.

WANTED immediately, GRAPE THINNER.—State wages and references, Oaklands Nurseries, Haslemere, Surrey.

WANTED, BUDDER and GRAFTER, Roses and Fruit Trees; capable of taking own wood; only good man need apply; permanent place; good wages.—Apply, R. G. MORSE, The Old Nurseries, Eaton, Norwich.

WANTED, an ASSISTANT PROPAGATOR in Hard-wood Department.—State experience and wages required, C. T., Box 9, 41, Wellington Street, Covent Garden, W.C.

WANTED, all-round JOBBING GARDENER; permanency; wages 24s. with commission.—Write, giving experience, LEWIS, Nurseryman, Barnes, Surrey.

WANTED, JOURNEYMAN and FOREMAN for Ireland.—Apply, ALEX. DICKSON & SONS, LTD., Hawlmark, Dublin.

WANTED, YOUNG MAN to take charge of small Nursery for growing Tomatos, Chrysanthemums, Cucumbers, and Flowering Plants and Bulbs for our own trade; state age and salary.—Apply, H. STRATTON & SON, Fruiterers and Florists, 5, Manchester Street, Luton, Beds.

WANTED, a YOUNG MAN to take charge of Alpine and Herbaceous Department; must be reliable and well up in his work.—Full particulars to "HORTO," Box 23, 41, Wellington Street, Covent Garden, W.C.

WANTED, YOUNG MAN, about 18; must be energetic and used to Cucumbers, Chrysanthemums, &c.—Reference and wages required to WELLINGTON NURSERIES, Broadstone, Dorset.

WANTED, two YOUNG MEN for Nursery work, Inside and Out.—S. GRIFFIN, The Nurseries, Portslade, Brighton.

WANTED, at once, YOUNG MAN (single); good experience in Cucumbers, Tomatos and Bedding Stuff.—State wages required, references, &c., MANAGER, Hedon Growers, Ltd., Burstwick, Hull.

WANTED, Herbaceous Department, smart Young Man; well up in Propagation, Execution of Orders, Flower Shows, &c.—THYNE & SON, Nurserymen, Dundee.

WE still have a Vacancy for an active YOUNG MAN used to general Nursery work, Inside.—State age, wages required, and experience, THE ST. GEORGE'S NURSERY CO., Harlington, Middlesex.

SEED TRADE.—Wanted, ASSISTANT; must be smart, active and willing, and have been used to quick counter trade.—Write, stating age, experience and wages required, to F. S., Box 3, 41, Wellington Street, Covent Garden, W.C.

WANTED, JUNIOR ASSISTANT to Seed and Florist Trade; county town; one from similar town preferred; all-round work required.—Apply, stating experience, references, and salary required, MIDLANDS, Box 1, 41, Wellington Street, Covent Garden, W.C.

SEED TRADE.—Wanted, smart JUNIOR COUNTER HAND for Dublin Seed House.—Write, SEEDS, Box 24, 41, Wellington Street, Covent Garden, W.C.

WANTED, smart YOUNG MAN; good Salesman and Window Dresser.—S. GRIFFIN, Brighton's Leading Florist, Prince Albert Street.

WANTED.—An opening occurs in a first-class Nursery for a really good Catalogue COMPILER; one able to keep accurate records of Stock and Purchases, describe new plants, &c.; knowledge of Hardy Plants and Trees essential.—HORTUS, Box 8, 41, Wellington Street, Covent Garden, W.C.

SITUATIONS WANTED.

Twenty-six words for 1/6, & 6d. for each succeeding Eight words or less.

Gardeners desiring their Advertisements repeated *must give full particulars, otherwise no notice will be taken of their communications. Name and address alone are insufficient.*

Gardeners writing to Advertisers of Vacant Situations are recommended to send them **copies** *of testimonials only, retaining the originals. On no account should they enter into communication with unknown correspondents who require a fee beforehand.*

Advertisers are cautioned against having Letters addressed to Initials at Post-offices, as all Letters so addressed are opened by the Postal authorities and returned to the Sender.

PRIVATE.

Gardeners, Farm Bailiffs, Foresters, &c.

DICKSONS, Royal Nurseries, Chester, are always in a position to RECOMMEND MEN of the highest respectability and thoroughly practical at their business. All particulars on application.

CLIBRANS, Nurserymen to H.M. the King, Altrincham, can recommend thoroughly practical, well experienced Men, of high character, as GARDENERS (Head or Under), FORESTERS, &c. Correspondence invited.

J. SHAW ROBERTSON, The Vache, Chalfont St. Giles, Bucks., wishes to recommend his GARDENER (Head); leaving on account of changes.—Write to above address.

GARDENER (HEAD); thorough knowledge gained in first-class establishments, including Bowood, Deepdene, and Sandbeck; been nearly four years Head; employer given up place cause of leaving; excellent references; age 30; married; abstainer.—H. BEST, Vyne, Basingstoke.

GARDENER (HEAD, where several are kept); thoroughly practical all-round man; experienced in first-class places; highest recommendations; married, no family.—E. S., care of Messrs. Peed & Son, West Norwood. (No circulars.)

CHARLES WALDSTEIN, Esq., of Newton Hall, Cambridge, highly recommends his GARDENER (Head); honest, sober and trustworthy; very efficient in dealing with Flowers and Vegetables; age 37; married, no children.

GARDENER (HEAD); thoroughly practical in the routine of a well-kept establishment; 20 years' experience; abstainer; married, one child; excellent references.—T. BENNETT, Horsepool, Bromham, Wilts.

GARDENER (HEAD, where several are kept); life experience all branches; 10 years last place; age 39; married, no family.—DAVID DAVIES, Head Gardener, Llanharran House, Glamorganshire.

GARDENER (HEAD); 39; married; life experience in Fruit and Plants under glass and outside, Vegetables, Pleasure Grounds, &c.; 12 years as Head; seven in present situation; good references.—STEVENTON, Lodge, Orchard House, Erith, Kent.

ANYONE requiring first-class, hard-working GARDENER (Head); 20 years' sound practical experience in every branch, also on commercial lines; highest references; age 35.—G., Box 24, 41, Wellington Street, Covent Garden, W.C.

GARDENER (HEAD or good SINGLE-HANDED); life experience; steady and trustworthy; 12 and 9 years previous situations; age 38; married.—ANDREWS, 38, Southwood Lane, Highgate, N.

GARDENER (HEAD or good SINGLE-HANDED with help); experienced Inside and Out; good references; age 46; single.—G. BURGESS, 17, Eversleigh Road, Lavender Hill, London, S.W.

GARDENER (HEAD WORKING, where several are kept); 17 years' practical experience all branches; five years Head last place; age 34; married, one child (age 4); excellent references.—ARTHUR SPRINGHAM, North Cote Gardens, Westbury-on-Trym, Bristol.

GARDENER (HEAD WORKING); life experience in all branches; can be well recommended; age 30; married, no family.—A. E. MOSS, 14, Bury Street, Chelsea.

GARDENER (HEAD WORKING, where more are kept); 25 years' practical experience in all branches, Inside and Out; Orchids, Vines, Peaches, Cucumbers, Melons, Stove and Greenhouse Plants and Herbaceous Borders; thoroughly reliable; highly recommended; married, without encumbrance.—F. WOODHOUSE, Blackboys, Uckfield, Sussex.

GARDENER (HEAD WORKING); life experience; can be well recommended as a good all-round man; 12½ years as Head in present place, leaving through death; well experienced Orchids, Herbaceous and Alpines.—WARREN, Highfield, Gainsborough.

GARDENER (HEAD WORKING, where few are kept); life experience in all branches, Land and Stock if required; disengaged; eight months and 12½ years' good character; age 42.—F. COLES, 108, Third Cross Road, Twickenham.

GARDENER (HEAD WORKING); life experience in all branches, Inside and Out; 13 years in last situation.—SEARS, Milgate Park, Maidstone.

GARDENER (HEAD WORKING, where two or more are kept); life experience Inside and Out; Fruit, Flowers, Vines, Vegetables, &c.; married, no family.—BLAGBURN, Sherwood Farm, Mitcham.

GARDENER (HEAD WORKING, where three or more are kept).—R. BEGG is anxious to meet Lady or Gentleman requiring the services of a good all-round man; life experience in all branches, including Orchids; highly recommended; married, no family; disengaged when suited.—R. BEGG, Redenham Park, near Andover, Hants.

GARDENER (HEAD WORKING).—Mr. H. G. BULL, Breakspears, highly recommends C. HARBERT as above; well versed in cultivation of Flowers, Fruit, and Vegetables; practical experience; age 30.—Breakspears Gardens, Uxbridge, Middlesex.

GARDENER (HEAD WORKING, where two or three are kept). Mr. M. R. AIRD can thoroughly recommend E. ALLNUTT as above; age 27; married when suited.—Detailed particulars will be given by Mr. BERRY, Head Gardener, Wilton Park, Beaconsfield, Bucks.

GARDENER (HEAD WORKING); life experience in good establishments; seven years present and eight years at Worsley Old Hall, Manchester, as Head; good testimonials; married, no family; wife good cook; age 45.—JAMES BURROWS, Box, Minchinhampton, Gloucestershire.

GARDENER (HEAD WORKING, where three or four are kept); life experience Orchids, Stove, Vines, Cucumbers, Flower and Kitchen Garden, Land and Stock; leaving through place being let; age 40; married, no family.—DOWNHAM, Queensmere Road, Wimbledon Park.

GARDENER (HEAD WORKING, where more are kept); 25 years' practical experience in all branches Inside and Out; Orchids, Vines, Peaches, Cucumbers, Melons, Stove and Greenhouse Plants, and Herbaceous Borders; highly recommended; age 36; married, no family; abstainer.—F. BUSH, 56, Buxton Villa, Rusthall, Tunbridge Wells.

J. GARDNER, Batsford Park Gardens, Moreton-in-Marsh, highly recommends H. CRISP, age 30, as GARDENER (Head Working, where three or more are kept); has been Foreman here two years and had long experience in good gardens; a first class man in all branches, including House and Table Decorations; married when suited.

THE COUNTESS of ANCASTER will be pleased to thoroughly recommend HENRY LYDIATT as an excellent GARDENER (Head Working), good all-round practical experience, gained in first class establishments; honest, sober and trustworthy; age 40.—HENRY LYDIATT, Grimsthorpe Castle Gardens, Bourne, Lincs.

F. NORTHEN, Esq., highly recommends his GARDENER (Head Working); qualified in all its branches; R.H.S. Certificate; age 35; married, one child, age ten.—Address, PRENTICE, Stout's Hill Gardens, Dursley, Glos.

GARDENER (HEAD WORKING, where more are kept); thorough practical first-class man; experienced in all branches; excellent testimonials.—G. BARTLE, 43, Wigston Lane, Aylestone, Leicester.

GARDENER (HEAD WORKING); thorough practical experience in all branches; highest references; age 35; married, no family.—GETSON, Epsom Road, Leatherhead, Surrey.

SIR CHARLES ROSE, Bart., M.P., wishes to highly recommend F. ELKINS as GARDENER (Head Working or good Second); age 28; married.—Hardwick House, Whitchurch, Pangbourne.

GARDENER and WIFE as LAUNDRESS; both experienced; age 35 and no family; well recommended.—W. BROOKS, Alveley, Bridgnorth, Shropshire.

GARDENER seeks Situation; single; age 35; good reference.—Address, W. PARR, 65, Harwood Road, Fulham, S.W.

GENTLEMAN recommends his Gardener; married; abstainer; willing to make himself useful; 2 years 10 months and 3 years' references.—W. BALAAM, West End, Pinner, Middlesex.

E. MARKHAM, Bishopsgate, Englefield Green, Surrey, for the past five years Head Gardener to Lady Marcus Beresford, seeks situation where a thoroughly experienced Man in all branches of gardening is required; excellent credentials; age 41.

HARDY FRUITMAN or KNIFESMAN; private or nursery; 10 years' experience; good Budder, Grafter, Pruner, &c.; good reference; state wages; age 30; married.—S. S., Box 14, 41, Wellington Street, Covent Garden, W.C.

GARDENER seeks Situation (KITCHEN GARDEN or SINGLE-HANDED); 11 years' experience Inside and Out; age 27; single; three years last situation.—J. FOSSEY, 23, High Street, Markyate, Dunstable, Beds.

GARDENER (SINGLE-HANDED or HEAD of two or three); 16 years' all-round experience; abstainer; single (32); churchman; disengaged any time; good references.—TRISE, 1, Oak Square, Sevenoaks, Kent.

GARDENER (SINGLE-HANDED or with help); experienced in all branches; age 39; married, no family; good references.—GARDENER, Sandon Cottage, Sandon, Chelmsford. (No circulars.)

MARKET FRUIT GARDEN.

THE GARDENERS' CHRONICLE

ESTABLISHED 1841 Nº 3729

No. 1,329.—VOL. LI. {THIRD SERIES.} SATURDAY, JUNE 15, 1912. {Registered as a Newspaper. PRICE 3d. POST-FREE, 3½d.

SUBSCRIPTION—Inland, 15/-; Foreign, 17/6 [22fr. 10c.] [$4 26c.] per annum. Entered at the New York Post Office as second-class matter.

Postal Address—41, Wellington Street, Covent Garden, W.C. Telegraphic Address—"Gardchron, London." Telephone—Gerrard, 1543.

☞ For CONTENTS see page 383.

In consequence of the increase in the circulation, and also of the earlier despatch of the morning trains from London, the hour of going to press has been again advanced, and in future Advertisements received after 5 p.m. on WEDNESDAY will be held over till the following week. On no consideration whatever will any exception be made to this rule.

WEBBS' CHOICE FLOWER SEEDS.—Latest Award: LARGE GOLD MEDAL at the Royal International Horticultural Exhibition for excellence of Flowers raised from Seed.

WEBBS' CHOICE FLOWER SEEDS.—Illustrated Price List of Flower Seeds for present sowing, sent gratis and post free on application.—WEBB & SONS, The King's Seedsmen, Wordsley, Stourbridge.

BUNYARD'S CATALOGUES, free on application.
BORDER CARNATIONS, 50 varieties.
ROSES AND OTHER CLIMBERS, in Pots.
HERBACEOUS AND AQUATIC PLANTS for present planting.
GEORGE BUNYARD & CO., LTD., Royal Nurseries, Maidstone. Established 1796.

LISSADELL ALPINE & HERBACEOUS PLANTS.—Write for our new illustrated and enlarged List, containing many beautiful novelties at moderate prices. Also List of Seeds collected from above in 1911.
J. A. COOPER, Lissadell (No. 2), Sligo, Ireland.

HARRISON'S "RELIABLE" WEED KILLER.—Best and cheapest. See p. iii. this issue.

RIVERS' FRUIT-TREES, ROSES, VINES, FIGS, ORANGES, & ORCHARD-HOUSE TREES. A large and select stock always on view. Illustrated and descriptive Catalogue, post free, 3d.—THOMAS RIVERS AND SON, Sawbridgeworth, Herts. Station: Harlow, G.E.R.

Roses and Herbaceous Plants.

GUNN & SONS were awarded the 25 Guinea Challenge Cup in each collection at the Leamington Show. Up-to-date List for each now ready. Address: Olton, Warwickshire.

BARR'S SEEDS FOR JUNE SOWING.—Finest strains of Antirrhinums, Aquilegias, Campanulas, Canterbury Bells, Calceolarias, Cinerarias, Delphiniums, Hollyhocks, Lupins, Pansies, Primulas, Stocks, Wallflowers, etc. Special list on application.
BARR & SONS, 11, 12 & 13, King St., Covent Garden, London.

FRUITING VINES IN POTS.—Muscat of Alexandria, and leading Market varieties. We make Vines a speciality.
G. COLEMAN, The Vineries, Burgess Hill, Sussex.

LAXTON'S STRAWBERRIES. — New Catalogue now ready, with particulars of three fine improvements for 1912, including the new "Queen," a gem of the first water, a glorified British Queen. Full particulars on application.
LAXTON BROTHERS, Bedford.

SUTTON'S SWEET WILLIAMS. Produce enormous heads of beautifully coloured flowers.
SUTTON'S PINK BEAUTY, per packet, 1s. and 1s. 6d.
SUTTON'S SCARLET, per packet, 1s. and 1s. 6d.
"Mrs. Brace must say how splendidly Sutton's Pink Beauty Sweet William is blooming. Crowds of people come to see it in her garden."—Sunnyside.

SUTTON & SONS, The King's Seedsmen, READING.

ALPINES & HERBACEOUS PLANTS,—Himalayan and other rare Rhododendrons, rare Shrubs, Construction of Rockeries. Catalogues ready.
G. REUTHE, Keston, Kent.

GISHURST COMPOUND is harmless in use; its soluble Sulphur, &c., has for 40 years cured Blights and Fungus on Plants, and is good for washing unhealthy dogs. Gishurstine keeps boots dry in all weathers; they will polish. Good for Harness.
Wholesale from—
PRICE'S PATENT CANDLE CO. LTD., London.

HUTS FOR THE GARDEN. — Fruit Rooms, Potting Sheds, Workshops, Cycle Houses, Boot Rooms, Servants' Mess Rooms, Children's Playrooms, &c. Send for Illustrated Catalogue, free.
BOULTON & PAUL, Ltd., Norwich.

GARDEN PESTS.—Cross's "Clubicide" is the Gardeners' Insurance against damage by Eelworm, Wireworm, Slugs, Maggot, and all Disease Germs and Insect Pests. Kills all harmful Bacteria, reinvigorates the soil, stimulates plant life. In 1s. flasks and ½-gall. and 1 gall. drums. From all Seedsmen.
Sole Manufrs.: A. CROSS & SONS, Ltd., Glasgow.

OSMUNDA for Orchids.—Consignments arrive fortnightly. 2s. 6d. per bushel; per bag, 8s. 6d.
SANDER & SONS, St. Albans.

CHOICEST WALLFLOWERS.—Dicksons selected Dark Blood Red, Dicksons Golden Beauty, Primrose Dame, Eastern Queen, Ruby Gem, Golden Monarch, Vulcan, and Harbinger—all distinct and beautiful varieties, per packet 6d. and 1s., post free.
DICKSONS, Royal Seed Warehouses, Chester.

THE Popularity of "XL ALL" Specialities increases every year. All gardeners proclaim that nothing equals these celebrated preparations. "XL ALL" NICOTINE VAPORISING COMPOUND, the gardeners' favourite Fumigant, both Liquid and Cake. "XL ALL" NICOTINE INSECTICIDE WASH for Syringing, Dipping and Dressing Fruit Trees and Plants; Mealy Bug, Scale, etc., cannot exist where this is used. "XL ALL" INSECTICIDE WASH B (*sine* Nicotine), best non-poisonous Wash on the Market. No licence required to sell this. Other preparations of great renown are:—"XL ALL" WEED KILLER, "XL ALL" FERTILISER, "XL ALL" ROSE MANURE. Richards' GREEN SUNSHADE, finest powder shading on the market, 1s. packet, does 100 feet of glass. Don't forget to ask your Nurseryman or Seedsman for my small pink list.—G. H. RICHARDS, Manufacturer, 234, Borough High Street, London, S.E.

WALTERS & CO., Morland Rd., Croydon, Makers of Lath Roller Greenhouse Blinds; Pinoleums, Scrim, Tiffany; also Garden Trellis, Arches, Rose Trainers, of best designs. New Catalogue 1912, free.

GREENHOUSE PAINTING & GLAZING "Vitrolite" superior to White Lead Paint, 9/- per gall. "Plastine" supersedes Putty, 16/- per cwt. Full particulars from W. CARSON & SONS, Grove Works, Battersea. Agents throughout the country.

For Advertisement Charges see page ix.

Now is the time to plant

KELWAY'S GAILLARDIAS, which are among the most brilliant and the most easily grown of the hardy herbaceous perennials; they give abundant bloom in the same year that they are planted, and blossom profusely from June to November. The flowers are on long stems, and last in water for a fortnight. Choice named collections, 12s. a dozen. From pots. Carriage and packing free for remittance with order.—KELWAY & SON, The Royal Horticulturists, Langport, Somerset.

KELWAY COLOUR BORDERS.—Now is the time to plan these for Autumn planting. Full particulars and estimates for Hardy Borders of any dimension, and to suit any taste, packed ready for planting on arrival, on application. Send information as to measurements, position and soil to KELWAY & SON, The Royal Horticulturists, Langport, Somerset. ——, Chepstow. "You supplied me with an 'artistic herbaceous border' abou. eighteen months ago, and I am so very pleased with it. It looked so lovely last year that I am thinking of having a similar border laid out by the side of the drive up to the house."

ORDER TRELLIS-WORK NOW.—Get our book on Trellis-work, showing Screens, Wall Panels, Window Surrounds, Arches, Arbours, &c., post free.
BOULTON & PAUL, Ltd., Norwich.

AUTO SHREDS FUMIGANT kills Leaf-mining maggot, insects in greenhouses, frames. For 1,000 cubic feet, 6d.; 10,000, 3s. 6d. No apparatus.
WM. DARLINGTON & SONS, Patentees, Hackney, N.E.

SELECT YOUR ALPINES IN FLOWER.—A large collection, in pots, also Aquatics for present planting. Visitors cordially welcomed.—THE GUILDFORD HARDY PLANT NURSERY, Guildford.

WM. DUNCAN TUCKER & SONS, Ltd., 27, Cannon Street, London, E.C.; Works, Tottenham. Conservatories, Winter Gardens, Vineries, Peach-houses, Portable Buildings, etc. Catalogue gratis.

New Phloxes.

GUNN & SONS were Awarded a Silver Cup at the Great Show at Olympia. New Lists now ready. Address: Olton, Warwickshire.

CUTHBERT'S SPECIALITE MUSHROOM SPAWN.—NEW SPAWN NOW READY. We continue to receive the most gratifying testimonials as to the productiveness and good quality of our Spawn. Per bushel, 5s.—R. AND G. CUTHBERT, Seed and Bulb Merchants, Southgate, Middlesex.

ASPARAGUS.—Now is the time to make an Asparagus bed; strong two year roots, 5s. per 100, packed and carriage paid.—BIRD & VALLANCE, Nurserymen, Downham, Norfolk.

POINSETTIAS, established in small pots, clean and strong, 2s. 6d. per dozen, 18s. per 100; cash with order.—JOHN BURCH, Staple Hill Nursery, Bristol.

KEYNES' DAHLIAS, sturdy, healthy, plants of all best kinds. No one interested in Dahlias should be without a catalogue, gratis to all applicants.—KEYNES, WILLIAMS & CO., Salisbury.

PERPETUAL FLOWERING CARNATIONS; strong, established plants in pots, from 4s. per doz., carriage paid; 20s. per 100, carriage forward; illustrated catalogue, describing 75 leading varieties with cultural hints, post free.—C. F. A. VAN DER SLUYS, F.R.H.S., Ramee, Guernsey.

SALES BY AUCTION.

Grantham.

(Near Station and centre of town).

Compact Freehold Property, Medora Nursery, Stamford Street. Five Glasshouses, useful buildings and 1¼ acres of good land. Possession at Xmas.

MESSRS. PROTHEROE & MORRIS will offer the above by AUCTION at the Guildhall, Grantham, on THURSDAY NEXT, June 20th, at 4 p.m. Particulars of E. Patterson, Esq., Solicitor, Longton, and of the Auctioneers, 67 and 68, Cheapside, London, E.C.

SALE OF A VALUABLE FREEHOLD ESTATE at RUSHWICK, about two miles from the City of Worcester, and comprising—42 acres excellent MARKET GARDEN LAND, FRUIT PLANTATION, and valuable BUILDING SITES, together with two HOUSES and GARDENS, to be Sold by Auction by

E. G. RIGHTON & SON,
in conjunction with
T. J. STEPHENS, at the Star Hotel, WORCESTER, on SATURDAY, June 22nd, 1912, at 3 for 4 o'Clock precisely.

NOTE.—The Property will be first offered in one Lot, and, if not disposed of, will then be offered in Lots of about 5 to 10 acres, as per plan.

Further particulars, apply to A. Arrowsmith Maund, Esq.' Solicitor, Worcester; or of the Auctioneers, Evesham; or of T. J. Stephens, Broad Street, Worcester.

By Order of Executors.

Bracebridge, near Lincoln.

FREEHOLD RESIDENCE FOR SALE.

To be SOLD by AUCTION by

MR. J. PEACOCK RAYNER, at the Saracen's Head Hotel, in the City of Lincoln, on FRIDAY, the 28th day of June, 1912, at 3 o'Clock in the afternoon, precisely, subject to such conditions as shall then be produced, the exceptionally attractive FREEHOLD RESIDENTIAL PROPERTY known as THE MANSE, situate in the parish of Bracebridge, and about two miles from Lincoln, late in the occupation of the Reverend Charles Christopher Ellison, deceased.

This delightful residential estate is approached by a drive from the road leading from Lincoln to Waddington, and comprises a very convenient modern family Residence, containing on the Ground Floor: Entrance Hall, with porch, Drawing Room, Dining Room, Morning Room, Study, Work Room, Servants' Hall, Butler's Room, Lobby, Housemaid's Pantry, Kitchens, Pantry, Larder, Lavatory, and W.C.

On the First Floor: Nine Bedrooms, two Dressing Rooms, Night Nursery, Day Nursery, two Bathrooms, two W.C.'s, and Box Room.

There is also a very good Billiard Room, and extensive cellarage.

There is excellent stabling accommodation on the North side of the House, and a large Coach House or Motor Garage, and conveniently arranged out-offices.

Also the large and exceptionally beautiful gardens, including the Rose Garden, with its many thousands of Rose Trees of the newest and choicest varieties in the highest state of cultivation, and the FRUIT GARDENS, which are exceedingly well stocked with about two thousand well-trained Fruit Trees of all the best known kinds.

Also the THREE COTTAGES, with gardens and the usual out-offices, situate in the grounds, together with about 4½ acres of excellent Grass Land.

The whole comprises an area of 9a. 3r. 23p.

The Residence is lighted throughout with gas, and water from the perfect supply of the Lincoln Corporation is laid on throughout the house, and water is also laid on throughout the Rose and Fruit Gardens.

The Sanitary arrangements are believed to be in first-rate order, and in accordance with modern principles.

The whole of the buildings are in first-rate order, and the gardens are in the highest state of cultivation, and the Sale offers a unique opportunity to anyone desiring to acquire an exceeding desirable Residence, with exceptionally beautiful gardens and surroundings.

There are three packs of Hounds within easy distance, and excellent shooting and fishing can generally be obtained in the near neighbourhood, and there are first-class golf links at Torksey, near Lincoln.

Possession of the Residence can be given on completion of the purchase, or earlier by arrangement.

Permission to view, and plans and particulars may be obtained from the AUCTIONEER, Silver Street, Lincoln; or from us at our Offices,

BURTON, SCORERS, and WHITE,
Stonebow, Lincoln, 28th May, 1912. Solicitors.

BUSINESSES FOR SALE, &c.

NEAR London, of easy access to markets.—TO BE SOLD, as a going concern, FREEHOLD MARKET NURSERY of about 3½ acres, partly covered with 3,450 feet-run of glass, all heated; modern residence on Nursery; fitted with up-to-date convenience.—Full further particulars on application to C. L., Box 2, 41, Wellington Street, Covent Garden, W.C.

TO FLORISTS and NURSERYMEN.—TO LET or SELL, freehold, about two acres, sloping south, with fresh-water brook at bottom, admirably suited for Nursery or Market Garden, in Friern Barnet (close to "Orange Tree," trams and rail).—Particulars of GEO. COSGROVE, Solicitor, Danes Inn House, 265, Strand, W.C., and New Southgate, N.

COMPACT LEASEHOLD NURSERY; freehold house adjoining; established 23 years by present owner who is retiring; 350 feet run glass; shop; jobbing and retail trade.—SHEAHAN, Hartfield Road Nursery, Wimbledon.

FLORISTS, FRUITERERS; doing £240 to £280 monthly; splendid position opposite station; low rent, £40; horse, van, and all utensils at the low price of £300.—Apply (Owner), J. GOODSELL, 45, Perry Vale, Forest Hill, London, S.E.

FOR SALE, a genuine, old-established NURSERY, SEED, FLORISTS' AND JOBBING BUSINESS; over 40 years' unexpired lease; good ready-money trade; an opportunity seldom met with.—For particulars apply "IRIS," Box 15, 41, Wellington Street, Covent Garden, W.C.

WILLIAM AUBREY & CO., Nurserymen's Agents, 10, Duke Street, Charing Cross, London, offer an excellent FREEHOLD NURSERY in the famous Vale of Evesham, comprising 3¼ acres Land, 11 fine Glasshouses, Office, Stabling, Packing and Cart Sheds; Windmill, with tank. The whole in splendid condition. Price, including freehold land, glasshouses, outbuildings, good horse, van, &c., £2,000.

GOOD JOBBING BUSINESS; large turnover, with Fruit, Seed, Plant, Cut Flower Trade; £200.—Letters to "K.," Box 25, 41, Wellington Street, Covent Garden, W.C.

NURSERY; one acre; near large town; 300 ft. modern glass, well stocked; excellent house.—R. C., Box 20, 41, Wellington Street, Covent Garden, W.C.

FOR SALE (Kenilworth),

FREEHOLD NURSERY,

very compact, consisting of about 1,000 ft. of glass, 12 ft. wide, in good condition, and two good Dwelling-houses, one of which has a conservatory fixed to gable end, 27 ft. by 14 ft.; the greenhouses are very suitable for Cucumber and Tomato growing.

For price and particulars apply,
W. JONES, 18, Binley Road, Coventry.

W. A. GARAWAY, Deceased.

FOR SALE,

the old-established BUSINESS of

JAMES GARAWAY & CO.

NURSERY 35 acres at Keynsham;

SEED, BULB & FLOWER BUSINESS at Clifton, Bristol.

Immediate possession at valuation.

Apply, F. J. TARR & SONS, Solicitors, Bristol; or
JAMES GARAWAY & CO., Nurserymen, Bristol.

BUSINESSES TO LET.

NURSERY to LET; splendid position; five minutes from rail and trams; 350 feet glass; 1¼ acres fruit; good house; rent £40.—Further particulars from MILES, Royal Hotel, Sheerness.

BUSINESS CARDS.

PROTHEROE AND MORRIS, HORTICULTURAL, MARKET GARDEN, and ESTATE AUCTIONEERS and VALUERS, 67 and 68, Cheapside, London, E.C., and at Leytonstone, E. Monthly Horticultural Register had on application.

IF you want a ROCKERY built for a rational price, or any kind of rockery stone or plants, write for quotation to J. WOOD, Nurseries, Boston Spa, Yorks. Awarded Irish Cup and Gold Medal at the International Exhibition.

NOTICES.

THE RHODODENDRONS planted in Rotten Row, Hyde Park, are supplied by ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey. Kindly note Christian name and address.

EXCHANGE OF OVERCOATS.—Will the Gentleman who took the wrong overcoat by mistake after the luncheon at the International Horticultural Exhibition kindly communicate with J. WILLARD, 62, Doods Road, Reigate?

LADY HOOKER will be grateful if any of her friends who possess letters, written by her late husband, will kindly lend them to her for the purposes of a biography which Messrs. Smith, Elder and Co. will publish. They should be forwarded to her address, The Camp, Sunningdale, and will be carefully returned.

PUBLISHERS' NOTICES.

Present-Day Gardening.

Edited by R. HOOPER PEARSON, Managing Editor of the GARDENERS' CHRONICLE. Now Ready. Post free, **1/9** each.

Numerous Beautifully Coloured Plates are contained in Each Volume.

1.—**SWEET PEAS.** By HORACE J. WRIGHT, late Secretary and Chairman of the National Sweet Pea Society. With Chapter on "Sweet Peas for Exhibition," by THOS. STEVENSON.

2.—**PANSIES, VIOLAS, AND VIOLETS.** By WILLIAM CUTHBERTSON, J.P., and R. HOOPER PEARSON.

3.—**DAFFODILS.** By the Rev. J. JACOB.

4.—**ORCHIDS.** By JAMES O'BRIEN, V.M.H., Secretary of the Orchid Committee of the Royal Horticultural Society.

5.—**ROOT & STEM VEGETABLES.** By ALEXANDER DEAN, V.M.H., Chairman of the National Vegetable Society.

6.—**CARNATIONS & PINKS.** By T. H. COOK, Head Gardener at Sandringham; JAMES DOUGLAS, V.M.H., and J. F. MCLEOD, Head Gardener to Mr. Pierpont Morgan. Contains 8 full-page coloured plates.

7.—**RHODODENDRONS & AZALEAS.** By W. WATSON, with preface by Sir F. W. MOORE, M.A. (the first popular volume published on this subject). Contains 8 full-page coloured plates.

8.—**LILIES.** By A. GROVE, F.L.S., with preface by H. J. ELWES, F.R.S. Contains 8 coloured plates.

9.—**APPLES & PEARS.** By GEORGE BUNYARD, V.M.H. Contains 8 coloured plates.

10.—**ROSES.** By H. R. DARLINGTON, with 8 full-page coloured plates. A double volume, price **2/10**, post free. Special presentation edition, with beautiful cover design, in cloth gilt, gilt top, price **3/10**, post free.

11.—**IRISES.** By W. R. DYKES, M.A., with preface by PROF. BAYLEY BALFOUR. 8 full-page coloured plates.

12.—**ANNUALS, HARDY AND HALF-HARDY.** By C. H. CURTIS, with 8 coloured plates. **1/9.**

THE PUBLISHER,

"Gardeners' Chronicle" Offices, 41, Wellington St., Covent Garden, London, W.C.

EXHIBITIONS.

HANLEY PARK, STAFFORDSHIRE

JULY 3rd & 4th, 1912.

SIXTEENTH GREAT

Annual Floral Fete

£500 IN PRIZES.

SILVER CUPS, GOLD AND SILVER MEDALS.

SILVER CHALLENGE CUP, VALUE £10 10s

offered for "Trade Exhibit" (for particulars, see page 7 in Schedule).

Valuable Special Prizes offered by the principal firms in England.

Schedules post free on application to WM. POULSON, Secretary, Town Hall, Hanley.

Cardiff & County Horticultural Society.

24th GRAND ANNUAL SHOW

SOPHIA GARDENS, CARDIFF,

Wednesday & Thursday, July 17 & 18, 1912.

Specially good prizes in every Section, amounting in Money and Plate to nearly **£500.**

Tents lighted by electricity by Messrs. Fred Price & Co., Ltd.

POPULAR PRICES.

Schedules from the Secretary, Mr. A MAURICE. BAILEY, 24, Duke Street, Cardiff.

PLANTS, &c., WANTED.

WANTED, large KENTIA PALMS, from 5 feet to 25 feet in height; large, well-coloured Dracænas and Crotons, also Aspidistras; for cash or exchange.—ROBERT GREEN (1911), LTD., 28, Crawford Street, London, W.

"GARDENER'S CHRONICLE," Feb. 10, 24, May 19 and December 29, 1883; March 22 and August 16, 23, 1884; January 3, 1885; or vols. Also "Transactions English Arboricultural Society," vol. 1., part 1; vol. 2, part 1; and "Transactions Scottish Arboricultural Society," part 1 or vol. 1.—State prices, JOHN WHELDON & CO., 38, Gt. Queen Street, Kingsway, London, W.C.

THE
Gardeners' Chronicle

No. 1,329.—SATURDAY, June 15, 1912.

CONTENTS.

Agriculture in the Transvaal 395
Board of Agriculture and Fisheries 395
Books, notices of—
The Botanical Magazine 394
Critical Review of the Genus Eucalyptus 391
Flowers of the Field, Woodland, Wayside and Wall ... 389
Gardening for the Ignorant 389
The Small Holder's Handbook 389
Fir, a new species of ... 396
Flowers in season ... 393
Forestry at Cambridge 396
Formosa, illustrations of the plants of ... 394
"Fream" medal, the ... 396
Gardeners' Royal Benevolent Institution ... 393
Hay stacks, the temperature of 396
Hay, when to cut ... 396
International Horticultural Exhibition, conferences at the ... 398
Law note 401
Lemon curing 396
Leptospermum scoparium Nichollii 397
Manuring forest trees... 396
Market fruit garden, the 383
Medinilla magnifica ... 396
"Neill" prize, the ... 394
Nesting-places, curious 397
Obituary—
Holmes, Joseph ... 401
Ostrowskia magnifica ... 396
Peas and Beans, thrips on 397
Plants, new or noteworthy—
Lilium Sargentiæ ... 385
R.H.S. Gardens Club ... 396
Rosary, the 387
Rubbish heaps and bonfires 392
Societies—
Linnean 400
Manchester Botanical and Horticultural ... 393
Royal Horticultural ... 393
(Scientific Committee) 400
Royal Meteorological 396
Scottish Horticultural 400
Southern Counties Agricultural ... 401
Spring flowers in the south-west 396
Strawberries, record ... 397
Sulphur as a fertiliser .. 392
Wandsworth Common, extension of 394
Week's work, the, 390, 391
Wines, Cape 394

ILLUSTRATIONS.

Elæocarpus cyaneus 393
Flowering plants, a group of, exhibited at the International Exhibition, by Messrs. James Carter & Co. 395
Lastrea patens var. Mayi 396
Lilies, a group of, exhibited at the International Exhibition, by Messrs. R. Wallace & Co. 395
McHattie, Mr. John W., portrait of 394
Miltonia vexillaria "Snowflake" 400
Polypodium Vidgenii 387
Rock and water garden shown by Messrs. R. Wallace & Co., at the International Exhibition 384
Rock-garden exhibited by Messrs. J. Backhouse & Son, at the International Exhibition... 389
Tudor garden shown by Messrs. J. Cheal & Sons ... 388

THE MARKET FRUIT GARDEN.

ALTHOUGH the drought was broken in May, the quantity of rain which fell in most parts of the country was very small. Dry weather quickly returned, and lasted till the night of the 30th. The rainfall during last month varied greatly in different districts, some being favoured with copious downfalls, while others had little more than a sprinkling. My own measurement for May, up to the morning of the 30th, was only 1.11 inch, and as this followed 38 days which registered only 0.07 inch, it was sufficient only for a temporary refreshment of crops. Moreover, before the completion of the second summer spraying, which occupied most of my men for eight days, the land had become as hard as ever, so that hoeing in the rows of trees and bushes where the horse cultivator did not work cost twice as much as usual, and then the soil was only scraped. On the night of May 30, and since that date, a copious supply of rain has fallen, and, late though this relief from drought has come, it will be highly beneficial.

INJURY FROM DROUGHT.

It is impossible to value, with any approach to precision, the damage done to fruit crops by the persistent drought. We cannot tell to what extent the failure of Plums to swell, or of Apple blossom to set, is due to the drought, although probably it is attributable, in large measure, to this cause. That the failure of Black Currants to set fruit on the ends of the strigs is due to lack of moisture there can hardly be any doubt, while the yellowing of some of the smaller leaves may be ascribed confidently to the drought. If called upon to estimate the damage done by drought to my Black Currants, which were of splendid promise, I should put it at fully 20 per cent., and unless rain had fallen copiously, the percentage would have been much higher. A moderate estimate of the injury to the Strawberry crop should be put at fully 30 per cent. Then there is an indefinite allowance to be made for the injury done to Apples, owing to the fact that lack of moisture and low temperatures at night prevented the shoots from growing away from the insect pests with which they were infested. Further, there remain to be reckoned the ineffectiveness of hoeing and its extra cost, due to the hardness of the soil.

A DISAPPOINTING SEASON.

Rarely before have high expectations at the beginning of a fruit season been more bitterly disappointed than they have been this year. It is not necessary to return to the subject of the immense loss caused in most of the great fruit districts by the April frosts, which were not severe enough in my district to do any considerable damage. But, after that injury had been accounted for, it was found that a very large proportion of the Plums which had set failed to swell, probably in consequence of the drought, and these have fallen, or will fall from the trees. Similarly, and probably from the same cause, the proportion of Apple blossom which has failed to set on many varieties is greater than I have ever seen before. It would be interesting to learn whether this is the experience also of others in different parts of the country. The fact that early blossom set well and late blossom very badly seems to point to drought as the cause of the latter result, as the land was comparatively moist when early blossom was setting. In my opinion the Plum crop will not be even equal to the small one of last year, and the Apple crop not much more than half as much as the great yield of 1911. The only good Plum crop in my mature plantation is that of Victoria, and even this variety has fallen far below its early promise, in consequence of the large proportion of fruitlets which have failed to swell. Pond's Seedling blossomed better than it had ever done before in my orchard; but it has never set less fruit since the time when it began to bear considerably. Early Prolific, Monarch, and Gisborne did not blossom fully in my mature orchard, but they promised a good deal more than the mere sprinkling of fruit which they now show. This is also the case with Czar in the orchard in question, while the variety in a younger plantation is heavily loaded and indeed is the only variety which has come up to expectations. Black Diamond blossomed more freely than ever before, but without result, nearly all the Plums set upon it having failed to swell. The case of some young trees of President is similar, while it is the same with Greengage, and, to a less extent, with Coe's Golden Drop. Pears blossomed profusely, and set a great crop, which has been thinned beyond all experience in my orchard by the pestilent midge, leaving, however, a moderate crop on most varieties. The deterioration of Black Currant prospects has already been referred to. The Gooseberry crop is the only one which has come well up to promise. In addition to the failure of Apple blossom to set to a great extent, the damage done to the crop by one of the worst attacks of the leaf-curling aphis ever known is incalculable. A month ago comparative immunity from aphis attack was noticed, and this has been maintained in the case of Plums; but the pest has made up for lost time in its attack upon Apples. In spite of spraying, the bunches of leaves surrounding trusses of young fruit are densely crowded with aphides. Those varieties which bear short-stalked fruit, such as Beauty of Bath and Bramley's Seedling, are in the worst case, while Mr. Gladstone, Lady Sudeley, Irish Peach, and Worcester Pearmain are almost as badly infested. In thinning these varieties, the curled and infested leaves are being stripped off and crushed. This cannot fail to reduce the yield of fruit, but is better than leaving the filthy leaves to die after the aphis has done with them. Spraying is useless, as the wash fails to reach any considerable proportion of the insects in the curled leaves. Beauty of Bath in the orchard happens to have been sprayed three times, soft soap and quassia being the ingredients of the wash on each occasion. The infestation did not become bad until just before the third spraying, which failed to affect it in any appreciable degree. Lastly, so far as damage to Apples is concerned, there is to mention the worst attack of caterpillars or other pests which eat surface holes in the young fruits that I have ever known. In many cases not a single fruit in a truss of five or six remains sound. This account of the fruit outlook may strike some readers as of the character of a Jeremiad, but probably it will be endorsed by many reports later on. There has not been time at present for the disappointing results of the season's influence to be fully reported.

CONTEMPORANEOUS FRUITING CONDITIONS.

It strikes me as curious that, in different districts and under varying circumstances the same condition as to the fruiting of a crop or of a particular variety should prevail as often as it does. For example, the Early Prolific Plum appears to be a very short crop in nearly all parts of the country. In my own case this is attributed to two causes. The trees bore an immense crop last year, and were smothered with aphides—circumstances antagonistic to the maturing of a good number of fruit-buds for this season's crop. Consequently, most of the trees failed to blossom entirely or to any extent worth notice. But in the country at large last year's crop

of Early Prolific was not a great one, and probably the tremendous infestation of the aphis was not commonly experienced. Monarch bears a mere sprinkling of fruit very commonly, while Czar is generally well up to the mark. With respect to Apples, a friend in Suffolk has the same partial failure of Bramley's Seedling and Lane's Prince Albert as was mentioned last month as having occurred with me, while we both have remarkably good sets of Worcester Pearmain and some other varieties.

DISAPPEARANCE OF CATERPILLARS.

The grower referred to above mentions the disappearance of caterpillars from Apple trees as having decided him not to spray them with arsenate of lead as he had intended. This surprises me, because most of the caterpillars which I had found were only half-grown, and, therefore, could not have pupated so early. But shaking violently the branches of many trees, the leaves of which had been damaged by caterpillers, failed to bring any down, and some caterpillars certainly would have fallen if they had been on the trees. Perhaps this indicates that birds are more serviceable to fruit growers than some of us suppose.

WASTEFUL SPRAYING.

This season's experience has finally persuaded me that it is pure waste of time and money to spray against the leaf-curling aphis. A little killing may be done when trees are sprayed to kill the Apple sucker, as the few aphides then present are among the trusses of blossom-buds, rather than on the embryo leaves. But later on they are on the leaves, which curl over them as soon as the attack has well started. Soft soap and quassia were included with arsenate of lead in my second summer spraying, in the hope of controlling the aphis attack, which was beginning to be a serious one; but the infestation could not be worse than it is if these ingredients had been excluded. Moreover, search was made for dead aphides, and hardly any could be found, although many live ones were seen in places which the spray should have covered, namely, on leaves not yet curled. The explanation is that these pests have oily skins, which throw off anything short of a drenching. The stem aphis is much easier to kill than either of the two varieties which cause the leaves to curl.

APHIS ATTACK ON YOUNG TREES.

This attack is particularly distressing, because it does much to stunt the growth and spoil the shape of young Apple or Plum trees, particularly when one of the leaf-curling species is the invader. There is a very bad attack on young Apples this season, and spraying has proved useless to control it. The only remedy is the tedious one of stripping off the curled leaves and crushing them, at the same time killing fresh migrants found, one, two or three in a place on a leaf not yet curled. When this work is done before the end of May, there is the great advantage that if a young shoot badly twisted by the attack is cut back, the fresh growth that will start below the cut will have time to mature sufficiently to stand through next winter.

LIME-SULPHUR AS A SUMMER WASH.

Many of my varieties of Apples were sprayed with lime-sulphur and arsenate of lead in the second spraying since the foliage began to appear. To one gallon of Voss's lime-sulphur solution 40 gallons of water were added, 1 lb. 10 ounces of arsenate of lead being included. At this strength hardly a trace of scorching followed, except in the case of some unhealthy Cox's Orange Pippin trees. Young, healthy trees of the same variety were not harmed by the wash. A trial of strength of 1-30th on one tree each of Early Julyan and Cox's Orange Pippin showed not the slightest injury to the former, but some scorching on the latter. One gallon to 40 gallons of water appears to be the proper dilution of a solution as strong as the one named, which tests 32 on the Baumé scale, equivalent to 1.283 specific gravity.

SCORCHING BY SOFT SOAP.

More attention to the composition of soft soap than appears to be given is needed, as I have had this season for the first time some bad cases of the scorching of the foliage of Apples and Plums clearly due to this ingredient of a wash, presuming that quassia cannot scorch. The soap was used at the rate of 4 lbs. to 40 gallons of water, a strength often exceeded with impunity when using other samples of the article. *A Southern Grower.*

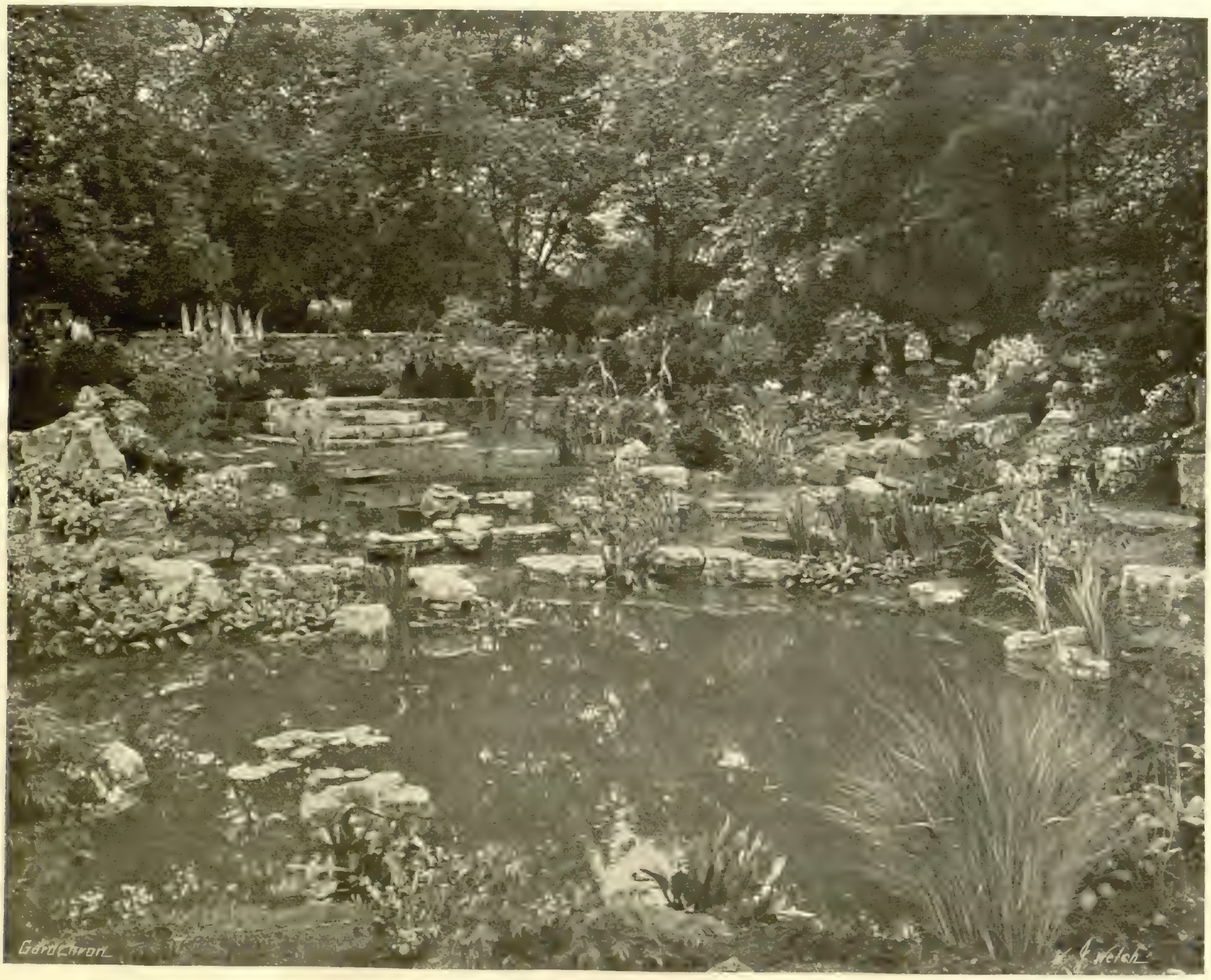


FIG. 182.—ROCK AND WATER GARDEN EXHIBITED AT THE INTERNATIONAL EXHIBITION BY MESSRS. R. WALLACE AND CO.

(See p. xiv. of Exhibition Supplement in the issue for May 25.)

NEW OR NOTEWORTHY PLANTS.

LILIUM SARGENTIÆ.*

LILIUM SARGENTIÆ, though obviously allied to several other species, is very distinct from all. It is nearest, perhaps, to a new Lily which is being distributed under the name of L. myriophyllum. This latter is dwarfer in stature, has its leaves more densely crowded, one-nerved, scabrid on midrib below, no bulbils, flowers canary-yellow within the funnel, and of a different fragrance. Side by side the plants can never be confused, so utterly different are their general appearances. There is some doubt as to this Lily being the true L. myriophyllum of Franchet, since he describes the flowers of his species as being erect and not spreading, as obtains in the Lily now being distributed under this name. I have several other new Lilies from China to deal with later, and hope to settle the point by comparison with Franchet's type.

Lilium Sargentiæ is also allied to L. sulphureum, Baker. It differs in the colour of its flowers and in shape, nervation, and density of its foliage. Unfortunately, neither in the original description of this Burmese Lily (*Gardeners' Chronicle*, October 24, 1891, p. 480), nor in the *Botanical Magazine*, where it is figured (tab. 7257), is any reference made to the colour of the bulb, nature of stamen-filaments, or nectariferous furrow—points of cardinal importance. So far as my memory serves, however, the stamen-filaments in L. sulphureum are glabrous, or nearly so, and the bulb reddish: of the other point I have no knowledge. Geographically, the species are widely removed, and it is exceedingly probable that the relationship is more apparent than real, though the author of an article on "Lilies" in the *Garden*, vol. lxix., p. 234, with coloured plate, inclines to believe them identical.

The relationship with L. Brownii is discussed at length below.

*LILIUM (EULIRION) SARGENTIÆ n. sp. E. H. WILSON.—Ab aliis speciebus affinibus bene distincta bulbo majore globoso vel ovoideo, acuto, purpureo. Caulis dense tollosus, foliis oblongo-lanceolatis vel ovato-lanceolatis, manifeste 3-7 nervis, bulbilos in axillis gerentibus. Perianthium extus purpureum, nectaria glabra, filamenta pilosa. Syn. L. Brownii var. leucanthum Hort. in *Garden*, vol. 69, p. 234, with col. plate. Non. Baker. L. leucanthum Hort. Veitch. L. leucanthemum Hort. Farquhar *Catal.*, 1911. Nomen nudum.

LILIUM SARGENTIÆ (NEW SP.).—*Herb* 1-2 m. or more high. Bulb dark red-purple, large, 15-45 cm. (usually 18-30 cm.) in circumference, globose or ovoid, acute at summit; scales very numerous, thick, ovate, acuminate, firmly imbricated. *Stem* stout, terete with slight ridges extending downward from leaf-bases, glabrous, pale green, spotted and splashed with purple more especially in upper half, densely crowded with leaves bearing bulbils in their axils. *Leaves* scattered, spreading, subsessile, apices recurved, strong lanceolate, 5-22 cm. long, 1-2.5 cm. broad, usually becoming shorter, ovate-lanceolate and sessile in upper part of stem, acuminate, glabrous, covered with pellucid lepidote glands more especially on lower surface and margins, shining green above, paler below with purple spot at point of insertion, prominently 3-7 nerved, midrib raised on both surfaces. *Flowers* 1-20 (usually 3-6), fragrant, waxy-white within, red-purple outside, usually arising from common level (umbellate), occasionally floral axis elongates forming short raceme (racemose-umbel), subtended by whorl of sessile, leaf-like bracts; pedicels stout, 2.5-8 cm. long, ascending, spreading, usually bracteate; bracts ovate-lanceolate, acuminate, 3-5 cm. long. *Perianth* funnel-shaped, 13-20 cm. long, 10-15 cm. broad at mouth, segments recurved at apex; outer segments ligulate-oblong, acute, half width of inner, suffused with red-purple without, white within; inner segments obovate-oblong, 3.5-5 cm. wide, obtuse, rounded, narrowed to canaliculate claw towards base, midrib very prominent and purple without, apices of inner and outer segments usually with tiny tuft of white or yellowish hairs; nectariferous furrow glabrous, yellowish-green glanduliferous down one-third length of segment. *Stamens* as long tube or shade longer; filaments flattened, glandularly pubescent in lower half, glabrous, connivent in upper half; anthers red-brown, oblong 1.50 cm. long, pollen chocolate-yellow. *Pistil* exceeding the stamens in length by 1-1.5 cm. curved upwards in apical half; ovary cylindrical, 6-angled, 2-2.5 cm. long, glabrous, shining green, angles obtusely rounded; style 3-4 times length of ovary, triangular, reddish-purple immediately above ovary, purple in upper half, glabrous save for occasional few scattered glandular hairs near base; stigma conical, trigonous, purplish, with three prominent rays. *Fruits* cylindrical, 6-8 cm. long, 2-2.5 cm. wide, with six prominent wings, apex truncated with depressed centre, glabrous.

The history of this new Lily is involved, and, for the sake of clearness, necessitates a rather lengthy story. It was first discovered by me when collecting in Western China for Messrs. James Veitch & Sons, in 1903. Bulbs were sent to the Coombe Wood Nursery, and when they flowered were considered to be Lilium Brownii var. leucanthum. Under the abbreviated name of L. leucanthum, it was awarded a First-class Certificate by the R.H.S. on August 29, 1905, and, bearing this same name, was subsequently distributed by Messrs. Veitch. On my recent journeys in China on behalf of the Arnold Arboretum, I collected a large consignment of this and other Lilies for Farquhar and Co. This firm in August last exhibited this Lily as L. "leucanthemum," and was awarded a Silver Medal by the Massachusetts Horticultural Society. The gardening Press, both in England and America, have, during the past five years, made many complimentary references to this Lily.

At this late date, it is impossible to determine how the plant came to be called L. Brownii var. leucanthum, since the only points common to the two are the funnel-shaped perianth and pubescent stamen-filaments.

The true L. Brownii var. leucanthum was first described by Mr. J. G. Baker in the *Gardeners' Chronicle*, August 18, 1894, p. 180, from a plant which flowered at Kew, "the bulb of which was sent to Kew by A. Henry in 1889, along with Lilium Henryi." Mr. Baker describes the bulb as white, and the flowers as white and green outside, with no trace of the red-purple colouring characteristic of the typical L. Brownii. It was on the absence of this red-purple colouring that he based his new variety. An excellent figure of L. Brownii var. leucanthum is given in the *Botanical Magazine*, tab. 7722.

In an interesting article on "Lilies," by *W. W.*, in the *Garden*, 1895, vol. xlvii., p. 97, good descriptions of L. Brownii var. leucanthum and L. Brownii var. chloraster are given, but, unfortunately, the coloured plate (plate 1,000) purporting to be "leucanthum" is really "chloraster."

With full and clear descriptions of such a recent introduction as the true "leucanthum," it seems almost impossible for such a confusion to have arisen. It is difficult to make good and complete herbarium specimens of Lilies; the shape and colour of the bulbs, as every cultivator and student of the genus knows, are most important factors in determining the species, yet these are seldom preserved in herbaria. But this difficulty did not arise in the species here discussed, since the descriptions were (or could have been) drawn up from living plants.

Superficially, our new Lily resembles the typical L. Brownii, inasmuch as both have the perianth red-purple without, and pubescent stamen-filaments: but here the resemblance ends. The bulb of L. Sargentiæ is *always red-purple* and usually *acute*: the bulb of L. Brownii is *white* and usually *flattened* on top. (In speaking of the colour of the bulb in L. Brownii as

FIG. 183.—GROUP OF LILIES EXHIBITED BY MESSRS. R. WALLACE AND CO. AT THE INTERNATIONAL SHOW.

"white," I should mention that this is the colour given in Mr. Elwes' Monograph of the genus Lilium, and this is the colour which I have always seen in cultivated bulbs of this species, and in the wild type and its varieties in China, though, occasionally, in the wildling, when a bulb gets exposed, the apices of the scales become pinkish. *W. W.*, in *Garden*, 1895, vol. 47, p. 97, under var. odorum, says: "In Brownii type the bulb is brown." In his paper read before the Lily Conference, and published in *Journal* Royal Hort. Soc., 1901-1902, p. 338, Mr. Baker seems to infer that the bulb of Brownii type is *brown*.)

The nectariferous furrow in L. Sargentiæ is glabrous; in L. Brownii it is pubescent. The foliage in the two species is different, and there are other minor variations.

The red-purple exterior to the perianth is common to several Chinese Lilies, and occurs also in the Burmese L. sulphureum. The pubescent stamen-filaments also occur in general species. In the *Journ. de Bot.*, vol. vi. (1892), pp. 305-321, there is an article on the "Lilies of China and Thibet," by the late Mons. A. Franchet. In it, this esteemed botanist points out some excellent characters whereby species may readily be distinguished. He also deals thoroughly with the synonymy and distribution of L. Brownii.

A paper by Mr. A. Henry on Chinese Lilies, in the *Journal* R.H.S., 1901-1902, pp. 346-350, also contains much information on L. Brownii and its varieties. My own observations are in accord with what Mons. Franchet and A. Henry have written.

Undoubtedly, L. Brownii is the common wild Lily of its class in Central, Western, and South-western China. I have found it growing wild from near Kiukiang, through Hupeh and Szechuan, to the extreme west of China, and again in Yunnan. It is the low-level Lily of these regions, not ascending in Hupeh and Szechuan above 3,000 feet. Around Kiukiang, which is a little south, it ascends somewhat above this altitude, and in Yunnan, further south still, it reaches to 4,500 feet, or perhaps more, but remains in companionship with shrubs and herbs of a warm, temperate character. The flowers range from greenish-white to dark-red-purple without, and from pure white to primrose-yellow within: they vary considerably in size and even in shape, as witness var. "chloraster." The leaves also are variable. The bulb, however, is *always* practically *pure white* and flattened on top, sometimes being even depressed in the centre: the nectariferous furrow is *always pubescent*. The bulbs of "Brownii" seldom attain to any great size, and the plant is by no means as vigorous as certain allied species. In cultivation, it is readily affected by disease, and, speaking for the wildling and its forms from Central and Western China, it is not really hardy. If treated as a tender species, and grown in loam in a shady but not moist position, better results would probably be obtained.

Apart from L. Brownii and its forms, L. tigrinum and L. concolor, all the Chinese Lilies I am familiar with are very local in their distribution. It is true that L. sutchuenense and L. Duchartrei extend sparingly throughout the high mountains of Szechuan, but most of the species are confined to a narrow altitudinal range in their own particular river-valley. Lilium Henryi, the best-known and most deservedly popular of Lilies from the interior of China, is confined to a comparatively few square miles of country in the immediate neighbourhood of Ichang.

Lilium Sargentiæ is confined to the valley of the Tung river and its tributary, the Ya, in the extreme west of Szechuan, between 3,000 feet to 5,000 feet altitude. In this restricted altitudinal zone it is extraordinarily abundant, growing amongst rank grass and scrub on granitic and other old rocks. It is a hater of peat; a lover of loam and sunshine. A vigorous grower, robust in constitution, and perfectly hardy, this new Lily is destined to become one of the most widely-cultivated and appreciated of its family. It is named in compliment to Mrs. Sargent, wife of the distinguished dendrologist, Professor Charles Sprague Sargent, by its discoverer and introducer, as a token of esteem.

E. H. Wilson, Arnold Arboretum, Mass

FIG. 184.—LASTREA PATENS VAR. MAYI, SHOWN BY MESSRS. H. B. MAY AND SONS.

(Received R.H.S. Award of Merit. See p. xvi. of Exhibition Supplement in the issue for May 25.)

SPRING FLOWERS IN THE SOUTH-WEST.

CAMELLIAS have never been so fine as this year, the plants being smothered in blossom, and in Cornwall huge bushes of delicate shell-pink and crimson blooms were to be seen, with every branchlet drooping under the weight of the flowers. Rhododendrons were exceptionally fine and very early. A great bush, about 8 feet in height, of the variety Gill's Triumph, at Tremough, entirely covered with large flower-trusses, was a splendid sight. All the buds of R. Dalhousiæ, however, had been killed by the severe frost. Arctotis aureola, which, in 1907 and 1908, was cut to the ground and only threw up again from the base the following spring, has, this winter, been killed outright. Semele (Ruscus) androgyna had every shoot above the ground killed, but has since sent up two fresh shoots, which are already almost 18 feet in length.

Clethra arborea was very badly cut, but is now breaking well again on many of the branches. Correa cardinalis was in flower before Christmas, and in February, just after the severe frost, which did not harm it, was scarlet with blossom. The beautiful and scarce Romulea pylea, with satin-white, golden-centred, Crocus-like flowers, bore numbers of blooms, and was a charming sight in the early spring, as was the larger R. nivalis, with white flowers, delicately pencilled with blue. Curiously enough, the New Zealand Arthropodium cirrhatum, although entirely unprotected, was uninjured, and is now throwing up 15 flower-heads.

In a certain garden in the neighbourhood of Truro, the American Erythroniums succeed to perfection, several hundreds of splendid plants being at their best during the month of April, many of them with flower-stems 18 inches or more in height and crowded with blossom. The majority of these are said to be self-sown seedlings. They are growing in pure leaf-mould, collected from beneath a rookery. Here, although they live in pure leaf-mould, they never attain the vigour of their Cornish relatives. The crimson and white varieties of Clianthus puniceus have, in sheltered situations, flowered well, but in numbers of cases, even in southern Cornwall, large plants have been killed. Jasminum primulinum was, in March, a sheet of gold. Olearia nitida has been so completely covered with its countless clusters of white, Hawthorn-like blossoms that scarcely a leaf has been visible, and Olearia insignis is bearing seven buds, while O. ramulosa, which flowered in October, is in good health, though, in some gardens, it has been killed.

Diervilla (Weigelia) Conquête is a fine variety, with large, pale-pink flowers, fully 2 inches in diameter, and has been a lovely sight. A big plant of Solanum aviculare has been killed, although well protected, and is evidently much more tender than many other New Zealand plants. Edwardsia (Sophora) Macnabiana was quite unharmed, and, in March, bore a profusion of flowers on its branchlets. The rare New Zealand Convolvulus tuguriorum, though nearly killed by the drought last summer, replenished its foliage after the coming of the rains, and is now bearing the first of its pure-white flowers, which are rather over 2½ inches across. Wulfenia Amherstiana has been in the garden for six years without flowering, but this spring it sent up five blue flower-spikes, about a foot in height. Calceolaria Burbidgei was killed, but C. violacea is in flower. The latter plant was nearly killed in many gardens. Dimorphotheca Ecklonis, in the open, was destroyed, but plants kept under glass and put out in April are now in flower.

Gladiolus tristis concolor, with pale-sulphur blossoms, was very beautiful in April, and perfumed the night air with its fragrance. It increases rapidly by bulblets, and also by seed, which is very freely produced. Hundreds of self-sown seedlings may often be seen springing up around the parent clumps. Nurserymen do not appear to possess this sulphur-coloured form,

for the plants which they send out under that name have wide, purple lines on the upper petals. In May the Dropmore variety of Anchusa italica was a glorious sight, a great group, 6 feet across, being a solid sheet of brilliant blue. Iris orientalis, also known as I. ochroleuca, is blooming well, the clump having 15 flower-spikes. Some writers have stated that this Iris and its allies, I. Monnieri and I. aurea, require a damp position, but the site where this clump is growing is very dry, yet it flowers well. I. aurea, hardy, has 21 flower-spikes. Hemerocallis flava, the earliest of the "Day Lilies," has been in flower for some time, and H. Middendroffii is now in bloom, while H. aurantiaca major has thrown up 18 flower-spikes, in spite of the fact that some writers state that it requires an abundance of moisture. H. Thunbergii is in bud. Dendromecon rigidum, the yellow Californian Tree Poppy, is in full flower, and has been in bloom since early in March, thus having a much longer season of attractiveness than its relative, Romneya Coulteri. Aster alpinus and its white variety are in bloom; A. sikkimensis has been

FIG. 185.—POLYPODIUM VIDGENII EXHIBITED BY MESSRS. MAY AND SONS, EDMONTON.
(Received R.H.S. Award of Merit. See p. xvi. of Exhibition Supplement in the issue for May 25.)

a sheet of flower for some time, and the extremely lovely A. subcœruleus is bearing its large, purple-pink blossoms, and the dwarf A. Stracheyi, from the Himalayas, has bloomed well. Cypripedium pubescens was very fine this year, the plant bearing 15 flowers, and being the picture of health. C. spectabile, the Moccasin Flower, is now coming into bloom. A group of four plants of the white variety of Dictamnus Fraxinella has been a very pretty sight, the large, tall, white flower-heads being very effective. It is altogether to be preferred to the type.

Shortia galacifolia is a very uncertain plant, and has died out in many gardens, but here and there one sees it doing well. Here it has disappeared. Four plants of the new Shortia uniflora grandiflora, on the north side of a rock, appear happy, though, as yet, they have shown no sign of flowering. Ramondia pyrenaica, growing between the chinks of large, flat stones, with a northern exposure, have flowered magnificently, and are evidently at home. Viola gracilis has been in flower for many weeks, and is still a sheet of purple. Veronica anomala has borne its small, white flowers in abundance, and V. Lyallii is now bearing its pale lavender blossoms. It is one of the most beautiful of its family, and a charming little shrub, but has not, apparently, a very strong constitution. A plant of Œthionema grandiflorum and one of Œ. pulchellum both died when in full flower, from some unexplained cause. The Tulip species, which are generally so good, have this year been practically a failure, owing, probably, to the extremely wet weather of the winter months, which, presumably, rotted the bulbs. Out of a dozen bulbs of T. Tubergeniana, only one flowered. T. Batalinii, however, flowered well, and was very beautiful.

A colony of Morisia hypogæa has borne its bright-yellow blossoms in profusion, and was very pretty when in full bloom. Neviusia alabamensis, which was much written about some 20 or more years ago, but is now rarely met with in gardens, bore its curious flowers, which entirely lack petals, but have crowded, white stamens, set in green bracts. Deutzia Kalmiæflora is undoubtedly the most beautiful of its family, and a good-sized bush has been a perfect picture. Iris tingitana, after many years of unqualified success, as shown by the illustration which appeared in *Gardeners' Chronicle*, July 9, 1910, have been an absolute failure, all the bulbs having rotted and not a single flower-spike having been thrown up. This is most deplorable, and there seems nothing to account for it, unless it is the extreme wetness of the winter. Bouvardia triphylla, brought through the winter by the help of a glass cap-light over it, is now a mass of scarlet flower. Ixiolirion montanum and I. tataricum have been flowering well. The former is by far the finer, often growing to a height of 28 inches, while I. tataricum rarely exceeds 18 inches. The flowers of I. montanum are larger and more freely borne, 12 being often carried on the same scape, while I. tataricum seldom bears more than six, and is a fortnight later in flowering. The Sun Roses, or Helianthemums, have been very bright, especially the double crimson, a large plant of which is extremely brilliant.

Libertia formosa has been very beautiful, holding aloft hundreds of white flower-wands. Osteomeles anthyllidiflora is now a most charming sight, being entirely covered by clusters of small, white flowers, very like Hawthorn. It seeds freely here. Camassia Leichtlinii and C Cusickii have been very fine, their ivory-white and pale-blue flowers making a charming combination. Anopteris glandulosa is a charming shrub, but rarely met with in gardens. Its flowers resemble those of the Lily of the Valley Tree (Clethra arborea), but are considerably larger, the white bells being often over half an inch across. It flowers profusely, even in a very small state, but is a slow grower. There is a splendid specimen in Mr. Dorrien-Smith's garden, at Tresco Abbey, Isles of Scilly, about 10 feet in height. There is a young plant here, which is making good growth. A large plant of Solanum crispum, against a wall, is 15 feet in height, and this year was a sheet of blossom. Watsonia coccinea bore its first scarlet flower-spike in December, and continued flowering through March, April, and May. A few flower-spikes are forming on W. Ardernei; but there is no sign of bloom on W. rosea. Fritillaria persica has borne its purple-brown flowers on stems nearly 3 feet high, and F. obliqua has produced its almost black blossoms. A large patch of Homeria collina was a sheet of apricot-buff in the spring, and Sparaxis, Ixias, and Freesias have flowered well, S. Fire King, scarlet, with golden eye, being especially brilliant. At the end of May, Veronica Hulkeana, a cloud of soft lavender, was one of the most beautiful sights in the garden. *Wyndham Fitzherbert.*

THE ROSARY.

THE FOLIAGE OF ROSES IN SPRING.

GARDEN ROSES.

EARLY in the year one of the chief charms of the Rose garden—quite apart from the pleasure of anticipation of the feast of flowers to come later on—lies in the beautiful effects produced by the young foliage of many of our garden Roses. In this respect the varieties vary greatly, some being merely pleasant for their fresh, green leaves, while others give exceedingly rich effects of pink, ruby, and crimson-coloured foliage. In some cases, the colour occurs merely at the tips of the shoots, in others at the base of the leaf-stalk, or it may overlie the ground colour of the green leaf.

The foliage of many of the species will bear comparison with the best of the flowering shrubs of our gardens, though I have not these specially in mind at the moment, but rather what we may term the ordinary garden Roses, nearly all of which contain a greater or less proportion of the characteristics of R. indica. I am by no means certain that the most rich and beautiful effects in Rose foliage are not found either before pruning has taken place or when it has been exercised rather sparingly. This, of course, is natural, for when the Rose is cut to the ground it is impossible for it to produce for some months to come the effect of mass, which is, to a greater or less degree, a necessary foundation for really pleasing results. Half the beauty of the best bedding Tea Roses lies in the way in which they will cover up the entire bed, hiding the ground with their branching and interlaced foliage. So to secure really fine effect in the spring Rose foliage we must turn to places where there is a fair quantity of one variety. The mass of colour attracts the eye, and leads it to notice many contrasts and a refinement of effect, while a single plant of the same variety, beautiful though it might be if examined carefully, passes almost unnoticed in a cursory inspection.

I think it follows that the most beautiful foliage effects will be obtained in gardens where a certain number of the Roses, whose early foliage is specially worth notice, are grown either as free bushes with little pruning, or as dwarf hedges, or else where the plants suitable for that treatment are pegged down in beds or borders.

Severe pruning is often necessary, not only for exhibition Roses but for Roses in beds, and in some cases in borders, but from this point of view

it is in a sense unfortunate, for not only does it deprive us of the mass of colour to delight the eye, but severe pruning causes usually a very rapid growth, and this in turn seems to lessen the duration of the period of high colouring in the young foliage.

One of the earliest spots in the Rose garden to attract attention is generally the bed of Richmond. Beautiful and perfect is the early flower, delicious the fragrance and bright and continuous through the long summer come the blossoms of this Rose, but even when the flowers are at their best, I am not sure that the general effect of the bed is more perfect than it is when the last year's stems push out their coral pink leaves in the early spring. They have a softness of colouring and a charm of freshness that are most attractive and characteristic. Perhaps one of the very few Roses, other than Richmond, to show this coral-pink colour in the young foliage is Mrs. Theodore Roosevelt.

Another very charming effect, which lasts in beauty for a long time, is produced by a hedge of Zephirine Drouhin. Here the pruning has been confined to a thinning out of the weakly sprays, and the long rods have been preserved nearly their full length, tying them obliquely to bamboo stakes, so as to allow fresh shoots to break from the base. The colour of the foliage is difficult to describe, for it consists of various shades of pink and red overlying the green ground colouring of the leaves. This green gradually increases in intensity as the season advances, finally dominating the whole. But in spring the leaves are also overlaid with a faint and scarcely perceptible "bloom," which nevertheless influences the colouring of the mass of foliage; it introduces a distinct and well-marked shade of blue which, while the pink and reds of the young growths are still strong, produces a very noticeable effect.

The claret-reds of the young growths of the Tea Roses are also very attractive in the spring garden, and few give more pleasing effects than that excellent Rose, Auguste Comte, but Mme. Jean Dupuy, Souvenir de Pierre Notting, and Mme. Antoine Mari all produce young foliage in which this colour predominates. Attractive, too, is the healthy, large and vigorous young growth on Mme. Jules Gravereaux, E. Veyrat Hermanos, and the H.T. J. B. Clark, in which we find various shades of claret-red and brown associated with green as the ground colour of the leaves.

Coming back to the Hybrid Tea Roses, the young foliage of Killarney is a very soft and delicate tint of vinous red, while that of Mme. Jules Grolez is perhaps as distinct as any. It is a striking shade of claret-crimson, almost approaching the tint known as French purple, and very handsome. The colour I refer to as French purple has, of course, no resemblance to that we generally call purple in England, which has a large proportion of blue in it, but is possibly very near to the imperial purple of the Roman Emperors, though in the Rose foliage it is not so brilliant as the latter.

I was much struck this year by a group of Mme. Jules Grolez growing at the top of a bank, the lower slope of which was occupied by Prince de Bulgarie. The contrast of colour in the young foliage was both noticeable and pleasing. While that of Mme. Jules Grolez was quite free from admixture of greens, browns, or yellows, in Prince de Bulgarie all these shades were noticeable, the slight tint of browny-red and chrome-yellow really confined to the tips of the leaves and shoots gave the effect of being superimposed on the green body colour of the leaves. Somewhat similar colouring is to be found in the foliage of Irish Elegance.

Another Rose in the young foliage of which the browny-red predominates is Gruss an Teplitz. The colouring of this foliage is very soft and effective, and persists on the growing shoots well into the summer. It is often useful for arranging with cut Roses in bowls and vases, and is highly decorative. Gruss an Teplitz leads one naturally to the Chinas. Here, again, we often find striking tints in the young foliage, and in none is the red colouring higher or more effective than in Queen Mab. Next to this, and nearly as good, is Mme. Eugene Resal, while the colours of Fabvier and Cramoisie Superieure are also pretty and distinctive. In the common China, on the contrary, it is a bright fresh green with little high colour which attracts the eye, as is also the case with Charlotte Klemm.

Very much the same state of things obtains in the Polyantha Pompons. In some such, as Ænnchen Muller and Mrs. W. H. Cutbush, we find the young foliage of a bright fresh green, while in Roses like Perle d'Or, Cecile Brunner, and some of Lambert's recent introductions, such as Tip Top, we get the red tints, but these latter are not I think so effective as in the case of the China Roses. *White Rose.*

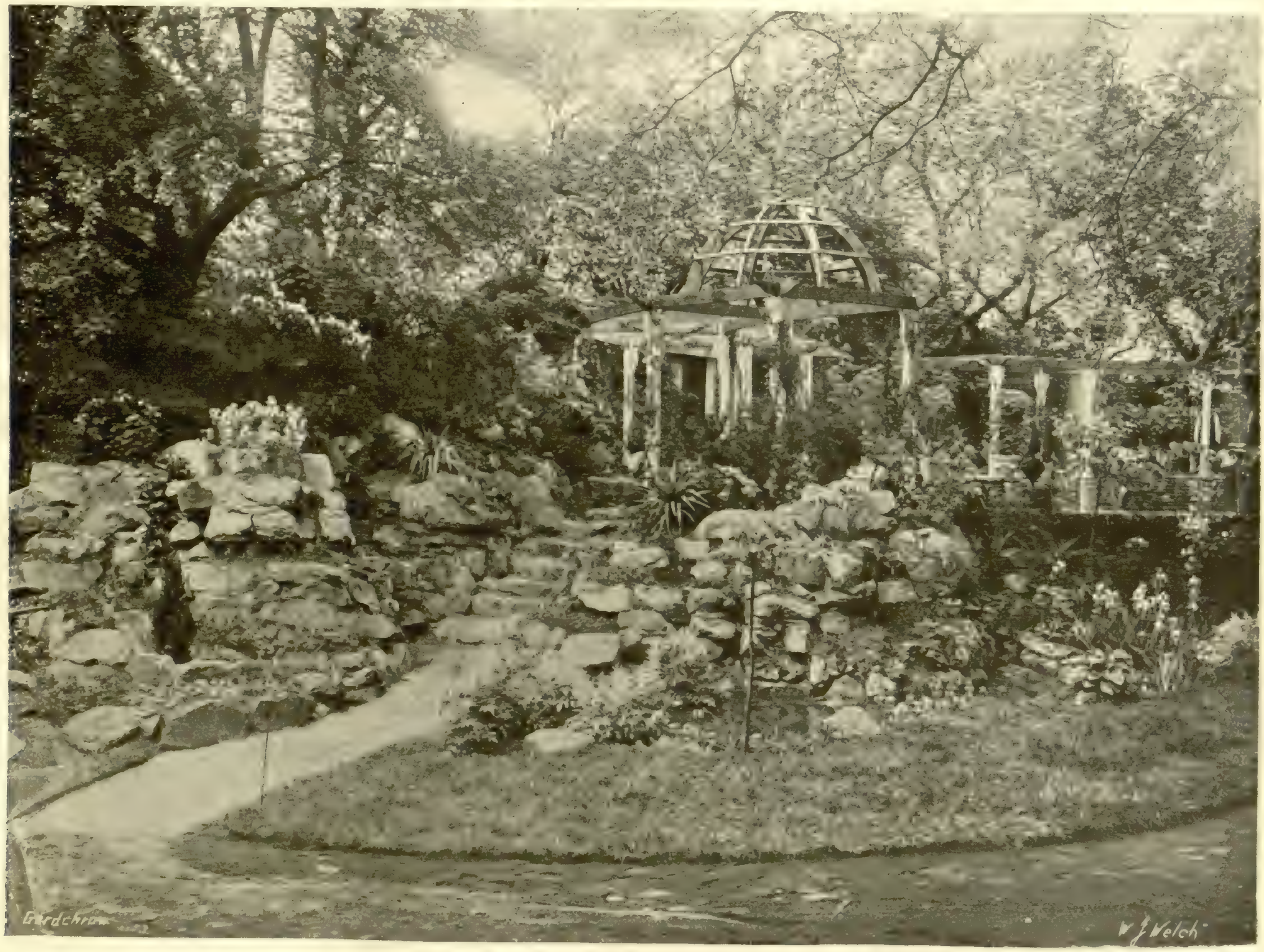


FIG. 186.—VIEW OF MESSRS. J. CHEAL AND SONS' TUDOR GARDEN AT THE INTERNATIONAL SHOW.

(See p. xxiv. of Exhibition Supplement in the issue for June 1.)

NOTICES OF BOOKS.

FLOWERS OF THE FIELD, WOODLAND, WAYSIDE, AND WALL.

THE name of the author of this work is so closely connected in the minds of garden lovers, with all that is rare and beautiful among the Alpine flora, that it is somewhat of a surprise to find his pen dealing with the plants of such tame and unpromising hunting-grounds as those suggested by the title of this book. But hedges and walks even are often veritable rock-gardens filled with charming plants, and woods and meadows afford better examples of lovely grouping and beauty of colour and form than any horticultural exhibition, however vast its spread of canvas. When we realise that under this comprehensive title the author is able to deal with such plants as Pyrolas, Epilobium rosmarinifolium, Colchicum autumnale, Genista sagittalis, Dianthus sylvestris, Aster Amellus, Coronilla varia, Orchids, Anemone, Hepatica, Corydalis cava, Leucojum vernum, and Scilla bifolia, we see chances for a charming book. Nor are these dainty inhabitants of our borders the only wild weeds of his country singled out for notice. Nothing is so common or so small in expanse of corolla as to be excluded, and the easy style of writing and deep and curious knowledge of folklore of the homes and peculiarities of the plants M. Correvon writes of give to even the commonest a certain importance and interest. So Colt's-foot and Daisy, Plaintain, Garlic, Mustard, and Dandelion have places in this book. The text is divided into four chapters, three dealing with the seasons of spring, summer and autumn, in which the plants are described in their order of flowering or fruiting, and are grouped together somewhat as they might be encountered in walks among their natural surroundings of wood, rock, or marsh. The fourth chapter brings us nearer to our gardens; part of it is given over to descriptions of flower-supporting walls and advice as to their planting, and the rest is devoted to the garden and its joys. The 100 coloured plates which illustrate this book are singularly beautiful. The faithful colouring and the accuracy of drawing of the plants render each a veritable portrait, and though great care has been expended on details of structure and botanical characters, yet each panel is treated with such artistic breadth and harmony that a delightful picture results.

The boldness and originality of some of the backgrounds are remarkable. For instance, the flaming orange of the faintly-suggested cornfield behind the blue heads of Cichorium Intybus, or the vivid autumn tints of fallen Beech leaves behind the crimson and orange berries of Euonymus europæus, Asperula odorata, and Impatiens Noli-me-tangere. The quieter greys and blues are equally successful, however, and the twin panels of Nut and Sallow catkins are wonderfully clever and pleasing. Mdlle. Rivier deserves special praise for her skill in representing shining berries and leaves; the translucency and shimmering glitter of her plate of Tamus communis is a good example, but it is well shown also in Viburnum Lantana, Solanum Dulcamara, and the fruit of the Dog Rose.

For delicacy of treatment in a quiet scheme of colour it would be hard to improve upon the full-page plate of Clematis Vitalba, or that of Silaus pratensis. The wish may be expressed that, in spite of having already published so much on Alpine plants, M. Correvon will speedily produce a book in which his pen and Mdlle. Rivier's brush will give us unfading records of the fleeting beauty of the plants of higher Alpine regions than those dealt with in this collection. *E. A. B.*

FIG. 187.—ROCK-GARDEN EXHIBITED AT THE INTERNATIONAL EXHIBITION BY MESSRS. J. BACKHOUSE AND SON, LTD.

(See p. xiv. of Exhibition Supplement in the issue for May 25.)

* *Fleurs des champs et des bois des haies et des murs.* By Henry Correvon. Price 15s. (Albert Kündig, Genève)

THE SMALL HOLDER'S HANDBOOK.*

THE literature of small holdings is voluminous; yet there is room for this handbook, in the production of which the editor has been assisted by many specialists, because it goes more fully into the details of the several divisions of the industry of the small holder than most other works of the kind. The method of obtaining a small holding from a landowner or from a county council is first clearly described. The subjects of working a holding and marketing the produce are somewhat misplaced, inasmuch as they are put before the equipment with cottages and farm buildings. The section on the latter subject is the weakest part of the volume, and practical information as to the cheap construction of the few farm buildings required to be erected by the holder would be particularly valuable. By the way, the advice to build a barn, using the term in the usual sense, is questionable. Such lofty and costly buildings as barns may be regarded as relics of old times, when Corn was stored and threshed by hand during the winter. A food-preparing house is all that the small holder needs in place of a barn. In relation to the marketing of produce, although due emphasis is given to the advantages of co-operation, it is satisfactory to note that emphasis is laid also on the great advantage of selling produce, so far as possible, directly to housekeepers. No system of co-operative selling for the wholesale markets can be nearly so profitable as direct sale at retail prices. The common breeds of cattle and pigs are described, and dairying, pig breeding and feeding are dealt with thoroughly, as also are poultry, goats, rabbits and bees. In treating of fruit, the editor puts grading, packing, and preserving before planting and such details of culture as are given. The advice to plant only four varieties of Apples cannot be endorsed, as this number is not sufficient to keep up a supply for the season, a matter of much importance to the small holder who sells his produce by retail. It is not to be expected in a small book that full details of the training and pruning of fruit can be given. The recommendation to plant Raspberries 6 feet apart each way is curious, for 5 feet by 2 feet are the common distances in market plantations. As to spraying, the chief objection to the directions is that proprietary washes of unknown constituents are mainly recommended. Culinary vegetables and a few of the popular market flowers are dealt with satisfactorily. The book is profusely illustrated. *Southern Grower.*

FOR THE IGNORANT.†

THIS is an unpretentious book, produced to meet the disabilities of those who, with earthy tastes, are yet so ignorant of the simplest details of gardening that no book with which the authors have made acquaintance is of any use in pointing out how to make a beginning and how to proceed once the initial steps had been taken. The work is divided into 13 chapters, one for each month of the year and one for the greenhouse, with a pleasantly-written introduction by Mrs. Earle. Anything of value in the book has often been published before, and what is novel—such as sowing Onions in drills at 4 inches apart—would have been better omitted. The best chapters are those for October, November, and December, but throughout the volume there is a certain amount of loose writing, and the varieties of plants recommended are not always the best.

* *The Small Holder's Handbook*, by W. M. Elkington. (London: L. Upcott Gill.) 3s. 6d.

† *Gardening for the Ignorant*, by Mrs. C. W. Earle and Miss Ethel Case. (London: Macmillan & Co., Ltd.) 1s. net.

The Week's Work.

THE ORCHID HOUSES.

By J. COLLIER, Gardener to Sir JEREMIAH COLMAN, Bart., Gatton Park, Surrey.

CŒLOGYNE.—Such species as C. barbata, C. ocellata, C. speciosa, C. odoratissima, C. Sanderiana, C. conferta, and C. Sanderæ are now making new growths, and should be afforded fresh rooting materials. All these plants thrive well if placed near to the roof-glass in a shady part of the intermediate house. C. Dayana and C. flaccida produce pendulous racemes, therefore these plants should be grown in pans and suspended from the roof, in an intermediate temperature. Such species as C. Lowii, C. tomentosa, and C. Massangeana should, as they pass out of flower, also receive attention at the roots. They should be suspended in a shady part of the East India house during their season of active growth, removing them afterwards to the warmest part of the Cattleya house. In potting, employ a compost consisting of one-third good fibrous loam, two-thirds A1 fibre, and a little chopped Sphagnum-moss, cutting the loam and fibre in short portions. When mixing the materials together, add a suitable quantity of crushed crocks to ensure porosity. Press the soil rather firmly about the roots. The plants should be well shaded after repotting and watered with great care, pouring the water near the edges of the receptacles to prevent moisture from settling in the young growths, as that causes them to damp off. When the roots are established in the new compost, water should be applied liberally, and during warm summer weather the plants should be sprayed frequently overhead and on the undersides of the leaves.

ZYGOPETALUM AND BOLLEA.—Zygopetalum and such Bolleas as B. coeleste, B. discolor, and B. Warscewiczella, should receive attention as to repotting or top-dressing just after new growth has started. These plants should not be subjected to root disturbance unless it is absolutely necessary. They may be grown either in pots or pans, which should be provided with ample materials for drainage purposes. As a rooting medium, employ a mixture of two parts A1 fibre and one part clean, picked Sphagnum-moss, cutting both materials in rather short portions, adding a quantity of crushed crocks and small lumps of charcoal. These grow best in a shaded position; they may be placed in a moist, shady corner in the intermediate house. Repotted plants should be afforded water sparingly, but the spaces between the pots should be syringed frequently, whilst their surroundings should at all times be kept in a moist condition. The plants should never be allowed to become quite dry at the roots.

PLATYCLINIS. — As plants of P. filiformis pass out of flower, they should be repotted or top-dressed as is found to be necessary. They are best grown in pans suspended from the roof, in a shady position, in an intermediate temperature. They should be sprayed frequently overhead and on the undersides of the leaves all through their period of active growth, as a means of warding off the attacks of red spider. Liberal supplies of water should be afforded the roots until the growths are completed. P. glumacea and P. uncata should be afforded a similar treatment during their season of growth.

LÆLIA.—Plants of Lælia anceps and its varieties are growing freely, and should be afforded a liberal treatment in every respect. They should not be too densely shaded; but the blinds may be lowered in the morning when the sun is shining so brightly as to cause the foliage to become warm; they should be drawn up again early in the afternoon. The house should be ventilated freely during the hottest part of the day, but closed sufficiently early for the temperature to rise to about 90°, when the plants should be syringed overhead. Late in the evening the house should again be ventilated freely, so as to lower the temperature to about 65° by morning, as the plants do best in a cool night temperature.

THE FLOWER GARDEN.

By J. G. WESTON, Gardener to Lady NORTHCOTE, Eastwell Park, Kent.

PROPAGATING SPRING-BEDDING PLANTS.—When the spring-flowering subjects are removed from the flower-beds, they are usually planted temporarily in a shady border till the summer bedding is completed. Their propagation, whether by division or cuttings, should then be attended to without further delay, in order to have strong plants by the autumn. If a stock of Aubrietias of certain shades or varieties is desired, it is best to propagate the plants by division, rather than by seeds, as seedlings usually provide a great diversity of colours. The double-flowered Arabis should be propagated from cuttings, which should be dibbled fairly thickly in boxes filled with light sandy soil. Place the boxes in cold frames and shade the cuttings from strong sunshine, but remove the shading in the evenings, and on dull days. During hot, dry weather, the frame should be kept close and damp, but the lights should be opened a little at night to allow superfluous moisture to escape. After the cuttings have become rooted, the amount of fresh air may be increased gradually, especially at night, and, as the plants strengthen, the lights may be removed altogether. After that stage the plants will soon be ready for planting in the reserve garden, where they will require little attention beyond keeping the ground clean, and affording occasional waterings in dry weather. Daisies, Polyanthuses and Primroses may be divided, if it is desired to increase the stocks of these subjects, and the portions planted in the reserve garden. Rich ground should be selected, as these plants are strong-rooting subjects. If seedlings are raised each year for spring bedding, the old plants should be divided, and planted out in the wild garden or by woodland paths.

BULBS. — It is often necessary to remove the bulbous plants from the flower-beds before the growth has matured, in order to make room for the summer-bedding plants. In these circumstances the bulbs should be lifted and placed in rows in soil or ashes in the reserve quarter or frame ground with as little delay as possible. They should be well watered and allowed to remain till the foliage has completely died away. Hyacinths and Tulips may be planted in the reserve garden to furnish cut blooms another season, or they may be utilised for the mixed borders. Daffodils may be planted in woods or naturalised in orchards and other suitable places.

SUMMER-FLOWERING CHRYSANTHEMUMS.—These plants are commencing to grow freely, and the soil should be hoed at frequent intervals, to keep it in a good condition and clear of weeds. If slugs are troublesome, dust the plants occasionally with a little soot in the evening when the dew is on them or after a shower. The soot will tend to keep them clean and healthy, and is also a good stimulant. During dry weather, when the plants are in full growth, a light mulch will be beneficial. If the plants are strong and healthy they will branch freely naturally, rendering much stopping unnecessary. Place a few stakes in position early, and secure the main stem firmly, using strong ties to loop up the other growths. Single Chrysanthemums are very attractive, and with the Japanese varieties are useful for garden decoration, also for furnishing cut blooms. They may be had in bloom from August till nearly Christmas if planted in sheltered situations.

ANCHUSA ITALICA.—The Dropmore variety of this plant is a most beautiful subject when in bloom, and is worthy of extended cultivation. The flowers are of the best shade of blue that is known in any herbaceous plants. Single plants show to advantage in the mixed border, but it appears at its best when grouped in quantity, and, if possible, where it is sheltered from strong winds. It is an exceptionally robust grower, and will grow from 4 to 6 feet high. The shoots should be firmly secured to stakes in their early stages, and the flower-spikes looped up as they elongate. A. italica "Opal" is another very attractive variety with light blue flowers.

GENERAL REMARKS.—Every effort should be made to complete all planting of tender plants for summer effect. When planting is delayed, the plants become stunted in the pots and boxes, receiving a check, from which they take a long time to recover, so that the season is far advanced before any floral effect is produced. If from unpreventable causes the plants cannot be put out as early as anticipated, they should be given a little manurial assistance, which will keep them growing and healthy.

THE KITCHEN GARDEN.

By EDWIN BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

BRASSICAS (WINTER GREENS).—The recent welcome showers have caused a fine recovery of many of the kitchen garden crops which had failed to make much progress during the period of drought. Take every opportunity to plant in their permanent positions the various kinds of Brassicas which will be required for use next winter and spring. Though it is not possible in many gardens to reserve plots of ground for the special reception of winter greens, very much may be done by inter-cropping among such subjects as Peas, Broad Beans, and winter Onions, especially where these have been afforded ample room. Except entailing a little extra care in gathering the produce, these greens do no harm to the other crops, and frequently, during hot weather, the latter affords just sufficient shade to enable the green vegetables to start away freely. The majority of the Brassica tribe are much better able to withstand severe weather when planted in firm ground, and by removing the first crop at the earliest opportunity, and forking over the surface about 3 inches deep, little further labour will need to be expended on them. Overcrowding should be strictly guarded against, as plenty of room is necessary for the plants to build up a solid growth, which will stand them in good stead during spells of wintry weather. Make one more sowing each of Rosette Colewort and London Hardy Green. These are both excellent varieties, perfectly hardy, and frequently furnish a supply of green vegetables during mid-winter and very early spring, when other kinds are scarce.

VEGETABLE MARROWS.—Plants growing in frames and fruiting during the past six weeks may now be exposed by removing both the lights and the frames. Carefully thin the shoots, removing any useless growths and decaying leaves. Furnish a thorough mulching of good loam and well-decayed manure, and keep both the foliage and the roots well supplied with water. These plants should continue to produce prolific supplies of Marrows for as long as the weather remains open in the autumn. By starting the plants thus early in frames, not only are early fruits obtained, but the plants are in full bearing when it is safe to remove the frames. Successional plants should be inserted in well-prepared beds, choosing, as far as possible, sheltered but open, sunny positions. Gourds and Pumpkins should also be placed in their permanent quarters at once.

ASPARAGUS.—By the middle of the present month the cutting of the shoots should cease, taking care to leave growths, as far as possible, all over the bed. Where practicable, give the beds a thorough drenching of manure water, and, in exposed positions, the stronger growths should be supported.

FRENCH BEANS.—Plants growing in frames should be staked and tied. Afford the roots an abundance of moisture, including liquid manure, and well syringe the growths, both at morning and early in the evening. Gather the pods as soon as they are large enough.

ONIONS. — Plants of the main sowings of Onions in the open should be well supplied with soot and fertilisers during showery weather. Keep the ground free from weeds, and stir the surface of the soil constantly.

CARDOONS.—See that these plants are well thinned apart, allowing a distance of at least 18 inches from plant to plant. Give a good surface dressing of half-decayed horse droppings, and an abundance of water to the roots. Where this vegetable is in demand, another sowing should be made in well-prepared trenches.

GLOBE ARTICHOKES.—If the work has not been done already, the plants should be mulched thoroughly, and the roots afforded frequent drenchings of liquid manure

PLANTS UNDER GLASS.

By THOMAS STEVENSON, Gardener to E. MOCATTA, Esq., Woburn Place, Addlestone, Surrey.

ZONAL PELARGONIUMS. — Plants of Zonal Pelargoniums that were rooted in February or March, and intended for autumn or winter flowering, may be transferred to their flowering pots. Six-inch pots are generally employed, and the plants do best in a fairly retentive but not too rich compost; it is not advisable to use a large amount of leaf mould, but some old mortar rubble and bone-meal may be added with advantage. Pot firmly, and place the plants on boards in the open, or, if there is plenty of room in frames, they may be accommodated in these, keeping the lights off except in very wet weather. The object should be to procure plants of a hardy growth, as these flower best during winter. Strong shoots should be pinched as soon as they have attained to a sufficient length, in order to obtain shapely specimens, and the stopping should be continued until early in August. Do not give the roots too much water; rather keep them on the dry side. Plants that are intended to bloom throughout the summer should be afforded a little mild stimulant occasionally, soot water being very suitable for the purpose. Show, Fancy and Regal Pelargoniums should be placed out-of doors exposed to full sunshine as soon as they have finished blooming or become unsightly. In these conditions the wood will become thoroughly matured, which is necessary if the plants are intended to be grown for a second season.

CUTTINGS OF PELARGONIUMS.—If a further batch of young plants is required, cuttings may be inserted now, or the work may be deferred until the plants are cut down at about the end of August. If strong plants are desired, I prefer to root them as early in the season as possible. Place the cuttings in pots singly, and they will root freely in any glasshouse, whether kept close or not. The only precaution necessary is not to shade them too densely, or the shoots will grow weak and spindly.

TUBEROUS-ROOTED BEGONIAS.—These plants are growing freely in the pots in which they will flower. Seedling Begonias in pots may require larger receptacles, and, if this is necessary, the work should not be delayed much longer, or there will not be sufficient time for the roots to fill the pots and the growths to mature before the season finishes. Seedling Begonias that are planted out must be attended to carefully, especially in the matter of watering, as it is essential, in order to judge of their merits, to have them in active growth early, so that the best may be selected and grown in pots for the following season. Large plants having several shoots should be staked, as this will allow the growths to receive the maximum amount of light.

STREPTOSOLEN AND HELIOTROPIUM.—Plants of Streptosolen and Heliotrope are very useful for flowering early in the season. For this reason some of those rooted this spring should be potted and grown on. They may be placed in a cool house, or, if this is not practicable, in a sheltered position out-of-doors. The stronger shoots should be pinched to make the plants shapely. When trained in pyramidal form they are useful for many decorative purposes in the spring.

HUMEA ELEGANS.—Plants of Humea elegans may with advantage be removed out-of-doors, sheltering them somewhat from the heat of the sun, in order that the inflorescences may attain a deeper colour. If the work has not been done already, a further sowing may be made; late plants often retain their foliage better than the earlier ones, though they seldom make such good specimens.

SALVIA SPLENDENS GRANDIFLORA. — Plants of this and other varieties of Salvia splendens should now be in a suitable condition for placing in their flowering pots, either 24's, 16's, or No. 12 pots, according to the size of the specimens required. A fairly rich compost is necessary, and firm potting is best. The points of the shoots should be pinched out as often as they show flower-buds, treating the plants in practically the same manner as Chrysanthemums. Some prefer to plunge the pots in ashes, but as this induces a quick, sappy growth, I am not in favour of the practice.

THE HARDY FRUIT GARDEN.

By F. JORDAN, Gardener to Lady NUNBURNHOLME, Warter Priory, Yorkshire.

STRAWBERRIES. — Early varieties of Strawberries planted in warm borders look most promising, and their fruits are swelling rapidly. If the weather continues dry, afford the plants copious soakings of water. Manure water should not be given whilst the fruits are on the plants. After the watering is completed, a framework should be erected on which to place nets, as when the latter are only spread over the beds many of the best berries are spoiled by birds; also, by using a framework, the fruits are more easily gathered. The supporting of the trusses of fruits on young plants, if practised, should be done at once, and if extra fine berries are required, the trusses should be well thinned. Slugs and snails are great pests of Strawberries, and every precaution should be taken to protect the fruits from them, also from birds. Notes should be taken at this season of varieties best suited to the district, and preparations should be made for layering a sufficient number of the most suitable sorts for forming new beds in the autumn. Stock plants put out last August for the special purpose of furnishing layers for forcing, having been denuded of all their flowers, will soon provide runners. These should be layered in 3-inch pots, or, as many prefer for early forcing, direct in 5 and 6-inch pots. By layering direct in their fruiting pots, the plants grow without a check, the crowns ripen well, and much labour is saved. Good runners from maiden plants are best for forcing. The ground for planting Strawberries should be in readiness by the end of July, as after that date the plants become starved in small pots, and their growing season in the open is too short. Soil in which Strawberries are planted should be trenched and manured the previous winter, and then cropped with early Potatos, simply forking over the ground afterwards, and making it firm when planting. Mulching is a great help in giving the plants a start, and is a most important factor in high culture.

GENERAL WORK.—The most important work in the fruit garden during the past month has been the destruction of caterpillars, grubs, and other insects. Notwithstanding the presence of all these enemies, there is promise of average crops of most kinds of fruits, although it is yet early to estimate the fruit harvest. Every care must be taken in picking and pinching, cleansing, and training the trees, as next year's success will depend largely on the proper management of the trees this summer. Autumn-fruiting Raspberries must be attended to, tying the young canes to the wires, or whatever else they are trained to. Cleanse the foliage and shoots of May Duke and other Cherries on walls before placing nets over the trees to protect the fruits from birds, which commence their attacks as soon as the fruits develop the first tinge of colour. Half-inch netting, fastened securely to the wall and pegged down, is the most efficient and durable protection for the purpose. Examine the trees of Apricot frequently for maggots, which are unusually prevalent this year, also afford another good soaking of liquid manure to the roots, after which no more moisture will be required until after the stoning period. Wall trees are growing freely, and, in stopping and disbudding the shoots, see that those intended for extension are kept tied in the proper direction. Leading shoots of cordon trees should be also tied constantly, pinching the side shoots closely.

FRUITS UNDER GLASS.

By E. HARRISS, Fruit Foreman, The Royal Gardens, Windsor.

LAYERING STRAWBERRIES.—To obtain suitable plants for very early forcing, preparations should be made at once for securing the layers. Assuming that a quarter was planted last autumn with a view to supplying early runners for the purpose, there will now be plenty of young plants large enough for layering. No time should be lost in placing these early runners in pots, as they will then be well grown and the crowns thoroughly matured by the end of the season. It is essential to have perfectly-ripened plants if good berries are required early in the spring. If rich loam is available, there need be no other ingredients mixed with it, unless it is intended to layer the young plants straight in their fruiting pots, in which case a small quantity of manure from an old Mushroom bed and a quantity of crushed bones, more or less according to the quality of the soil, should be added. The soil for growing Strawberries in pots should be as rich and substantial as possible, as the roots grow rapidly, and, if the soil is light and poor in quality, the plants will be in need of stimulating food before the season is far advanced. Under such conditions it is useless to expect to obtain plants suitable for early forcing. At Frogmore we layer the runners in 2½-inch pots, which are filled with loam in the potting shed and carried to the bed, where they are plunged in the soil between the rows. The small amount of extra work involved in plunging the pots will be amply repaid during very hot weather, when it will be found that the plants will not require half so much water as those not plunged. It will also be noticed that the plants root more readily in the new soil when treated in this manner. Much care must be exercised in selecting the runners; those which have already become firmly rooted in the ground should be discarded. The layers which give the best results are those just beginning to develop roots. Select only one plant on each runner. Secure the young plants on the surface of the soil by means of pegs or pieces of raffia pressed firmly into the soil. The layers should be damped frequently by means of a rose-can during bright weather till they have become well established in their pots. They may then be detached from the old plants and placed in a shady situation till they are ready for potting in their fruiting pots. Another batch of layers may, if necessary, be taken from the same plants for furnishing late plants. Although we have tried several varieties of recent introduction, we have been unable to find one to surpass or even approach Royal Sovereign for forcing, and we rely on this variety alone to furnish the early crops under glass.

THE EARLY VINERY.—The last few bunches of Grapes on early vines may be cut and placed in bottles in a cool room, where they will keep quite as well as if left on the vines. When the Grapes are removed, the vines may be syringed thoroughly with a strong mixture of soft soap and sulphur to cleanse them of red spider and thrip. The syringing may be done two or three times, at intervals of a few days. Afterwards the vines may be washed with clear water every evening when the weather is hot. See that the roots are thoroughly soaked with clear water, and, later, diluted liquid manure will be beneficial if the roots are in a healthy condition. Let the ventilators be thrown wide open at all times.

EUCALYPTUS.—The 14th part of Mr. J. H. MAIDEN'S *Critical Review of the Genus Eucalyptus*, pp. 133-164, plates 61-64, treats of E. melliodora, E. fasciculosa, E. uncinata, E. decipiens, E. concolor, E. Cloeziana, and E. oligantha, bringing the total number of species dealt with up to 72. It is well known that the species of Eucalyptus bear juvenile leaves or seedling leaves, very different in shape from those of the flowering or more mature branches. Other species have very variable leaves in the adult stage. E. melliodora. and E. uncinata belong to these categories. In the former the leaves vary from nearly linear and 6 inches long to oblong, rounded at both ends, lanceolate and ovate, and either acute or obtuse. The juvenile leaves of E. uncinata are heart-shaped or oval, and the succeeding ones linear to lanceolate. Sometimes, in this species, the juvenile leaves persist to maturity, so that the leaves are permanently dimorphic. The tendency to variability in foliage has led to much confusion of species, and Mr. MAIDEN has made a point of including the whole range of variation in his illustrations. E. oligantha is a remarkable species, with large, orbicular or ovate leaves, of which only flowers are known. It was originally found in Copeland Island, Mountnorris Bay, N. Australia, and Mr. MAIDEN identifies with it specimens collected between Tabletop Mountain and Artesian Range, West Australia. The species cultivated in the south of Europe under the name of E. cœrulescens is the same as E. melliodora.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, *as well as specimens of plants for naming, should be addressed to the* **EDITORS, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Special Notice to Correspondents.—*The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.*

Local News.—*Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Illustrations.—*The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c., but they cannot be responsible for loss or injury.*

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, JUNE 18—
Royal Hort. Soc. Coms. meet. and Gladiolus Sh. (Lecture by the Rev. Prof. Henslow on "Prof. J. S. Henslow as Ecologist.") Hort. Club meet. at 6 p.m.

WEDNESDAY, JUNE 19—
Yorkshire Gala (3 days). Royal Meteorological Soc. meet. Nat. Hardy Plant Soc. Sh at R.H.S. Hall, Westminster.

THURSDAY, JUNE 20—Linnean Soc. meet.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—59·2°.

ACTUAL TEMPERATURES:—

LONDON.—*Wednesday, June 12* (6 P.M.): Max. 65°; Min. 55°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—*Thursday, June 13* (10 A.M.): Bar. 29·8°; Temp. 67°; *Weather*—Sunshine.

PROVINCES.—*Wednesday, June 12:* Max. 60° Ilfracombe; Min. 55° Shields.

SALES FOR THE ENSUING WEEK.

THURSDAY—
Compact Freehold Nursery, Stamford Street, Grantham, 5 Glasshouses, Buildings, and ¼ acre Land, at The Guildhall, Grantham, at 4, by Protheroe & Morris.

Sulphur as a Fertiliser. Experiments made by M. E. Boullanger, reported in the *Comptes Rendu* of the French Academy of Science and summarised fully in *Die Gartenwelt* (xvi., 17, p. 228), tend to show that the application of small quantities of flowers of sulphur to the soil results in a very considerable increase in the crop grown on that soil. As a result of the addition of flowers of sulphur at the rate of 7 decigrams to 30 kilograms of soil, M. Boullanger claims that the plants experimented with—Beet, Beans, Celery, Potatos, Spinach and others—gave a higher yield of produce than the control plants grown in unsulphured soil.

Nor is that all: according to M. Boullanger's experiments the yield from the soil treated with sulphur, but otherwise unmanured, was actually greater than that from soil which received a complete manure. When both complete manure and sulphur were added the best results of all were obtained. One example will suffice to show the extent to which sulphuring the soil increased its fertility. The numbers to be given represent the results (in grams) in the case of Celery:

No manure.	Sulphur only.	Complete manure.	Complete manure and sulphur.
360	635	398	676

The increase of yield in the case of the soil treated with sulphur is indeed remarkable, and if further experiment confirms M. Boullanger's conclusions we shall have to add flowers of sulphur to the list of artificial fertilisers indispensable to the garden.

Apart from the practical aspect of the discovery—which, we repeat, yet awaits full confirmation—the question arises as to the mode of action of sulphur in enhancing soil-fertility. M. Boullanger has himself supplied the clue to the answer to the question. By means of a series of experiments involving the use of sulphured and unsulphured soils, he was able to demonstrate that sulphur produced its stimulating effect on plant growth only in soil which was not heat sterilised. When soil to which sulphur had been added was sterilised by heat it gave no larger crop than that yielded by unsterilised, unsulphured soil. The yields obtained in these experiments were, in round numbers:—

Not sterilised soil ...	15 grams.
Sulphured, not sterilised soil	25 grams.
Sterilised soil	15 grams.
Sulphured and sterilised soil	16 grams.

Whence it is to be concluded that the beneficent effect of the sulphur is due to its action on some of the living constituents of the soil, possibly on certain races of soil bacteria. The experiments, especially when considered in conjunction with those of other observers, open up a promising field for further investigation.

Rubbish Heaps and Bonfires. A good gardener, like a good cook, is one who manages to find a use for the smallest odds and ends and never wastes anything. And just as one can tell by looking round the larder whether the cook is a good and economical or a bad and wasteful servant, so, by looking round the garden, can one tell how far the gardener fails or succeeds in his position as a trusted and conscientious servant. A gardener's character can be told pretty conclusively by one or two very simple tests. Go into the greenhouse and knock two or three plants out of their pots. If they stick so that the ball of soil breaks when force is used, you know that he is a careless or slovenly man, who does not take the trouble to wash his pots each time he uses them afresh; but if the plant comes out with a gentle tap, leaving the inside of the pot smooth and clean, you may judge the gardener to be a conscientious worker.

But it is in the rubbish heap and the bonfire that the character of the gardener is to be most truly read, and it is here—in what one may call the out-of-sight, out-of-mind part of the garden—that the good gardener is quite as conscientious in his doings as in those other parts of the domain which are more directly under the eye. Such a man takes almost as much pride in the neatness and precise arrangement of his rubbish yard as in the well-ordered appearance of his potting-shed or his tool-house. "A place for everything, and everything in its place" is his motto, and in acting up to that commendable principle he saves himself much time and worry in being able to lay his hand on anything when he wants it.

Though that out-of-the-way portion of the garden, which the gardener calls his "rubbish yard," is intended to, and does, receive all the refuse and odds-and-ends cleared up from every other part of the premises, even to the contents of the dust-bin, the name is, to a great extent, a misnomer—the good gardener, at any rate, seldom has anything in his rubbish yard that cannot be turned sooner or later to good account. Anything that he collects when he is turning out old plants from the greenhouse, when disposing of a finished bed of green-stuff, or when tidying-up generally on a Saturday, is sorted out as it is gathered together in the wheelbarrow, and carried then and there to its appointed place in the rubbish yard. Old potting soil goes in one corner, for spreading out on the borders later on; dead sticks are stacked up in a pile for burning in the house as firewood when dry; leaves are put in a pile by themselves to rot down for potting soil; weeds and Cabbage stumps, or anything that cannot be rotted in a reasonable time, or that is apt to cause injury if put back on to the land without passing through the fire, is taken to the bonfire to be burned. Even broken crockery or old pots and pans are not thrown away. Some of the former come in handy when crocks are wanted for potting, and the rest can be made to serve a purpose when there are paths to be re-made, or when a wet corner in the garden has to be drained. Old tins and pots, though no longer useful in the house, may prove indispensable when there are such things as blight mixture to be made up in a disused vessel—even the most dilapidated and useless articles of this description can be broken up or flattened out to form a foundation to paths that need raising or re-making.

It is, however, when we come to the bonfire that we discover whether our gardener is a true economist or not. Certainly there are a good many gardeners who are wasteful to the last degree in this department of their business, and although it may be a proper sense of tidiness that prompts them to burn practically everything in the way of rubbish that can be reduced to ashes, their zeal in this direction is very easily carried too far. It is not often, perhaps, that a gardener is so blind to his own interests and to the requirements of the garden under his charge as to burn the leaves that he sweeps up in the autumn, although one has seen even that done by a lazy man to save the trouble of carting them to their proper place in the rubbish yard.

Still, there are many things burned in the bonfire that would be of far more value if allowed to decay instead of being burned—that process, of course, destroying many substances which are valuable to plant life, substances which, under processes of decay, would be available for putting back into the soil. The good gardener finds very little indeed for his bonfire—even weeds

are far more valuable when rotted in a heap instead of being burned, though, of course, if there should happen to be seed among them, the only safe thing to do with them is to commit them to the flames. Yet here, again, the good gardener—unless perchance he happen to be a much overworked man—needs no excuse for burning. And that is because the few weeds that manage to find a footing in the borders that he tends so carefully are never permitted to reach the stage at which they are capable of perpetuating their undesirable species.

FLOWERS IN SEASON.—Messrs. KELWAY & SON, Langport, Somersetshire, have sent for our inspection flowers of choice varieties of Pæonies and herbaceous Pyrethrums. We have received from Mr. H. RABJOHN, of the Twickel Gardens, Holland, a large box of Senecio glastifolius var. Twickel, which was the subject of a Supplementary Illustration in *Gard. Chron.*, July 16, 1910. The flowers received from Mr. RABJOHN arrived very fresh, and have continued to be decorative for several days. They are very freely borne on long, branched stems, and provide an uncommon shade of mauve-purple which is even more attractive in artificial light than in the daytime. Although these flowers were gathered from plants growing in the open air, the species has not proved to be generally hardy in this country, but it is an excellent plant for the cool greenhouse, and requires the same treatment as that given to Cinerarias. The type is a native of eastern South Africa, and is much more rigid in habit than the more desirable variety under notice.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—The seventy-third anniversary festival dinner of the Gardeners' Royal Benevolent Institution will take place on Tuesday, June 25 next, at the hall of the Worshipful Company of Grocers, Prince's Street, E.C. The following letter has been addressed to supporters of the Institution by Sir JEREMIAH COLMAN, Bart., who will preside at the dinner:—

"Gatton Park,

"May, 1912.

"Dear Sir,—I am anticipating the pleasure of presiding on the occasion of the anniversary festival dinner of the Gardeners' Royal Benevolent Institution on Tuesday, June 25 next, which will be held in the ancient hall of the Worshipful Company of Grocers, through the courtesy of their Court, and I much hope that you may be able to accept the accompanying invitation. The institution has for its laudable object the permanent or temporary assistance of gardeners and others, including their widows, engaged in horticultural pursuits, who, through fortuitous circumstances, have become incapacitated, or are in distress. No fewer than 253 persons are at the present time receiving permanent aid at a cost of upwards of £4,500. The great work accomplished in the past has been recognised by the substantial support accorded by lovers of horticulture, and to-day it

FIG. 188.—ELÆOCARPUS CYANEUS: FLOWERS WHITE.

(Received R.H.S. Award of Merit on the 4th inst. See p. 380 *ante*.)

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the Committees will take place in the Society's Hall, Vincent Square, Westminster, on Tuesday, the 18th inst. At the 3 o'clock meeting, in the Lecture Room, the Rev. Professor G. HENSLOW will deliver an address on "Professor J. S. Henslow as Ecologist."

HORTICULTURAL CLUB.—There will be a House dinner of the Club at 6 p.m. on Tuesday, June 18, at the Hotel Windsor, Victoria Street, S.W., when a lecture will be given by Mr. HORACE J. WRIGHT, entitled, "Pictures from a London Garden." The lecture will be illustrated with coloured lantern slides.

MANCHESTER SUMMER SHOW.—We are informed by the secretary, Mr. P. WEATHERS, that the dates of the summer exhibition of the Manchester Botanical and Horticultural Society have been altered from July 19 and 20 to July 12 and 13.

is more than ever necessary that the members of the committee, who devote so much valuable time in the able administration of the funds at their disposal, shall be loyally and generously assisted, not only by those who may become entitled to the benefits of the Institution, but by all lovers of flowers and gardening. The growing popularity of horticulture in the present age has been little short of phenomenal, and with it has come as a natural sequence the demand for a much higher standard of gardening and gardeners, and an ever-increasing demand upon the resources of the Institution. I invite with confidence your sympathy and generous aid in support of an institution which is doing so beneficent a work amongst those whose vigilance and care in attending our gardens add so much to the pleasures of our home life, and who are, I think, thoroughly deserving of any help we can secure. Your hearty co-operation and generous support will be much valued, and any contribution which you may be disposed to send me will be gratefully acknowledged by the secretary, Mr. G. J. INGRAM, 92, Victoria Street, S.W., and it will be convenient if you will kindly address your reply to him.

"I am, yours faithfully,
"JEREMIAH COLMAN."

EXTENSION OF WANDSWORTH COMMON.—The Parks and Open Spaces Committee of the London County Council has decided to recommend a grant of £6,000 towards the acquisition of an additional 20 acres of land for Wandsworth Common. This, with various donations, leaves only £500 to be raised. Those interested in the extension have received a letter from Lord MEATH, saying that he will bring the matter before the Metropolitan Gardens Association.

CAPE WINES.—Professor HAHN, a distinguished South African scientist, has been dilating on the qualities of Cape wines. He recently told a Johannesburg audience that the light white wines and the light red wines—that is, wines of the hock and claret type—compared most favourably with the wines of the same type produced in Southern Europe, Algeria and California. He was supported in this opinion by men from Germany and other places, who thought very highly of the wines. They are produced, manipulated and matured under the provisions of a very strict law against adulteration, in consequence of which those wines to which he had referred were pure natural wines, and that could not be said of the greater portion of the wines imported from foreign countries. Their South African wines were produced without admixture of preservatives.

ILLUSTRATIONS OF THE PLANTS OF FORMOSA.*—In a notice of another work on the flora of Formosa by the same author (*Gardeners' Chronicle*, January 6, 1912, p. 9) mention is made that Dr. HAYATA was engaged on a comprehensive series of illustrations of the plants of Formosa. The first part of this work has now appeared, and it is announced therein that the complete series will consist of 600 plates, to be issued in annual parts, each part comprising letterpress and 40 plates; hence the publication will extend over a period of 15 years. It is a pity that circumstances necessitate so long a period. All the letterpress is in fluent English, on which the author may be justly complimented. No new species are described here, but the author's new species, published elsewhere, are re-described, and there are keys to all the genera and species enumerated. The plates are from excellent drawings, including dissections, engraved on copper, and represent mostly plants peculiar to Formosa. Although the subjects are interesting, there is not one striking plant in the whole series of 40 plates. They are almost exclusively montane species of genera of wide distribution and characteristic of temperate floras, and a large proportion have small flowers. With the exception of two or three species of Clematis, none has flowers exceeding an inch in diameter. The typography is good, as well as the plates; but the way in which the sheets of letterpress and plates were riveted together is beyond all comment. We say "were," because it was necessary to unfasten them before we could turn over the leaves.

* *Icones Plantarum Formosanarum nec non Contributiones ad Floram Formosanam*; or *Icones of the Plants of Formosa*, &c., by B. Hayata. Fasciculus i, Ranunculaceæ to Rosaceæ. (Published by the Bureau of Productive Industry, Government of Formosa, Taihoku, 1911.) Large 8vo., pp. 265 plates 40,

THE NEILL PRIZE IN HORTICULTURE.—The Council of the Royal Caledonian Horticultural Society has awarded the Neill Prize for the biennial period 1910 to 1912 to Mr. JOHN W. MCHATTIE, Superintendent of the City Gardens, Edinburgh. The prize is one which is in the gift of that Society, and commemorates the late Dr.

MR. JOHN W. MCHATTIE.
Neill Prizeman, 1910-1912.

PATRICK NEILL. It is awarded to distinguished Scottish botanists or cultivators. Mr. MCHATTIE is a native of Morayshire, and began his gardening career in the gardens of the MACKINTOSH of MACKINTOSH, at Moy Hall. He served at various other places, including Altyre, Forres, Raith House, and Oxenford Castle, and was afterwards appointed to take charge of the gardens of the Marquis of LOTHIAN, and later those of the Duke of WELLINGTON, at Strathfieldsaye, Berks. In 1901 he was appointed to take charge of the City Gardens in Edinburgh. Mr. MCHATTIE has won the Royal Horticultural Society's Gold Medal for a collection of fruit, the Veitch Memorial Medal twice for fruit, the City of Edinburgh Cup three times for Chrysanthemums, the National Chrysanthemum Society's Gold Medal for Chrysanthemums, and many other notable prizes at exhibitions held in London, Manchester, Newcastle, Edinburgh, and Glasgow. In landscape gardening Mr. MCHATTIE has had considerable experience, and examples of his work may be seen at Strathfieldsaye; Tylney Hall, Hampshire; Lea Park, Surrey; Saughton Hall Park, Blackford Hill, Colinton Hospital and Princes Street Gardens, Edinburgh. In addition Mr. MCHATTIE has rendered valuable services to various societies, both horticultural and arboricultural. He contributed articles to the "Week's Work" pages of the *Gardeners' Chronicle* for some years.

"THE BOTANICAL MAGAZINE."—The issue (No. 90, Fourth Series) for the present month contains illustrations and descriptions of the following plants:—

BRACHYCHITON ACERIFOLIUS, tab. 8437.—An Australian tree, which is known as the Flame Tree in Queensland and New South Wales, where it attains to a height of from 60 to 120 feet. A plant was introduced to Kew in 1825, but LOUDON states that the species was brought to this country a year earlier. B. acerifolius thrives in the open air at La Mortola, Ventimiglia, Italy, but at Kew it requires to be grown in the temperate house, where a tree 40 feet high is now flowering. It seems that abundant sunshine is required to enable the tree to produce its pendulous panicles of bright pink flowers. As the specific name implies, the large leaves are similar in shape to those of the Maple.

RUPICOLA SPRENGELIOIDES, tab. 8438.—This plant is an Epacrid which, when given the cultural treatment afforded to Epacris, forms a shapely, free-flowering bush, growing not more than 2½ feet high. The flowers are white and have rosy-tipped anthers. This species was discovered by Messrs. J. H. MALDEN and W. FORSYTH near the southern edge of the King's Tableland in the Blue Mountains of New South Wales in 1898.

IXORA LUTEA, tab. 8439.—This is a very attractive Ixora, of garden origin, which is deserving of culture in all gardens where tropical plants are esteemed. It was sent to Kew from Peradeniya, Ceylon, more than 20 years ago, under the name of I. coccinea var. lutea, which name is still retained in many gardens. Ixora lutea differs from I. coccinea in having a looser inflorescence, larger corolla lobes, and in the colour of the flowers, which are pale-yellow occasionally tinted with buff.

LYCIUM PALLIDUM, tab. 8440.—The form of Lycium pallidum illustrated in tab. 8440 is that from Colorado, which differs from the New Mexico form in having the corolla-tube hairy inside below the insertion of the stamens. This form has flowered freely early in summer every year at Kew since 1886, but none of the shrubs developed any fruit until last year, when the bushes were weighted down with red berries, which contrasted strangely with the small greyish-green leaves. The flowers do not possess any individual beauty, but in quantity are moderately attractive; the garden value of the plant lies in the bright berries, which persist for a long time. This species thrives well when grown fully exposed to the sun in a medium loam. Hitherto it has, of necessity, been propagated by layering; cuttings have proved difficult to strike, and until last year there were no seeds available.

PEROVSKIA ATRIPLICIFOLIA, tab. 8441.—This Labiate is a native of the mountains of Afghanistan, and it is found through the Western Himalayas to Western Tibet. The plant is described as being singularly beautiful when in flower, but the illustration gives no indication of any great beauty, though probably this is one of the many plants which require to be grown in numbers in order to show themselves to advantage. It is a shrubby species, from 3 to 5 feet high, with silvery-grey stems and lavender-blue flowers. It is recommended that this species be grown in a deep, but not heavy, loam, and that the plants be pruned back to the woody portion every spring.

MANURING FOREST TREES.—The paper read by Dr. SCHWAPPACH, Professor of Forestry at Eberswalde, at the sixth International Forestry Congress at Brussels, dealt with the manuring of forest trees, a subject which has received considerable attention on the Continent during the past decade. Twenty years ago a series of experiments in forestry manuring were commenced in Belgium and Holland, and a little later in Germany. The present results show that good soils contain the necessary food substances in sufficient quantity for forest trees, and that artificial manures are only necessary when the soil is becoming exhausted or when it is important to help the trees to pass over some critical stage such as danger from frost or game. As Dr. SCHWAPPACH observed, manuring has not the same importance in forestry as in agriculture. The amount of mineral salts retained in timber is relatively small, and, by the fall of their leaves, the trees during their growth return to the soil the greater part of their mineral constituents, thus rendering artificial manures almost unnecessary. The application of manure to forest trees causes a great increase in the cost of upkeep—nitrogenous manures induce excessive growth of weeds, which require considerable attention—and in view of the long period which must elapse between the planting and felling of a forest, it cannot, as a general rule, prove remunerative. In the case of middle-aged woods, whose roots are comparatively deep, the use of ordinary manures is impracticable, and it seems that the only profitable method of encouraging growth in such woods is to endeavour to bring about the quicker decay of the fallen leaves and twigs by the action of some decomposing agent, such as lime, or by digging the surface soil. The experiment tried by the Berlin Irrigation Works of irrigating a 60-year-old Pinewood wood with sewage water was a decided failure. The monthly application of sewage water during the growing seasons of two years caused the death of many trunks. The irrigation of plantations of Spruce, Scots Pine, and Weymouth Pine at Görlitz gave much better results, but in this instance the woods treated were only about 30 years old. The city of Berlin has obtained encouraging results by top-dressing the soil of Pine woods with a layer of city refuse up to a depth of 8 inches. It is, however, in the early stages of trees growing in poor soils that the value of manuring becomes most apparent. In poor, sandy soils, where the supply of nitrogen is low, the problem of supplying fresh nitrogen in a slowly available form at low cost is worthy of attention; nitrate of soda and sulphate of ammonia are much too rapid in their action, and the Continental experiments tend to show that the necessary nitrogen may best be obtained from the plant residues from (1) the planting of Leguminosæ, especially Lupins and Acacias on sandy soils, and Trefoil and grey Alder on chalky soils; (2) dressings with turf and other substances containing humus; (3) covering the soil with Lupin haulm, Potato tops, straw, leaves, and small twigs; or inter-planting with a species having a heavy leaf-fall, such as Pinus rigida and P. montana. Lupins have yielded good results, and are recommended for planting either as a preparatory crop or between the rows of the young trees. For the first purpose the yellow Lupin, in which case about 4 cwt. per acre of basic slag and 2½ cwt. of kainit per acre should be applied, and for the second the blue Lupins are considered to be the best. In place of Lupins on chalky heathland, it is advisable to grow Trifolium hybridum between the trees. In central Europe, species such as Acacia on sandy soil and grey Alder on chalk, which are capable of utilising the free nitrogen of the air and rendering it available for use by themselves and by other species planted with them, are of great value.

AGRICULTURE IN THE TRANSVAAL.—Dealing with the transition which has taken place in farming during the last 30 years in the Transvaal a special correspondent in the *Star* states that shortly after his arrival he visited the Potchefstroom and Rustenburg districts, where he found that farming consisted in the growing of such crops as were mainly consumed by the resident families, while the small surplus was taken to the district dorp and bartered for such commodities as were needed to meet the simple wants of the farmers. In those days the cattle consisted mainly of what are known as Kaffir cattle and of the Africander variety. Woolled sheep were then, as now, found only on the High Veld, and there only in limited numbers. Farms outside Pretoria itself were valued at 1s. and 1s. 6d. per morgen. Wherever one turns to-day he will find that the Kaffir cattle and the Africander are giving place to the pedigree stock.

BOARD OF AGRICULTURE AND FISHERIES.—In addition to supplying printed information, the Board also endeavour to assist farmers and gardeners in certain other directions. Specimens of insects and fungi are identified, and advice is given as to preventive and remedial measures. Specimens forwarded for this purpose should be securely packed in a strong tin or wooden box with a tightly-fitting lid, and addressed to the Secretary, Board of Agriculture and Fisheries, Whitehall Place, S.W. Advice on other matters is also given, but, having regard to the variety of local conditions, it is usually preferable that application for information on such subjects as the uses of manures and feeding stuffs, or the kind of crops suited for a particular district, should be made to the local Agricultural College. Complaints relating to the adulteration of agricultural articles, or the sale of goods under false descriptions, will be investigated by the Board's inspectors, with a view to any action which may appear desirable. The Board are also prepared to receive complaints as to rates and facilities for the carriage of produce by rail, and if, on investigation, such complaints prove to be well founded, representations will be made to the railway company concerned, or such other steps taken as may be necessary. The books in the Board's library may be consulted, by students and other persons interested in agriculture, at the office of the Board, 8, Whitehall Place, London, S.W., on any weekday between the hours of 10 a.m. and 5 p.m. (Saturdays, 10 a.m. to 2 p.m.).

FIG. 190.—MESSRS. JAMES CARTER AND CO.'S EXHIBIT OF FLOWERING PLANTS AT THE INTERNATIONAL EXHIBITION.

(See p. xi. of Exhibition Supplement in the issue for May 25.)

R.H.S. GARDENS CLUB.—The annual gathering of past and present members of the Royal Horticultural Society's gardens and office staff took place at Wisley Gardens on the 8th inst. Old members assembled at Byfleet, where lunch was provided. The programme included a botanical ramble under the guidance of Mr. JOHN FRASER, F.L.S., along the banks of the canal and across fields to the R.H.S. gardens through delightful scenery. A tour of inspection was made through the gardens, including the new rockery, wild garden and glasshouses. The annual meeting was afterwards held in the lecture room under the presidency of Mr. FRASER. The business included little beyond the election of officers for the ensuing year. Mr. JOHN FRASER was appointed president, and Messrs. S. T. WRIGHT and F. CHITTENDEN vice-presidents. Mr. WRIGHT was re-appointed treasurer; Mr. R. J. WALLIS secretary; Mr. JOHN FRASER Editor, and Messrs. SPOONER and FRANK READER auditors. The committee was also appointed. Several of the members spoke of the pleasure of reviving old associations, and urged the present students and staff to foster the spirit of comradeship.

AWARDS AT CHELSEA.—In our list of awards made to non-competitive exhibits at the Royal International Horticultural Exhibition, printed last week, we omitted to state that the two "Veitch Memorial" Cups offered in the Scientific Section were awarded to M. GEORGES TRUFFAUT, Versailles, and to Professor KEEBLE, University College, Reading, respectively. Prof. KEEBLE's exhibit illustrated the history and origin of certain varieties of Primula sinensis, and M. TRUFFAUT's exhibit consisted of specimens of injurious insects. A Silver Medal was awarded Mr. C. A. CHRISTIANSEN, Norwood Green, Southall, for an exhibit of boilers, etc. Mr. CHRISTIANSEN's name was given incorrectly in the official list of awards supplied to us.

ROYAL METEOROLOGICAL SOCIETY.—A meeting of this society will be held at 70, Victoria Street, Westminster, on Wednesday, the 19th inst., when the following papers will be read:—1, "The Adoption of a Climatological Day," by WALTER W. BRYANT, B.A.; 2, "A Three-Year Period in Rainfall," by ARTHUR PEARSE JENKIN.

HARDY PLANT SHOW.—The first exhibition of the National Hardy Plant Society will be held on the 19th inst., in the R.H.S. Hall, Vincent Square, Westminster. Particulars may be obtained from Mr. A. J. MACSELF, 52, Beechfield Road, Finsbury Park.

"FREAM" MEDAL.—The Board of Agriculture and Fisheries have awarded a Fream Memorial Prize, of the value of £7 1s. 9d., to Mr. JOHN MALCOLM, of Dunmore Farm, Larbert, Stirlingshire, a student of the West of Scotland Agricultural College, Glasgow, who obtained the highest marks in the recent examination for the National Diploma in Agriculture.

NEW SPECIES OF DOUGLAS FIR.—Dr. DODE has just described* a new species of Douglas Fir which has been found growing on limestone rocks at 8,000 feet altitude in the province of Yunnan, in China. This Chinese species is closely allied to Pseudotsuga japonica Beissner, a native of Japan and Formosa, agreeing in the leaves, being emarginate at the apex, but differing in having larger cones, with more numerous scales and larger seeds. The species is named Pseudotsuga sinensis Dode, and if it is correct that it grows on limestone soil, it may prove a noteworthy addition to our cultivated forest trees. Seeds have been sent to Dr. DODE by Père DUCLOUX.

* In *Bull. Soc. Dend., France*, 1912, p. 58.

YORKSHIRE GALA.—This annual flower show and fête will be held in Bootham Park, York, on the 19th, 20th and 21st inst. The sum of £800 is offered in prizes, and four gold medals will be awarded to trade exhibits.

FORESTRY AT CAMBRIDGE.—The General Board of Studies, Cambridge University, have re-appointed Mr. A. HENRY, M.A., of Gonville and Caius College, as Reader in Forestry until September 30, 1917, and the re-appointment has been confirmed by the Special Board for Biology and Geology. The Forestry Committee is prepared to appoint an Adviser in Forestry, whose duties will commence on October 1, 1912. The appointment will be for three years. The chief duty of the Adviser will be to supply to landowners and others, in the group of counties in the east of England, advice on the management of their woods and plantations. He will also be required to study in detail local conditions in all matters pertaining to forestry.

MEDINILLA MAGNIFICA.—Lady HARLECH, Brogyntyn, Oswestry, has kindly sent a photograph of a fine example of Medinilla magnifica grown by her gardener, Mr. T. LAMBERT. As this handsome stove flowering plant was the subject of an illustration in the *Gardeners' Chronicle* so recently as April 15 of last year, we do not reproduce the photograph. It depicts a well-balanced plant, with fine leaves and long racemes of flowers, growing in a relatively small pot. In the average garden space cannot be afforded to grow large specimens of this beautiful tropical shrub, but, if well grown, small plants in 6 or 7-inch pots will produce several inflorescences and furnish valuable plants for filling vases in the house.

WHEN TO CUT HAY.—The annually recurring problem concerning the best time to cut hay is the subject of a paper by Messrs. CROWTHER and RUSTON in the current number of the *Journal of Agricultural Science*. Their investigations, based on the crops of 1909 and 1910, at the Manor Farm, Garforth, Yorkshire, indicate that the chemical composition of hay changes steadily throughout the hay-making season. The influence of season is, of course, very great, but as the crop grows there is a steady production of protein and fibre, whilst mineral matters are taken up from the soil. At the same time, the digestibility of the hay diminishes, and this in the end more than equals the increase in weight of the crop. It is thus inadvisable to allow growth to continue too long: the best results were obtained in both seasons by cutting about the beginning of July. A week or 10 days of latitude may be allowed in the time of cutting, but hay cut after the middle of July showed appreciable deterioration.

THE TEMPERATURE OF HAY STACKS.—The causes of the excessive rise in temperature of haystacks and their occasional spontaneous combustion have been investigated by Dr. HUGO MIEHE, of Leipzig, an account of whose work is given in the *Journal* of the Board of Agriculture, February, 1912. The "accomplices before the fact" of incendiarism are proved to be biological in nature, although the ultimate conflagration appears to be due to purely chemical causes. Of the bacteria which constitute the microflora of grass, those mainly responsible for raising the temperature inside haystacks are Bacillus coli and B. calfactor, though they have other bacterial aiders and abetters. B. coli sets up decompositions which are accompanied by the evolution of enough heat to raise the temperature to 104° F. (40° C.). When this temperature is reached it retires from the scene of its activity and leaves the hay to the attentions of B. calfactor, which revels in a high temperature. By the fermentive activity of this heat-loving microbe, the temperature of the stack may be raised to 167° F. (75° C.), after which temperature the cause of further heating is purely chemical. The drier the hay and the smaller the stack the less is the liability of conflagration.

LEMON CURING.—The bright yellow colour of the commercial Lemon and its production on a sound financial basis are the subject of *Bulletin* No. 232, Bureau of Plant Industry, U.S.A. Since the Lemons which command the highest prices are of medium size, the grower finds himself obliged to pick the fruit before it has attained full size or ripeness. The coats of the Lemons thus gathered are green, and the fruit has, therefore, to be subjected to a ripening or curing process, during which the colour of the coat changes from green to "lemon yellow." The curing may be allowed to effect itself in a leisurely fashion, or the process may be speeded up by artificial means. In either case, the change of colour is supposed to be accelerated by a fairly high temperature, and a high degree of saturation of the atmosphere of the room in which the fruit is placed. The former condition is secured under the forcing system by the use of oil stoves. From the investigations carried out by Messrs. A. F. SIEVERS and R. H. TRUE, and described in *Bulletin* No. 232, it appears that the yellowing under these conditions is due primarily to the pungent products of combustion given off by the oil stoves used to supply heat in the "sweating rooms," and that the heat and moisture commonly supposed to be responsible for the change of colour only supply the conditions under which this ripening action proceeds most rapidly.

OSTROWSKIA MAGNIFICA.

THE Ostrowskia at its best and in robust health is, without doubt, the most splendid of all our hardy perennials. It is one of the few plants that merit a flattering specific title, for it is indeed magnificent. It was introduced into this country from Bokhara in 1887, but, although it has been cultivated in England for more than 20 years, it can scarcely be considered to have been a success in the majority of gardens, though in some it grows with astonishing vigour without the slightest attention. In Northamptonshire and Yorkshire it grows superbly, plants often exceeding 7 feet in height, and if it could invariably be grown in such stately form it would, when in flower, be the cynosure of every garden that possessed it. Unfortunately, however, it is but in few instances that such remarkable success is attained. As a rule, in the south, it does not exhibit the vigorous health that it evidences in Northamptonshire and Yorkshire, and numbers of plants do not exceed 3 feet or 4 feet in height, while some are considerably smaller. The plant appears to appreciate a heavy soil, impregnated with lime, and dislikes a hot, dry soil, even when this has been well mixed with old mortar rubble. In making a bed for the Ostrowskia the soil should be fully 3 feet deep, as its roots descend a great distance. Heavy soil mixed with old mortar rubble should be used, and copious waterings should be given during the season of growth. The roots are exceedingly brittle, so much so that it is almost impossible to lift a large plant from the open ground, even with the greatest care, without a breakage, a circumstance which renders its transplantation a most difficult proceeding. In the south-west, plants often die off unaccountably, even when apparently permanently established. This is all the more

surprising as the Ostrowskia comes from a cold climate, and should be perfectly hardy, and its decease is probably not due to its tenderness. There is considerable difference of opinion as to its winter treatment. A certain writer asserted that it commences its root-growth in November, and that it is therefore expedient that from that date it should be fully exposed to the winter's rains. If, however, I can credit the statement of a friend, who knows its home, this is absolutely opposed to the conditions it experiences in its native land, for there, I am informed, it is covered at this period with several feet of snow, and hence it must be perfectly dry. Others advocate its protection during the whole winter under a glass light, until its young shoots break the ground in the spring. The late Sir Michael Foster wrote: "After the Ostrowskia has died down, during late autumn and winter it needs to be kept fairly dry, but though it likes to be in dry quarters during its winter's sleep, it needs, when it is pushing up in the spring, and especially when it is growing fast in the summer, conditions of quite a different kind. With a stinted water supply then, the plant loses more than half its beauty." Some years ago Mr. Archer-Hind had a fine plant of the pure-white variety, about 5 feet in height, which was protected by a hand-light every winter. One year this protection was forgotten, with the result that the plant never appeared again. This disastrous result leads one to infer that it is wiser to keep the plants dry during the winter season, and, certainly, by so doing the conditions prevalent in the plants' native habitat are more nearly reproduced. There are, however, many who scout the idea of protecting the Ostrowskia, and aver that it is perfectly hardy and absolutely indifferent to the severest frosts or the most torrential downpours, so that considerable diversity of opinion exists as to its correct treatment. Perhaps the best method of establishing the Ostrowskia is to raise seedlings, and to plant them out when they are about 6 inches in height. The plants when in bloom are marvellously beautiful, the great lavender-blue blossoms, fully 6 inches across, shining like satin. When cut they remain fresh in water for well over a week. There is also a pure-white variety, which is even more lovely than the type. Last autumn I had to give up my garden and remove all my plants to another and had to lift the Ostrowskias, which had been about 4 feet in height, and had flowered grandly. They were very carefully removed, only two roots being broken, and were planted most circumspectly in the new garden. This year they came up, but were very weak, the tallest flower-stem only attaining a height of 2 feet. Whether they will gain in strength another year remains to be seen. Mr. Reginald Farrer in advising on the transplanting of the Ostrowskia, writes: "The Ostrowskia sends farther and farther down into the bowels of the earth each season, a huge, waxy carrot of a root that becomes as thick as your arm, or thicker, and goes down and down and down, as if it were seeking the Antipodes. This then must be dug up; that huge carrot cut callously into sections; each section of about a foot long or so planted into rammed soil by the insertion of a crowbar. You plunge your crowbar and wriggle it round till you have a hard, deep hole exactly to fit the lopped trunk of your Ostrowskia. You then drop him down, sift in soil, ram him tight, and hard, and fast again into the hole till he cannot stir, and you then, just for safety's sake, for a winter or two cover him over with piles of dead bracken. Every single section of that Ostrowskia will come shooting firmly up in spring—at least that has been my recent happy experience." However, some plants which were left entirely uncovered shot up in the spring just as heartily as those which had been mulched, and this was in a cold district of Yorkshire, so the Ostrowskia is evidently hardy. *Wyndham Fitzherbert.*

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

THE INTERNATIONAL FLOWER SHOW.—The observations made by Messrs. J. Carter & Co. (see p. xlv. Supplement, June 8) as to the profit arising out of the recent International Flower Show are interesting, and worthy of an answer, or of answers, from those who may be competent. I do not say that I am competent, but I will make a few remarks on the subject. An exhibition is not a thing in itself, it is related to a past, and also to a future. It is a harvest of a past seedtime, and it is a seedtime of a future harvest. It shows to many an abundance of good things that would be otherwise seen by only a few. It has been asked, "What is the good of an unknown good?" Precisely that is it.

"Full many a flower is born to blush unseen,
And waste its fragrance on the desert air."

What does the Orchid bloom for? Does it only array itself for the insect who is the insensible medium or agent of its fertilisation, or does it live and love for man? The horticulturist may take the latter view, and find his advantage in doing so. What is the value of a shop window or of an advertisement? Both, to some, are useless things, but they are attractive to others. An exhibition is both a shop window and an advertisement, but it does not stand by itself. It excites the desire of thousands of visitors to have pretty things, gardens, flowers, shrubs, pergolas and rockworks. It makes people want more variety in an otherwise monotonous garden, and shows them the great variety within their reach. It makes them desire to have glasshouses, and to see those erections filled with abundance of richly-coloured flowers and many kinds of pleasant fruit, and it brings them into touch with those obliging persons who can provide them with these excellent and agreeable things. This International Exhibition has been more fortunate than some. It has paid its way. Many important horticultural firms who exhibited there have already reaped advantages, it need not be doubted, and many others will continue so to do for many years to come. Those firms and exhibitors who diligently follow up in after months the enquiries and introductions the Exhibition provided with the greatest perseverance will reap the greatest reward. Exhibitions must be followed up by advertising and by the attentions of the traveller, and further, also, by other exhibitions, and the harvest will be commensurate. I have had a considerable experience of exhibitions, many of which have been held in the Horticultural Hall, Westminster, and I know that exhibitions, when followed up by after work, do pay, and pay well. All this is, of course, the commercial aspect of the affair, but there are other aspects. Shall we say nothing of the international side of the occasion: the foreign brethren who came for the first time to see us English people in our own home; the splendid hospitality of Mr. de Rothschild, Sir Trevor Lawrence, and others, who entertained large companies of visitors? Shall we say nothing of the important educational effect upon the humbler members of the rank and file of the horticultural profession, who saw many things which relieve the monotony of their lives, and kindle the enthusiasm which sustains and excites the humblest devotee of the garden. We might say something of these things, but our time, alas! is at an end. *Henry Holden.*

THRIPS ON PEAS AND BEANS.—May I, through your columns, ask for assistance from gardeners in an investigation on the thrip which attacks Peas and Broad Beans? I am anxious to find out its distribution, and if any of your readers would send me flowers of either of the above plants, whether damaged or not, for examination, I should be much indebted to them. The best way to send the flowers (about a dozen of each would be plenty) is in small tin boxes or in paper bags in a cardboard box. If anyone willing to assist will send me his name on a card, I will send him everything necessary. Specimens from all parts of the country will be welcome, and also any note on the damage done to these crops. *C. B. Williams, The John Innes Horticultural Institution, Mostyn Road, Merton, Surrey.*

LEPTOSPERMUM SCOPARIUM NICHOLLII.—The only plant to be given a First-class Certificate at the recent International Horticultural Exhibition at Chelsea, and the one that received the *Gardeners' Chronicle* Cup for the best novelty, was this beautiful and distinct Leptospermum. In the *Gardeners' Chronicle* for June 20, 1908, there was an interesting article from Capt. A. A. Dorrien-Smith on the coloured forms of Leptospermum scoparium. Speaking first of the variety Chapmannii (which was also shown at Chelsea), the writer says it was discovered some years before in the South Island of New Zealand, and has been found to produce itself fairly true from seed. In Messrs. Nairn & Sons' nursery at Christchurch seedlings of many beautiful shades of flowers were obtained from it. The deep tone of foliage possessed by the individuals with coloured flowers is also noted. Concerning the variety Nichollii, your correspondent says:—"Not long ago a remarkable individual plant was discovered growing on the sandhills a little north of Christchurch, and separated from the original habitat of L. Chapmannii, which has blood-red flowers, by over 200 miles. It must have originated only a few years ago from one of those white-flowered forms, which alone are found in its immediate neighbourhood." The writer then goes on to mention its very dark-tinted foliage, and the fact that Messrs. Nairn also took this in hand and found that a percentage of seedlings came true, so that they now (in 1908) possess a fair stock of this remarkable plant, to which the varietal name of Nichollii has been applied. In the west of England and in parts of Ireland the Leptospermums are valuable shrubs for the open ground, while in colder districts they are very ornamental for the embellishment of the greenhouse or conservatory. They are not at all difficult to strike from cuttings, and, unlike plants obtained from seeds, those so obtained will flower whilst quite small. The variety Chapmannii above alluded to has a more upright habit of growth, with flowers of a deep-rose or rosy-red colour. In Boscawenii the flowers are larger than the others, and are white with a reddish centre. The habit of the plant is loose and graceful. *W. T.*

RECORD STRAWBERRIES (see p. 382). — On June 2, 1901, I gathered here from a pot plant of Strawberry "Auguste Nicaise" a fruit weighing 2¼ ounces, and have frequently gathered from pot plants of this variety single fruits weighing 1¾ ounce and on several occasions fruit weighing 2 ounces. I formerly cultivated 1,500 plants in pots of "Auguste Nicaise," and always had remarkably fine fruits of excellent flavour. The variety has done well here; in fact, it was my best second early sort. *George Groves, Temple House Gardens, Great Marlow, Buckinghamshire.*

CURIOUS NESTING-PLACES.—Such instances as recorded by Mr. Gardner on page 379 are interesting but not very rare. I have myself had a wagtail's nest on a Pelargonium in a pot, it being placed on the soil and half-hidden by the foliage. Also a redbreast in the middle of a Maidenhair Fern, which, however, resented careless watering and forsook her eggs. Another redbreast nest in one of the houses at Kew a few years ago was placed under an Agave in a pot, and, framed by the drooping foliage, made a charming picture, the opening between the leaves just leaving the head and breast of the sitting bird visible. Mr. Gardner's mention of the wagtail as "grey" might form a record which, if not commended upon, might prove puzzling to some future ornithologist, the "grey" wagtail of books being the yellow bird of the hill country, while our common black-and-white wagtail is known as "pied." *Chas. E. Pearson, M.B.O.U.*

SCOTLAND.

DALHOUSIE CASTLE GARDENS.

ON the 1st inst. members of the Edinburgh Natural History Society paid a visit to Dalhousie Castle, the residence of C. W. Cowan, Esq. The gardens were in fine condition, and, under the guidance of the head gardener (Mr. G. W. Pirie), the visitors found much to admire, especially in the Alpine and border flowers.

ROYAL INTERNATIONAL HORTICULTURAL EXHIBITION.

THE CONFERENCES.

Two conferences were held in the Recreation Hall of the Chelsea Hospital—one on Thursday, May 23, on "Horticultural Education," and another on Friday, May 24, on "Legislation in Connection with Plant Diseases and Pests." The Rt. Hon. A. H. Dyke Acland presided at both conferences.

HORTICULTURAL EDUCATION.

The Chairman, in opening the proceedings, said that he hoped all would agree that the Science and Education Committee of the Royal International Horticultural Exhibition had done wisely in selecting horticultural education as one of the subjects for the conferences. It might, of course, be thought by those who had seen the magnificent and wonderful exhibition that it was evidence that further education was hardly necessary. But that would be taking a limited view of the situation. Horticulture included more than success in growing and exhibiting plants. To take this country alone, there was the whole of the great industrial side, everything that concerned vegetables and fruits which could not be effectively dealt with by an exhibition alone, and with respect to which, particularly in this country, education had still a most important part to play. Another aspect of horticulture which could hardly be effectively represented in any exhibition was the extreme value of the social and recreational side of gardening, even in the humblest gardens, as a means of enjoyment to the people of this country. The better the means of education placed within the reach even of the humblest gardeners the better would be their work and the greater their success. Horticulture brought people of all countries together in a spirit of unity and amity. They welcomed the announcement made at the luncheon on the previous day by Mr. Runciman that he had established a branch of horticulture in his department. Speaking as an old Minister of Education, he ventured to say that that was a most important step. He concluded by extending a hearty welcome to the distinguished visitors who had so kindly come to take part in the conference.

PUBLIC HORTICULTURAL EDUCATION IN THE UNITED STATES.

Prof. L. H. Bailey, of Cornell University, Ithaca, U.S. America, read a paper on this subject. He said the general horticultural education in the United States was mostly a part of a national system of industrial education of collegiate grade or name. There was little development, as yet, of the training-school idea on either a private or public basis, and relatively few institutions or establishments in which persons were trained for "gardening" as they were trained in the Old World. There was no recognised apprentice system for gardeners.

The whole subject, therefore, needed to be considered quite by itself, and not in comparison with systems or methods of education in horticulture in other countries; and it was necessary to understand something of the system of publicly endowed industrial education, of which this was but an incident or a part.

The public industrial education of the United States, of college grade, was founded on the Land Grant Act of 1862. By the terms of this great instrument, every State received from the Federal Government 30,000 acres of land for every representative that it had in Congress, the proceeds of which were to be used for "the endowment, support, and maintenance of at least one college where the leading object should be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as were related to agriculture and the mechanic arts, in such manner as the legislatures of the States might respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life." This endowment had been supplemented by subsequent direct federal appropriations to further the objects for which the original grant was made. On this liberal foundation all the forty-eight States comprising the Union had established colleges of agriculture and the mechanic arts, about half of them separate institutions and about half of them connected with, or part of, State universities or other general institutions. The States themselves had supplemented the proceeds of the land grant, often many times multiplying those incomes. These colleges represented many types of organisation and method. Many of them would not be called technical colleges. Their purpose was increasingly to train young men and women broadly by means of agricultural and country-life subjects. They were now exerting great influence in re-directing rural civilization in the United States. They were rapidly putting agricultural and rural subjects into educational form, and were demonstrating that such subjects might have training and even cultural value equal to that of historical subjects.

The land-grant colleges contained many departments, and horticulture was usually one of these departments, co-ordinate with the others. In one college of agriculture, for example, which was part of a university, there were twenty-two teaching departments, aside from the work in the fundamental arts and sciences, as follow: chemistry in its relation with agriculture; entomology, biology, and nature-study; plant physiology; plant pathology; plant-breeding; soil technology; farm crops; farm management (the principles of business as applied to farming); horticulture; pomology; forestry; animal husbandry; poultry; husbandry; dairy industry; home economics; farm mechanics; rural economy; landscape art; drawing; rural education; meteorology; extension teaching. It would be seen, therefore, that horticulture was only one contributing part in an educational establishment for the teaching of agriculture in a broad way; and the same might be said of all the other land-grant colleges. There were a few other regular colleges that taught horticulture with other work, but they had not made great headway, although the subject would assert itself strongly in many of these institutions in the future. There were two or three training schools, one for women.

The students in agriculture in the land-grant colleges numbered many thousands, in some cases a thousand and more in one institution. They came from all walks and conditions of life, and from city and country alike. Some of them, of course, had strong inclinations for horticulture, and soon specialised in that subject. The full course of instruction was uniformly four years, following college-entrance requirements, and the student at graduation received a diploma carrying Bachelor of Science or a similar degree. In many of these institutions post-graduate work in a variety of subjects was provided, leading to a master's degree, or even to a doctor's degree. This sketch would present a general view of the kind of education in horticulture that is now developing in the United States. It was largely a training for citizenship on the basis of general collegiate education. The Americans had had a continental area to discover and to conquer; they were endeavouring to conquer it by many means, and the most fundamental means was by organizing all industry educationally. The horticultural subjects were important not only in themselves but in their personal appeal, and the organising of horticultural knowledge into large plans and methods of human training was one of the best privileges of any people.

HORTICULTURAL EDUCATION IN GERMANY.

Herr K. Weinhausen, of the Imperial School of Horticulture, Dahlem, dealt with this subject. He prefaced his remarks on the theoretical training of gardeners in Germany with a few words on the importance of horticulture in the Fatherland, in which he showed that German horticulture went so far back as the year 380 A.D., when the Huns laid out many gardens and orchards in Germany. Horticulture received a great impetus after the year 1870, and at the present day Germany had a large number of horticultural schools, differing widely from one another. Pointing out the difference existing at the present day between the training of lady gardeners and that of men gardeners, he said that whereas the male gardener served a practical apprenticeship before attending the horticultural training school, most ladies who were desirous of taking up this profession attended such schools for women without having obtained any previous knowledge whatever, and hoped to be both practically and theoretically trained in two years. As long as the ladies did not have the same training as their male comrades, it was not possible for them to do the same work. Moreover, for about five years outsiders had been admitted to the horticultural colleges, and ladies, with the same preparatory training as men, could enter as full-course students at Dahlem.

Dahlem made the greatest demands with regard both to general education and to practical knowledge. Whereas the other training colleges required that students should have passed through only four classes at school, Dahlem was the only horticultural training school in Germany that required six classes to have been passed through: the student who achieved this was required to give only one year's military service. Dahlem thus required the same as the agricultural and technical colleges. Instead of a two-years' practical training, it required one of four years. Owing to this, Dahlem is enabled entirely to omit practical work during two years of study, whereby a great deal of time is, of course, gained for theoretical and technical education.

Short courses for ladies and gentlemen are arranged as required, e.g., in the spring, a course for amateur gardeners; in late summer, a course on fruit and vegetable preserving, &c. In addition to its museum collection and material for scientific instruction, the college has a department for the utilisation of fruit, a department for plant physiology, with a house for experimental work, four large hothouses, three vineries, one Peach house, one Mushroom house, a shelter wall for Peaches, 10 large walls for better class or dessert fruits, and grounds partly laid out in ornamental beds and partly devoted to flower, fruit and vegetable culture, which altogether, and with the demonstration fields, is nearly 19 acres in area.

Royal favour had placed the Royal gardens at Potsdam at the disposal of the college for educational purposes, while the neighbouring institution of the Royal Botanical Gardens and museums of Berlin University, and the Biological Institution and the experimental fields of the Agricultural College afforded ample opportunity for instruction and demonstration.

THE EDUCATION OF A GARDENER.

Mr. W. Hales, A.L.S., followed with a paper on this subject. He stated that our present system was more or less a system of "drift." That such a system—or rather want of system—had produced many excellent gardeners was freely acknowledged, and was clearly shown in the magnificent exhibition; and when one pondered over the training these men had had, the though naturally arose, how were we to improve upon the methods employed?

The work of a gardener covered such a number of different branches that the education which a gardener should receive must of necessity be a subject upon which there were many diverse opinions. There could, however, be no two opinions but that the boy who wished to make gardening his life's work should receive while at school as full a general education as the circumstances allowed; and if it were possible for him to continue his studies up to the age of 16 or 17 years at a good secondary school, where he would receive an additional training in those sciences which would ultimately have a direct bearing upon his profession, such as geology, botany, chemistry, and land-surveying, he would be possessed of an asset which would undoubtedly be of value to him in his future work.

Two years spent in acquiring the sound elementary details of his work would be ample to fit an intelligent and capable boy for the more important duties of a journeyman, and he must then realise that the future success or failure of his life as a gardener would largely depend upon himself, in the use he made of the many and varied opportunities of acquiring knowledge which occurred in his daily work. Neither should he forget to use every endeavour to further improve his general knowledge of those subjects which have a direct bearing upon his profession, since it is at this period of his life that his mind is most receptive to new facts and ideas, and his memory most retentive. The young

journeyman should never forget that the cardinal point in his early training must be centred upon making himself proficient in the actual manual part of his work. Other subjects should be studied in the way of "intellectual amusement" rather than as things which must be acquired at this stage. Further pursuit of these subjects should be reserved for the later stages of his training, when he would be likely to have a clearer idea of what he desired to do.

The young gardener should acquire early the habit of observation of the objects of his daily work; and having observed, he should try and discover for himself the reasons for what he has seen.

His watchword must always be, "Keep your eyes open to things which want attention," and never do things in a mechanical manner. He laboured this point a little because, having had a fairly-wide experience of men, he knew only too well how common it was for them to get into a mechanical way of doing work. They would go through a house of plants for watering, and never see the plant which needed watering most; or they failed to notice the first sign of distress from insect pests, such as thrips and red spider, until a great deal of damage had been done.

If the journeyman could spend part of his training in a good Continental nursery or public garden, he would be still further equipped, as here, besides his purely horticultural training, he would also have the advantage of acquiring a knowledge of the language of the country, which would be of much value to him in after years.

He ventured to suggest that this was a subject that conference might well consider, and determine whether some sort of organised exchange system between young gardeners of this country and Continental countries could not be instituted, on somewhat similar lines to those which at present existed for elementary school teachers between this country and France.

What many of them would like to see grow out of this conference was some definite co-ordinated system of educational teaching designed for the man who was making gardening his profession. The system should ensure that the young gardener would finally be able to pass through a period of training in the higher branches of his profession, so as to be able to compete more successfully with the purely college-trained theory men, who, it had to be admitted, were often preferred for positions before the purely practical men because of their supposed superior scientific equipment.

Some system of training should be organised so as to make it possible that a thorough blending of the two types would result, and then horticulture would stand to gain untold advantages.

The pure scientist often had to lament his non-acquaintance with practice, as was the case with Darwin, who said that every botanist should have spent part of his training as a gardener.

Since horticulture was of such vast importance to the people of this country, was it too much to ask that the Government should render financial assistance, in the way of bursaries and scholarships, to help forward this scheme for the better education of gardeners? Surely not! And one ventured to hope that something of a definite nature in this respect might be the outcome of that great conference.

HORTICULTURAL EDUCATION IN BELGIUM.

Professor A. Buyssens, of Vilvorde, Belgium, who contributed a paper on this subject, said that, amongst their elementary schools, some had horticulture on their programmes, but there was no general organisation. Private enterprise played a very small part in the Belgian organisation of education, as the people were accustomed to receive everything from the Government. The public lectures responded to real needs. They were well frequented by members of the profession; but elementary education ought to be extended, and elementary classes and evening courses ought to be increased. Formerly, practical education was directed towards private gardening; the tendency was now toward commercial horticulture. Admission of students was made very easy by all the schools; an elementary education only was necessary, and even mediocre knowledge was often sufficient. The secondary schools were professional; but in view of the continually-increasing development of Belgian horticulture, they required special schools for the different horticultural professions, and a high school to educate leaders. The question was at present being considered.

THE DISCUSSION.

In the discussion, the Rev. J. Bernard Hall, M.A., secretary of the North of England Horticultural Society, said, as regarded the school gardens, they were still largely experimental, everything depending on the master. If the master was a born gardener, he would cultivate habits of method, develop habits of tidiness in tools and culture, and sometimes, perhaps, answer satisfactorily the questions of lads and girls. The same remarks applied to secondary schools; but here elementary microscopic work might be profitably taken up, also the rudiments of botany. It seemed desirable to aim at only a foundation of general, useful knowledge. No attempt should be made at special technical instruction in horticulture. He would leave the Board of Education with the oversight of primary and secondary schools with one suggestion, and that was that they should bring before local education authorities the desirability of allowing gardeners' mutual improvement societies the free use of schools for their winter sessions of lectures and meetings. As regarded the work of the Board of Agriculture, there was need for a forward movement. There should be three grades of horticultural specialists, viz., (1) a central body of staff experts, under the direct control of the head of a special horticultural department; (2) an organised body of experimental instructors living at fixed centres; (3) an organised body of itinerant lecturing instructors. County council instructors should be encouraged to attend special fortnightly courses at Kew or elsewhere, so that they might qualify for the higher positions and better pay of experimental instructors. County council instructors would then not feel as if they had entered a cul-de-sac, but rather feel as if they had placed their feet on the first rung of a ladder which, if it did not lead to Paradise, would, at any rate, lead to promotion. The result would be a consolidated, logical system of horticultural education, and this without any revolutionising financial alterations or disturbance of work already being carried on.

Prof. J. B. Farmer, F.R.S., Professor of Botany, Imperial College of Science and Technology, South Kensington, said he was gratified that there was a consensus of opinion as to the importance of preliminary practical work in the garden.

Miss Pollard, Swanley Horticultural College, laid special stress on the training of women horticulturists. No one should be alarmed that they were going to put out the men. There was no fear of collision. Many of the women went to Swanley, not with the idea of taking up private gardening, but of becoming teachers in schools and public institutions. A woman could not take the place of any single-handed gardener, because there were many things she could not do. Women were not meant to take the heavier posts, but to help men with their brains.

Mr. Macoun, Ottawa, spoke of horticulture in Canada, which was not so advanced there as they would like. All the same, they had made some advance, and were working more rapidly as time went on. Horticultural education in Canada was very much what it was in the United States of America. They had, for instance, agricultural colleges, where they had a four years course in agriculture and horticulture combined. In some colleges there was only a two-years course, so that a learner would be able to complete a four years course in two places. These colleges were affiliated to the universities and they conferred degrees. Then they had men who, after a few years course in agriculture and horticulture, went to the provinces to disseminate instruction throughout the counties. There were experimental stations from the Atlantic to the Pacific, which were controlled by the Dominion Government. In the province of Ontario there were 60 horticultural societies; these were supported by the provinces, and they got a small grant from the provincial Government based on membership and the amount of the work done. These societies held meetings and exhibitions. There was one thing lacking: they so far had no means by which gardeners might be trained, and they had to take English and Continental gardeners. Gardeners who had been taught the general principles of horticulture were the more successful. There should be theoretical and practical training. Certainly practical training should predominate, but theoretical training would enable a man to adjust his work to climatic conditions.

Professor Ainsworth Davis, Principal of the Royal Agricultural College, Cirencester, agreed as to the importance of elementary training, but such education—good, bad or indifferent—largely depended on the teacher. What was wanted was compulsory further education in this country—education *ad hoc*—and that should be associated with legislation, by which the hours of labour might be limited in the case of the boy who got that further education.

Professor Bayley Balfour, F.R.S., Director of the Botanical Gardens, Edinburgh, said there was one point in particular in connection with the education of gardeners which was commonly overlooked. People sometimes asked him if he could supply gardeners who specialised—for instance, who knew anything about land surveying and mensuration, or whether they could keep books properly. There was no doubt that the scientific education of the gardener began with a knowledge of plants. He was sorry that, in this country, horticulture did not derive the benefit that might be expected from the men they turned out, because most of these men were now diverted to America. He also laid stress on proper scientific education, which enabled a man to bring his thoughts to bear on the observations he made, and to consider botany and the study of plants in their relationship to their surroundings.

Mr. R. J. Frogbrook, the superintendent of the Parks Department, Leyton, suggested that young beginners, starting life, say, at 14, and desiring to obtain an entrance with a view to beginning a gardening career, should be able to approach public bodies throughout the country with the suggestion that they would grant facilities. He did not know anywhere throughout the country where such a suggestion had been carried out. Such young men should be encouraged, and the result would be most beneficial. He thought the public bodies had not been approached up to the present time, and probably it was a point which had escaped notice.

Mr. J. W. Bamber, Lecturer in Horticulture and Nature Study to the Hertfordshire County Council, said he thought a three years course of training was little enough for a good grounding, but rather questioned the advisability of four years. There was much to learn in gardening and horticulture in general, and if they were to go in for land surveying and other matters he did not know where they were going to stop. What was needed in their work was standardisation. The matter was one of such national importance that he thought the Board of Education might consider the advisability of drawing up a syllabus in horticulture.

Mr. J. C. Newsham, Farm School, Old Basing, thought care should be taken not to overtrain men who were to occupy in gardens much the position of the labourer. It would lead to a great amount of dissatisfaction, as it would always be a question of the amount of remuneration they were going to receive owing to the elaborate system of education they had to go through. In the near future horticulturists should work for a diploma, as farmers, agricultural and dairying students did.

Dr. A. B. Rendle, F.R.S., British Museum, moved with pleasure a vote of thanks to the readers of papers, as he was one who had suffered periodically from the jobbing gardener. He was not quite clear whether Professor Balfour expected all gardeners to be acquainted with land surveying and mensuration, and that reminded him of a friend who, when he was seeking a post as teacher of chemistry, was asked whether he could also teach divinity.

Mr. Berry, East of Scotland Agricultural College, seconded, and expressed the belief that much advantage would be gained by the conference.

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

JUNE 4.—*Present*: Mr. E. A. Bowles, M.A. (in the Chair); Prof. Boulger, Sir Everard im Thurn, Messrs. Wilson, Odell, Pearson, Cuthbertson, Shea, Gordon, Ledger, Bennett-Poë, Sutton, Worsley, Elwes, and Chittenden (hon. sec.), with Mr. Alexander, visitor.

Odontioda × "*Carmen*."—Mr. DE BARRI CRAWSHAY sent this hybrid between Cochlioda Noezliana and Odontoglossum nebulosum showing characteristics of both parents. Hybrids with the latter plant as one of the parents are scarce, and a Certificate of Appreciation was unanimously recommended to Mr. CRAWSHAY.

Afzelia cuanzensis.—Mr. E. M. HOLMES showed a pod and seeds of this African tree, the seeds of which are half-black, half-scarlet.

Botanical Certificates.—Professor I. BAYLEY BALFOUR exhibited the following new or uncommon plants:—Oxytropis yunnanensis, Franchet, (bearing deep-blue flowers), Saxifraga majuscula (very closely allied to S. Brunoniana, but much larger in all its parts), S. diversifolia var. foliata with marked veining of the ovate leaves, Primula × "Edina" (which received a Botanical Certificate at the last meeting), Senecio Lyallii, Hook f. (with yellow flowers about 1½ inch across, from New Zealand); Aster likiangensis, Franchet (with large, deep-blue flowers about 2 inches in diameter on stalks 3 inches long, from Yunnan, a very beautiful little plant); Primula × "Inverleith" (P. Bulleyana × P. pulverulenta), a plant much in the way of P. × "Edina," but a shade deeper in colour and more robust in habit. Botanical Certificates were unanimously recommended for the last three plants.

Variation in Sweet Peas.—Mr. CUTHBERTSON brought examples of Sweet Peas, which he thought showed reversion to original forms. (1) A rich ruby-coloured unnamed variety produced waved flowers on normal plants, i.e., plants having waved leaves. Two plants of the same variety with perfectly plain leaves, like the leaves of the old type, had produced perfectly waved flowers with open keels. (2) In the white waved variety (Etta Dyke), in the waved cream variety (Dobbie's Cream), and in the pink-and-white bicolour (Mrs. Cuthbertson) he had found a deep purple-flowered plant—one in a thousand, perhaps—giving a colour approaching the colour of the wild Sweet Pea, but retaining the waved formation.

Sweet Pea with leafy tendrils.—Mr. CUTHBERTSON also showed some Sweet Pea leaves with some of the tendrils becoming leafy, the result of high cultivation.

LINNEAN.

MAY 24.—The treasurer laid his annual statement of accounts before the meeting, and explained the various items of receipts and expenditure, and the same was received and adopted upon the motion of the President.

The general secretary laid his annual report before the meeting, summarised thus:—Since the last anniversary 10 Fellows, 2 Associates, and 2 foreign members have died or their deaths been ascertained; 14 Fellows have withdrawn and 2 have been removed from the list by order of the Council. On the other hand, 42 Fellows have been elected (of whom 36 have qualified up to now), 3 Associates, and 1 foreign member.

The ballot for the Council having been closed, the President nominated the Rev. T. R. R. Stebbing, Dr. A. P. Young, and Mr. A. W. Oke scrutineers, who, having cast up the votes, reported to the President, who declared the result as follows:—

Tempest Anderson, D.Sc., Prof. G. C. Bourne, F.R.S., Prof. Arthur Dendy, D.Sc., F.R.S., Prof. J. Stanley Gardiner, F.R.S., Prof. Percy Groom, D.Sc., Henry Groves, Esq., Prof. W. A. Herdman, F.R.S., Arthur W. Hill, M.A., Dr. B. Daydon Jackson, Prof. F. Keeble, D.Sc., Horace W. Monckton, F.G.S., Prof. Francis W. Oliver, F.R.S., Prof. E. B. Poulton, F.R.S., Dr. Walter George Ridewood, Henry N. Ridley, F.R.S., Miss Edith R. Saunders, Dr. Dukinfield H. Scott, F.R.S., Dr. Otto Stapf, F.R.S., Miss Ethel N. Thomas, B.Sc., Dr. A. Smith Woodward, F.R.S.

The ballot for the officers having been closed, the President appointed the same scrutineers, who, having cast up the votes, reported to the President, who declared the result as follows:—

President, Prof. E. B. Poulton, F.R.S.; treasurer, Horace W. Monckton, F.G.S.; secretaries, Dr. B. Daydon Jackson, Dr. Otto Stapf, F.R.S., and Prof. G. C. Bourne, F.R.S.

Dr. D. H. Scott, the retiring President, then delivered his address, devoting the greater part of it to a review of the palæobotanical work of the late Sir Joseph Hooker.

SCOTTISH HORTICULTURAL.

JUNE 4.—The monthly meeting of the above association was held on this date. Mr. Massie, the president, was in the Chair, and there was an attendance of 75 members.

The evening was devoted to papers by the junior members, for which book prizes were offered by the president. Fourteen papers, the subjects being of the competitors' own selection, were sent in, and the judges—Messrs. Whytock, Fife and Cairns—awarded the prizes as follow:—1st (*The Vegetable Growers' Guide*), to Mr. A. Brotherston, Shiplake Court Gardens, Henley-on-Thames, for a paper on "The Early Treatment of the Perpetual-flowering Carnation"; 2nd (*The English Flower Garden*), to Mr. Wm. Reach, Cullen House Gardens, for a paper on Primula sinensis; 3rd (*Mendelism*, by Punnett), to Mr. Charles Cook, Dalkeith Gardens, for a paper on Violets in winter. A paper by Mr. Wm. Smith, Whittinghame Gardens, on "Malmaison" Carnations was highly commended, and papers on "The Cultivation of Schizanthus Wisetonensis" and "The Culture of Begonia Gloire de Lorraine," by Messrs. D. Armstrong, Riccarton Gardens, and Thos. Cload, Keir Gardens, respectively, were commended.

The exhibits were:—A new hybrid Primula

FIG. 191.—MILTONIA VEXILLARIA "SNOWFLAKE," EXHIBITED BY SIR GEORGE HOLFORD, K.C.V.O.
(Received R.H.S. First-class Certificate on the 4th inst.)

"Leddy Pilrig" (= P. Bulleyana × P. Beesiana), from Mr. WM. ROBERTSON, Pilrig House, Leith (awarded a First-class Certificate); collection of collarette Dahlias and early-flowering Chrysanthemums and Calceolaria "Veitch's Glory," from Messrs. DOBBIE & Co. (awarded a Cultural Certificate); collection of Pansies and Violas, from Mr. C. COCKBURN, Pencaitland, who made some remarks regarding the differences between the various types of Pansies and Violas (awarded a Cultural Certificate); Hydrangea hortensis vars. Fraicheur and Mme. Emile Moullière, from Mr. A. PORTER, Davidson's Mains (awarded a Cultural Certificate); seedling perennial Lupines, from Mr. JOHN FRASER, The Old Manse Gardens, Inverkeithing (highly commended for strain); seedling Amaryllis and Pelargonium, from Mr. J. K. BROWN, Dunniker Gardens, Kirkcaldy; seedling Ox Eye Daisy, from Mr. F. BAILLIE, Liberton; and Pelargonium Martha Bouchier, from Messrs. TODD & Co., Edinburgh.

At the meeting arranged for July 2, Miss Burton, Polton, will read a paper on Pelargoniums.

At the close of the meeting several of those present who had visited the Royal International Horticultural Exhibition at Chelsea gave their impressions of the show.

SOUTHERN COUNTIES AGRICULTURAL.

JUNE 11-14.—The annual exhibition of this Society was held at Guildford on the foregoing dates, and included a section for flowers, under the direction of Mr. C. S. Fuidge, secretary of the Southampton Horticultural Society.

The flower show was held in a large marquee, which was filled to its utmost capacity. All the exhibits were honorary, there being neither classes nor prizes, but awards of medals were made.

Messrs. E. W. KING & SONS, Coggeshall, staged an exceptionally beautiful collection of Sweet Peas, most artistically arranged. The varieties represented included Mrs. H. Sykes, Rosebelle, Marjorie Wells, Anglican Crimson, and Mrs. W. King. A gold medal was awarded this fine exhibit.

Mr. E. HICKS, Hurst, Berkshire, showed climbing single and double Roses, Dwarf Polyanthas, and cut blooms of Hybrid Perpetuals and Hybrid Teas. This group was much admired, and was awarded a gold medal.

THE GUILDFORD HARDY PLANT NURSERY received a similar award for a well-arranged rock-garden, planted with suitable subjects, and, in conjunction with a display of cut flowers staged by the same firm close by, made a striking exhibit.

Messrs. STUART LOW & Co. received a gold medal for a group of Orchids and Carnations, the latter including such varieties as Maggie Nettlefield, Princess of Wales, Sir Charles Freemantle, and Lady Alington.

Mrs. PAYNTER, Stoke Hill Park, Guildford, was the recipient of a gold medal for a pretty collection of greenhouse plants, showing a very high standard of culture.

Silver-gilt medals were awarded to Messrs. S. BIDE & SONS, Guildford, for a large collection of Sweet Peas, comprising many varieties, amongst them Harold, Evelyn Hemus, Rosebelle, Constance Oliver, Thos. Stevenson and Eric Harvey; Messrs. H. B. MAY & SONS, Tottenham, for a collection of Ferns; Messrs. H. W. ELLISON & Co., West Bromwich, for Ferns and Cacti; PANDELI RALLI, Esq., Alderbrook, Cranleigh, for a collection of well-grown white and rose-coloured Carnations; Mr. C. F. WATERS, Balcombe, Sussex, for a fine group of cut Carnations, Carola, Britannia, Winsor, Mikado and Lady Rose being especially good; Messrs. B. LADHAMS & SONS, Shirley, Southampton, for a large collection of hardy flowers, including many of that firm's beautiful sweet-smelling hardy Pinks; also Gaillardias, Irises and Pæonies; Messrs. J. WATERER & SONS, Bagshot, for a large group of flowering shrubs, in which Kalmias were prominent; Messrs. FLETCHER & Co., Ottershaw, for Rhododendrons and other shrubs, and a pretty collection of hardy flowers and Roses; Messrs. ROGERS & SONS, Red Lodge, Southampton, for a small rock-garden, flanked by banks of Roses and hardy flowers; and Lord NORTHCLIFFE, Guildford (gr. Mr. Goatley), for a bright collection of plants.

Silver medals were awarded to J. S. BUDGETT, Esq., Stoke Park, Guildford, for a group of miscellaneous plants; the Earl of ONSLOW, Clandon Park (gr. Mr. Blake), for a collection of Lilium Harrisii; and Messrs. JARMAN & Co, Chard, for a group of cut flowers, including blooms of Rose Juliet of exceptional beauty.

A special silver-gilt medal was awarded to Messrs. TOOGOOD & SONS, Southampton, for a collection of vegetables.

Messrs. SUTTON & Co. staged a large exhibit of vegetables, and around their chalet they arranged a flower garden, the effect being of the finest. Messrs. WEBB & SONS, Worsley, also made a very attractive display of flowers.

The SURREY EDUCATION COMMITTEE showed in a special section a school nature-study exhibit, whilst the SOUTH-EASTERN AGRICULTURAL COLLEGE, Wye, displayed a large collection of specimens, including those of tree and plant diseases, with particulars of the results of tobacco fumigation, and many other subjects of interest to gardeners.

It was remarked that the Scientific Department of the Royal Horticultural Society was not represented, though the Wisley garden is close to Guildford. *D.*

LAW NOTE.

PROSECUTION UNDER THE GOOSEBERRY-MILDEW ACT.

AT the Hitchin Petty Sessions on June 6 a Letchworth nurseryman was summoned for failing to comply with the conditions of the American Gooseberry-mildew (Wisbech and District) Order, 1908.

Defendant pleaded "guilty" to the charge of moving the bushes without a licence.

Mr. Godsell, who appeared to prosecute at the request of the Board of Agriculture, said that the disease was becoming very prevalent, and the Board of Agriculture were instructing county councils to make the facts of the disease known. He did not wish to unduly press the case, but the Board wished people to know the conditions under which bushes must be moved, especially when the bushes came from an infected area.

Wm. Upcroft Hill, inspector of the Norfolk County Council under the Destructive Insects and Pests Acts, 1877 and 1907, said he was acquainted with the American Mildew (Wisbech District) Order, and he was appointed under that Order. He knew the premises of Messrs. Bath, Wisbech, who were Gooseberry and Currant-bush dealers. They had an outbreak of American mildew on their premises, and, under the Order, no bushes could be moved without a licence granted by witness, and application had been made to him for a licence prescribed by the Board. He received the application on February 15, for licence to move 100 Gooseberry, 50 Red and 50 Black Currant bushes to defendant. He inspected the bushes and granted the licence. He found there was no disease. In accordance with custom, he sent the application to the Board of Agriculture.

George Cecil Gough, inspector of the Board of Agriculture and Fisheries, said he devoted a portion of his time to Gooseberry-mildew cases. It was necessary for the Board to keep observation of bushes moved from infected areas for a considerable period—at least a season—as the disease might break out again during the season. The practice was for the original application to be sent to the Board of Agriculture, and, as a consequence, he made inspection as to whether the conditions of the licence had been complied with. He received the application for the removal of the bushes concerned in the present case on April 26, and he inspected the premises. The defendant was not at home, and his wife referred him to a boy, who showed him the Gooseberry bushes. He examined them, and found they were only heeled in. He made the return, and found between 50 and 60 of the Gooseberry bushes, and 20 of the Black and 30 of the Red Currant bushes, instead of the number stated in the application. He saw defendant and asked where the other bushes were, and he said he had sold them.

Defendant, in his evidence, said that he thought the inspector left the impression that he would be allowed to state his case to the Board of Agriculture, and, instead, proceedings were taken in that way, and he wished to lodge a complaint. As to the moving of the plants he pleaded guilty, but, unfortunately, he looked on the front side of the form, and not on the back. On the front he thought the words were rather ambiguous.

The Bench convicted on the two charges and imposed a fine of 15s., including costs, the Chairman stating that the Bench would like to point out that it was a very disastrous disease, and should be stamped out and all diseased trees destroyed.

Obituary.

JOSEPH HOLMES.—Mr. Joseph Holmes, who was until recently gardener to the Hon. Mrs. Hamilton Ogilvy, at Winton Park, died at Haddington, where he was residing, on the 9th inst., aged 55 years.

SCHEDULES RECEIVED.

The Haslemere District Chrysanthemum Society.—The twelfth annual exhibition of this society will be held at St. Christopher's Hall, on Thursday, November 7. Hon. Secretary, Mr. F. A. Edwards, Grayswood Place Gardens, Haslemere.

Woodbridge Horticultural Society.—The sixty-first annual show will be held on Wednesday, July 10, in the grounds of Woodbridge Abbey. Secretary, Mr. John Andrews, Gordon House, Cumberland Street, Woodbridge.

Bishop's Waltham Horticultural Society.—The thirty-eighth annual show of this society will be held on Wednesday, July 31. Secretary, Mr. E. Molyneux, Swanmore Park, Bishop's Waltham.

Elstree and Boreham Wood Horticultural Society.—The summer show of flowers, plants, and vegetables will be held in the grounds of Aldenham Park, Elstree, on Wednesday, July 10. The schedule comprises 93 classes. In the class for an exhibit of Roses, open to all exhibitors, the first prize is a silver challenge cup of the value of ten guineas. The society will hold evening competitions on September 10 and 26, and October 8 and 24. Secretary, Mr. W. J. Pritchard, High Street, Elstree.

Streatham and District Sweet Pea and Rose Society.—The annual exhibition of this society will be held on Thursday, July 11. The "Streatham" Silver Challenge Cup is offered in an open Rose class for 24 distinct varieties. Secretary, Mr. David Gibb, 152, Sunnyhill Road, Streatham.

Ealing Horticultural Society.—The forty-eighth annual summer exhibition of this society will be held at Walpole Park on Wednesday, July 3. Secretary, Mr. Geo. Cannon, Cannon's Nursery, Mattock Lane, Ealing.

Southampton Royal Horticultural.—In order to mark the jubilee of this society a garden fête will be held in the grounds of South Stoneham House, on Wednesday, July 3. An exhibition of Roses will be held on June 26. Secretary, Mr. C. S. Fuidge, 7, Silverdale Road, Southampton.

DEBATING SOCIETY.

BATH GARDENERS'.—The monthly meeting of this society was held on June 10. Mr. T. Parrott, the chairman, presided. Mr. Trimby, of Saltford, read a paper on "The Strawberry." He dealt with the different methods of propagating from runners, and advocated the formation of new beds every two or three years.

GARDENING APPOINTMENTS.

[Correspondents are requested to write the names of persons and places as legibly as possible. No charge is made for these announcements, but if a small contribution is sent, to be placed in our collecting Box for the Gardeners' Orphan Fund, it will be thankfully received, and an acknowledgment made in these columns.]

Mr. W. H. SELLWOOD, for the past 5½ years Foreman at Grittleton, Chippenham, Wilts., as Gardener to Miss HOZIER, The Manor House, Haslemere, Surrey. (Thanks for 1s. for R.G.O. Fund.—Eds.)

Mr. A. HAYWOOD, for the past 4 years Gardener to G. GREENSMITH, Esq., Weybourne, Woking, Surrey, as Gardener to E. C. KINGDON, Esq., Steellands, Ticehurst, Sussex.

Mr. H. PALMER, for the last 3½ years Gardener and Orchid Grower to H. DRUCE, Esq., The Beeches, Circus Road, St. John's Wood, as Gardener and Orchid Grower to Mrs. L. MOND, The Poplars, Avenue Road, Regent's Park.

CATALOGUES RECEIVED.

W. MAUGER & SONS, Brookdale Nurseries, Guernsey—Bulbs.

FUERST BROTHERS, 17, Philpot Lane, London—Photographic Requisites.

FOREIGN.

LAGER & HURRELL, Summit, New Jersey—Orchids.

ANSWERS TO CORRESPONDENTS.

ABNORMAL FLOWERS OF APPLE: *Captain F. C.* The chief features shown by the two large abnormal flowers are doubling, owing to the transformation of most of the stamens (and some of the styles) into petals, together with arrest of the ovary. This type of doubling is not uncommon in the Apple. In one specimen two other flowers are represented, but do not look like flowers, because in each of them three of the sepals are transformed into foliage-leaves (phyllody), and the inner parts of the flowers are arrested. Phyllody of the sepals has also been recorded in the Apple. In these specimens the cause of the anomalies cannot be determined, but in other cases the action of mites or other insects has sometimes been found to bring about similar abnormalities.

ANEMONE AND RANUNCULUS: *Hix.* It is best to lift the plants each season, but if this is not practicable, they may be allowed to remain in the ground during the winter.

BACK WALL OF GLASSHOUSE: *G. B.* The conditions essential for the well-being of the plants in a glasshouse which has a minimum winter temperature of 50° Fahr. are unsuited for the successful cultivation of most fruit trees against the back wall, but Oranges, Lemons, or Citrons might succeed.

CLEMATIS: *W. L.* There is no disease present on the portions of Clematis received.

CUCUMBERS AND BULBS DISEASED: *Anxious One.* The Cucumbers are attacked by the Cucumber leaf-blotch, a well known disease. Liver of sulphur is the proper fungicide to use, and is safer than placing sulphur on the hot-water pipes. Eelworm is present in the bulbs. (See reply to *Old Subscriber.*)

CUCUMBERS FLAGGING: *Old Subscriber.* The nodules on the roots are caused by Eelworm. This is a very difficult pest to eradicate, and insecticides are of little avail. The best plan is to burn the plants, and remove the soil in which they have been grown, either sterilising it by baking or burying it in some out-of-the-way part of the garden. The house should then be cleaned thoroughly with carbolic in solution, washing the woodwork with soft soap and carbolic acid in warm water. A correspondent in *Gardeners' Chronicle*, July 8, 1911, page 7, recommends top-dressing pot plants with Rape dust, which acts as an exterminator of Eel-worms and as a fertiliser of the soil at the same time.

CULINARY PEAS DISEASED: *W. H. B.* The trouble is caused by Eelworm. (See reply to *Old Subscriber.*)

CURLED ROSE LEAVES: *Subscriber, A. B., Bedford*, and *H. T. G.* The Rose leaves you send are badly affected with the larvæ of the leaf-rolling sawfly (Blenocarpa pusilla). In his work on *Roses* (Present-Day Gardening series), Mr. H. R. Darlington says that during recent years this has become one of the worst pests of the Rose. It seems especially partial to climbing Roses, but does not confine itself to them, no Rose being safe from attack. When an attack occurs the leaves are found rolled inwards on the midrib, from both sides; they are seriously injured and ultimately die. The female sawfly generally commences to lay her eggs during the latter half of May and continues through June. The white eggs may often be found glued to the edge of the leaf which has been turned inwards, but, even with a microscope, it is sometimes difficult to find the eggs. The sawflies hatch out at the beginning of September, and Mr. Darlington thinks there must be another generation before the autumn, but he has not yet discovered what they live on. The sawflies are said to be fond of Parsley, but, as the attacks on the Rose are very local, it would seem that they do not travel far. The only remedy is to pick off and burn the leaves; spraying is, of course, useless. It would, however, be a wise precaution to remove and burn the soil around affected bushes during the winter or early spring.

CURRANT LEAVES CURLED: *A. F. M.* The leaves are infested with common aphis (greenfly). Spray the bushes with an insecticide, preferably a nicotine preparation.

DOUBLE CHERRY: *A. J.* There are numerous good varieties of double pink Cherries; one of the best is Prunus (Cerasus) Pseudocerasus James H. Veitch.

FIG TREE UNHEALTHY: *J. H.* There is no disease present in the fruit of Fig. The dropping of the fruits is due to some wrong cultural treatment.

FUNGUS: *P. D. S.* Phallus impudicus, a green-capped, gastromycetous fungus, 5 to 9 inches high, common in woods, dense shrubberies, &c. Its presence is readily detected by the overpowering smell of the shiny, olive-green mucilage which contains the spores

GARDENING FOR WOMEN: *Confidential.* We do not know of any nursery garden where you could obtain employment, and so become a qualified gardener, but you might learn of some if you insert an advertisement in these columns. The training which you would receive in a trade establishment would not alone fit you to take charge of a private garden, and, with this end in view, it may, perhaps, be worth your while to apply to the superintendent of the Swanley Horticultural College, Kent, asking if she could give you the addresses of past students who are now head gardeners, and who may, perhaps, be inclined to help you.

GRAPES DISEASED: *T. B.* Black-rot is present on the berries. You should dust them with flowers of sulphur, mixed with quarter its bulk of quick-lime. This will check the spread of the disease. When the vines are resting, spray them thoroughly with 1 ounce of sulphate of iron in 1 gallon of water.

LAWN: *J. E., North Wales.* The deep-rooting, coarse grasses are evidently obtaining the mastery over the finer and shallower-rooting kinds. Your aim must be to feed only the finer grasses, and this may best be done by making, throughout the summer and autumn, frequent small applications of quick-acting manure during showery weather, but not when heavy rains appear imminent. The best stimulants for this purpose are such as guano, Clay's Fertiliser, or nitrate of soda. These fertilisers may well be used alternately, care being taken to spread them evenly over the surface of the lawn, and, to ensure even distribution, it is well to first mix the manure with soil that is free from seeds of weeds. On the approach of winter, you should top-dress the lawn with finely-sifted soil, mixed with wood ashes and leaf-mould, if the latter is available.

MAGGOT IN APPLES: *G. P. S.* The maggots are those of the Apple sawfly. Remove the surface soil during the winter; if growing in grass land apply a heavy dressing of kainit. Vaporite may be used for killing the larvæ in the soil. All fallen Apples should be gathered immediately and burnt. Spray the trees when the flowers have fallen in the spring with Paris Green or arsenate of lead.

NAMES OF PLANTS: *W. T. J.* Anthericum liliastrum.—*W. B.* and *E. B.* Pyrus torminalis.—*J. L.* 1, Gazania splendens; 2, Sedum sarmentosum variegatum; 3, Muscari comosum var. plumosum; 4, Achimènes sp.—*J. M. D.* Poa compressa.—*School Teacher.* 1, Helianthemum vulgare; 2, Plantago media; 3, Poterium sanguisorba; 4, Anthyllis vulneraria.—*L. M. B.* Centaurea macrocephala.—*A. C.* 1, Rosa species, probably R. macrophylla; 2, Coronilla Emerus; 3, Jasminum humile var.; 4, Pyrus lobata; 5, P. arbutifolia; 6, Staphylea colchica.—*H. C. P.* Buddleia globosa.—*E. U. A.* The flowers of both specimens have fallen. No. 1 is apparently Staphylea colchica; No. 2, Cytisus Andreanus.—*D. Price.* 1, Pellionia Daveauana; 2, Ceropegia Woodii.—*Chorley.* 1, Cryptanthus undulatus; 2, Selaginella cæsia; 3, Cryptanthus bivittatus; 4, Sonerilla margaritacea hybrida; 5, Ceropegia; 6, not recognised; 7, Pellionia pulchra; 8, probably Ailanthus glandulosa; 9, Begonia margaritacea.—*Anxious.* Zephyranthes carinata.—*Journeyman, C. B.* 1, Pyrus Aria; 2, a large form of Adiantum cuneatum.—*A. W. G.* 1, Nephrodium dilatatum; 2, N. Filix-mas; 3, Asplenium Filix-fœmina.—*G. E. E.* Roses—1, Yellow Austrian; 2, Copper Austrian; 3, shattered beyond recognition; 4, Carmine Pillar; 5, Sinica anemone; 6, Euphrosyne; 7, Aimee Vibert; 8, probably Reine O. de Wurtemburg; 9, unrecognisable.—*G. S.* All varieties of Thunia alba, No. 9, with purple streaks on the labellum, being near to the variety Dodgsonii.—*H. P.* Eulophia parviflora.—*A. B. C.* Cattleya Mossiæ.—*M.* Gongora quinquenervis.—*F. B.* Odontoglossum crispum and Lælia purpurata, the latter a very good variety.—*A. E. L.* Cattleya Mossiæ.—*W. B. P.* Muscari comosum monstrosum.—*H. K.* Lychnis viscaria flore plena.—*C. F.* Cymbidium pendulum.—*R. O.* 1, Oncidium flexuosum; 2, Odontoglossum Lindleyanum; 3, Ada aurantiaca.—*Humea.* Dracæna fragrans, illustrated in the *Botanical Magazine*, tab. 1081. The Cymbidium has probably been grown too warm and moist. Repot in sandy fibrous loam with a little Sphagnum-moss and keep well shaded.—*F. C.* Viburnum Lentago.—*J. A. J. B., Crown Hill.* 1 and 5, Escallonia rubra var. pallida; 2, E. rubra var.; 3 and 4, E. rubra; 6, E. exoniensis; 7, E. macrantha. E. rubra varies to some extent in both habit and flowers.—*R. A. Q.* 1 and 2, hybrids of Saxifraga crustata; 3, Silene alpestris; 4, Dianthus alpinus (a poor variety); 5, Saxifraga hypnoides; 6, S. trifurcata var. ceratophylla; 7, S. Lindleyana; 8, Cerastium arvense var. suffruticosum.—*J. M.* 1, Teucrium fruticans; 2, Crepis biennis.—*R. V. & Son.* Allium Tubergenii.—*Hix.* Meterosideros floribunda, Bottle Brush Tree.

NECTARINES UNHEALTHY: *A. W. S.* There is no disease present on the Nectarine plants. The roots have probably been afforded too much moisture.

PEACH LEAVES: *T. H. C.* Peach leaf-curl is present. Cut off all the affected shoots just below the infected leaves and burn them.

PEACH TREE ROOTS: *C. W.* There is no disease present. The wood was imperfectly ripened, and this resulted in gumming when growth commenced.

PLUMS DROPPING: *A. W. G., Tenby.* The falling of the fruit is due to drought. No disease is present in the trees.

POTATOS DISEASED: *J. G., Burton-on-Trent.* The Potatos are injured by winter-rot, the disease having been introduced with the seed tubers. There is no known cure for the disease when the plants are growing. Procure healthy tubers for seed purposes next season.

STOCKS DISEASED: *C. A.* The trouble is caused by downy mildew. Spray the plants with liver of sulphur, or dust the leaves with flowers of sulphur when the foliage is damp.

STRAWBERRIES DISEASED: *M. B. G.* The injury is caused by Strawberry-mildew. Spray the plants with liver of sulphur. When the leaves are fading in the autumn, cover them with a thin layer of litter or straw, and burn all the old leaves and litter.

STRAWBERRIES FAILING: *J. T. B.* There is no disease present. The flowers were not fertilised, a common trouble in Strawberries.

SWEET PEAS: *H. E. R.* The injury is caused by a fungus, Thielavia basicola, usually introduced with stable manure. There is no known remedy when plants are growing. In future thoroughly soak the soil a fortnight before sowing with ½ pint of formalin in 1 gallon of water.

TOMATOS DISEASED: *P. I.* The plants are attacked by Tomato leaf-rust (Cladosporium fulvum). The plants should be sprayed early in their growth with a weak dilution of the Bordeaux mixture, or with potassium sulphide. The house in which they are growing should be ventilated freely, and diseased portions of the plants should be burned as soon as they are seen. In gardens where the disease has previously existed, the spraying should be commenced before the leaf-rust appears.

WISTARIA, &c.: *Amateur.* The blindness in Wistaria is often due to mites destroying the bloom in the bud stage. Spray the plants with an insecticide when the flower-buds appear. Mulch Madonna Lilies in the autumn.

Communications Received.—Weeds—J. H. H.—B. P.—Abutilon, Dublin—J. F., Albury—Alpine, Herts.—A. P.—C. E. F.—Puzzled—Carnations, Titley—C. H. P.—J. M., Ireland—C. S.—M. M.—J. M. G.—Aquaticus—W. H. J.—E. M. M.—A. G.—L. Bros—A. H.—R. S. L.—A. T. B., Cornwall—J. A. W., Rotterdam—A. B., Italy—A. E. E.—G. F.—Miss M. G.—W. E.—J. N. R., India—A. D.—R. W. & Co.—H. H.—W. E. G.—Aquatias—H. W.—J. M. G., New York,

SELECT LIST
OF
Books on Gardening.

PRICES QUOTED ARE, IN ALL CASES, POST FREE TO ANY PART OF THE UNITED KINGDOM.

Chrysanthème, la Bibliographie du. By C. Harman Payne. 1s. 1d.

Chrysanthemum Culture, Pictorial Practical. By Walter P. Wright. Illustrated. Paper 1s. 2d.; cloth, 1s. 9d.

Chrysanthemum Culture. By W. Wells. For Exhibition, Decoration, Cut Flowers, and Market, well illustrated. Fourth Edition, revised and enlarged. 1s. 6d.

Chrysanthemums and How to Grow them for Exhibition. By J. B. Wroe. New Edition. Illustrated. 1s. 2d. Cloth, 1s. 8d.

Chrysanthemums. By Thomas Stevenson. With Chapters by Charles E. Shea and C. Harman Payne. Contains 8 Coloured Plates. 1s. 9d.

Chrysanthemums for Garden and Greenhouse. By D. B. Crane. Edited by T. W. Sanders. Illustrated. 2s. 9d.

Cottage Gardening: or Flowers, Fruits and Vegetables for Small Gardens. By E. Hobday. 1s. 8d.

Cucumber Culture for Profit. By W. Dyke. A Practical Guide to the Cultivation in Frames and in the Open. 1s. 1d.

Daffodils. By the Rev. Joseph Jacob. With Preface by the Rev. W. Wilks, M.A. A full treatise on their culture for private and Exhibition purposes. With 8 Coloured Plates. 1s. 9d.

Daffodil, The Book of the. By Rev. S. E. Bourne. 2s. 9d.

Dahlias and their Cultivation. By J. B. Wroe. A practical treatise for all purposes. Seventh Edition. Paper, 1s. 2d.; cloth, 1s. 8d.

Dahlias. By George Gordon, V.M.H., President of the National Dahlia Society. Contains 8 Coloured Plates. 1s. 9d.

Diseases and Garden Pests, Book of Plant. Specially designed for the use of Cultivators. By R. Hooper Pearson. 214 pages. Over 65 illustrations. Cloth, 2s. 9d. "It is to the intelligent gardener that Mr. Pearson's book will appeal."

Diseases of Cultivated Plants and Trees. By George Massee. 7s. 11d.

English Flower Garden, The. An Illustrated Dictionary of the Plants Used, and Directions for their Culture and Arrangement. By W. Robinson. With numerous Illustrations. 15s. 6d. Also 2 vols., half morocco, 24s. 7d. 1 vol., half morocco, 21s. 7d.

Fern Culture. By A. Hemsley. A practical work that should be highly acceptable to cultivators. Well Illustrated. 2s. 9d.

Ferns, Choice, for Amateurs. For the Garden, Conservatory and Stove. Profusely Illustrated. With full directions for their Cultivation, and Formation of Ferneries, Rockeries, &c. By George Schneider. New Edition. 3s. 10d.

Ferns, The Book of British. By C. T. Druery. Beautifully Illustrated. 3s. 10d.

Ferns and Fern Culture. By J. Birkenhead. New Edition, revised by F. Parsons. 1s. 2d.

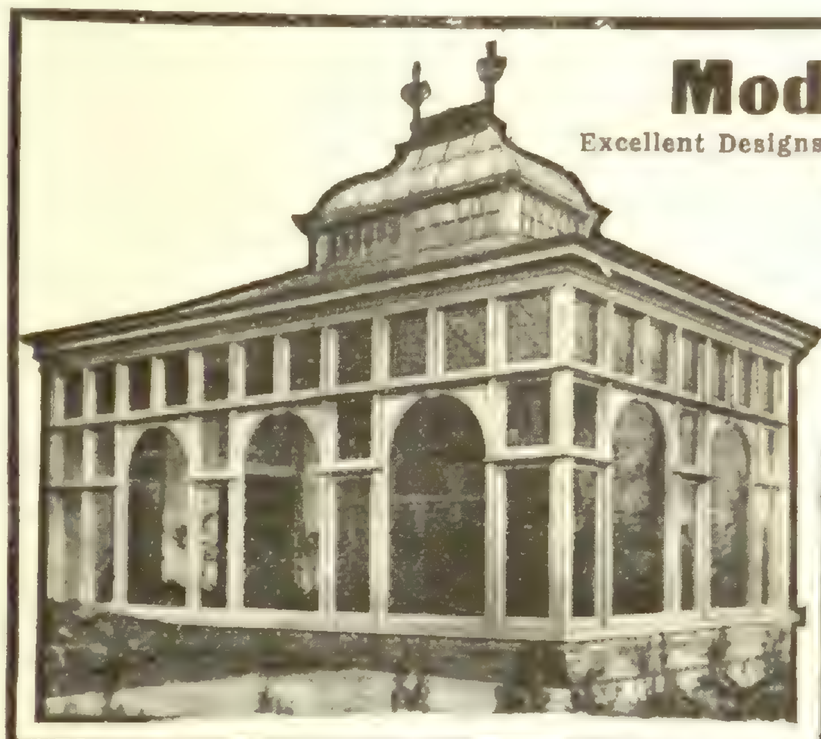
Fertilizers and Feeding Stuffs. By Dr. Dyer. Sixth Edition revised. Conveys a large amount of invaluable information in simple language. 1s. 2d.

Fertilizers and Manures. By A. D. Hall. 5s. 4d.

Flora, A School. For the Use of Elementary Botanical Classes. By W. Marshall Watts, D.Sc.Lond. New Edition. 3s. 9d.

Complete New Catalogue (Ninth Edition) sent post free on application to

THE PUBLISHER,
41, Wellington Street, Covent Garden, W.C.



Modern Glasshouses

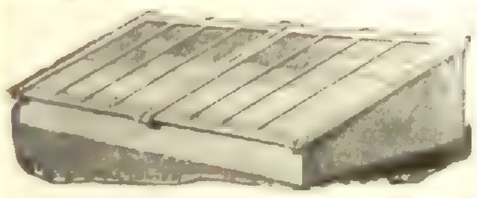
Excellent Designs, Faultless Construction, Unrivalled Durability.

ENQUIRIES INVITED FOR

Conservatories,
Peach Houses,
Vineries, etc., etc.

GARDEN FRAMES

IN GREAT VARIETY ALWAYS IN STOCK.
SEND FOR LATEST CATALOGUES FREE.



HEATING APPARATUS
Installed in Country Houses, Horticultural & Public Buildings

No. 77. **VIOLET FRAME** *as illustrated.*
6 ft. by 4 ft. **£1 15 0**
9 ft. by 4 ft. **£2 7 6**

AMATEUR GREENHOUSE. No. 49a.
10 ft. by 8 ft. **£11 10 0**
Glazed at our works, 21 oz. glass. Painted three coats.

Carriage Paid on all Orders of 40/- value to most goods stations in England and Wales.

BOULTON & PAUL, Ltd., NORWICH.

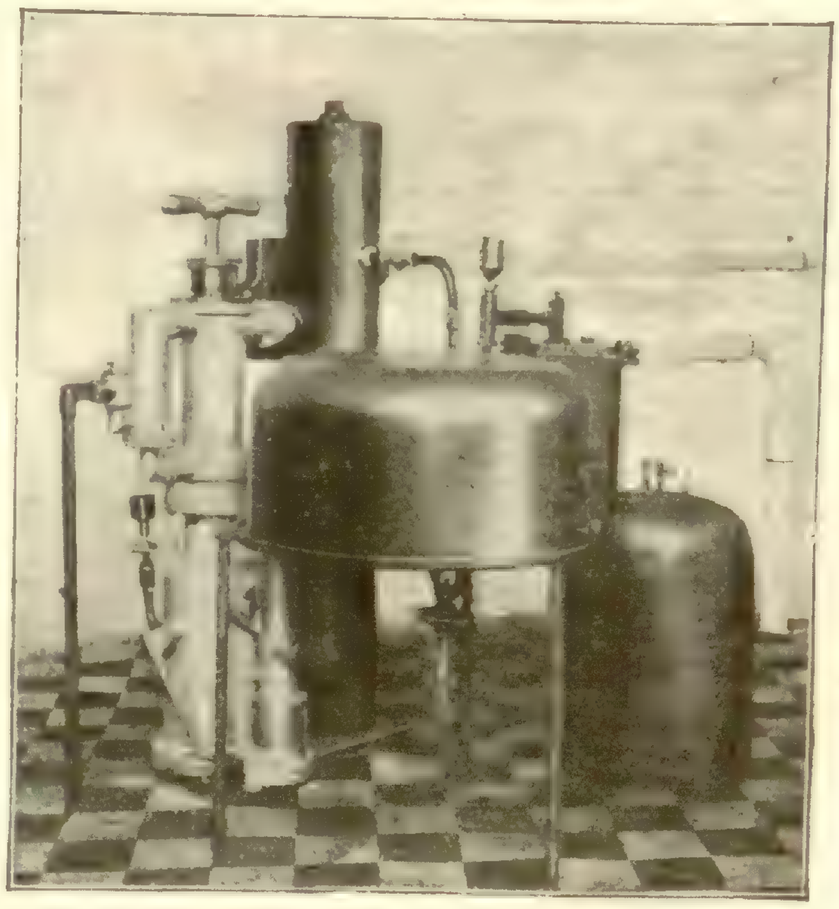
The
LAMP PUMP
.. Badcock's Patent.

The Cheapest and Most Compact Power Pumping Plant in the World.

AN AUTOMATIC LIFT AND FORCE PUMP.

Will pump 400 gallons per hour at the cost of less than 1d. (One Penny!)

Telephone: 797 VICTORIA.



Lamp Pump No. 1, for Shallow Wells.

Floor space occupied by this installation 2 ft. 6 in. by 2 ft. 6 in.

Telegrams: "PUMSYNDI, LONDON."

: : No more Pumping by Hand. : :
No Engine House or Skilled Attendance Required.

Apply for further particulars to—

The LAMP PUMP SYNDICATE, Ltd.,

Hydraulic Engineers,

12, Carey Street, Westminster, LONDON, S.W.,

(Two minutes' walk from the Royal Horticultural Hall).

Where the Pumps can be seen at work.

MARKETS.

COVENT GARDEN, June 12.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—EDS.]

Cut Flowers, &c.: Average Wholesale Prices.

	s.d.	s.d.
Arums (Richardias)	2 0	—
Bouvardia, per dz. bunches	6 0	7 0
Carnations, p. doz. blooms, best American var.	1 6	2 0
— smaller, per doz. bunches	10 0	15 0
— Carola, crimson, extra large	2 6	3 0
— Malmaisons, p. doz. blooms:		
— — pink	5 0	7 0
— — blush	4 0	6 0
— — red	4 0	6 0
Coreopsis, per doz. bunches	2 0	2 6
Cornflower, p. doz. bunches, pink	1 0	1 6
— white	1 0	1 6
— blue	0 9	1 0
Eucharis, per doz.	2 0	2 6
Gaillardia, per doz. bunches	1 6	2 0
Gardenias, per box of 15 and 18 blooms	2 6	3 0
Gladiolus, per doz. bchs., Akerman	8 0	9 0
— Blushing Bride	4 0	6 0
— Bride, white	4 0	6 0
— Ne Plus Ultra	6 0	8 0
— Peach Blossom	8 0	12 0
Gypsophila, p. dz. bunches:		
— white	3 0	5 0
— pink	3 0	—
Iceland Poppies, p. dz. bunches	1 0	1 6
Iris (Spanish), per doz. bunches:		
— white, mauve, yellow & blue	6 0	10 0
Lapagerias, white, per dozen	1 6	2 0
Lilium auratum per bunch	4 0	5 0
— longiflorum, per doz., long	1 0	1 6
— — short	1 0	—
— lancifolium alba, long	2 0	2 6
— — short	1 6	2 0
— speciosum rubrum, per doz., long	1 9	2 0
— — short	0 9	1 0
Lily of the Valley, pr. dz. bnchs.:		
— extra special	15 0	18 0
— special	10 0	12 0
— ordinary	8 0	—
Marguerite, per doz. bunches:		
— white	3 0	4 0
— yellow	1 6	2 0
Mignonette, per doz. bunches	4 0	5 0
Myosotis (Forget-me-not), p. dz. bunches	3 0	4 0
Orchids, Cattleya, per doz.	9 0	10 0
— Odontoglossum crispum	1 6	2 0
Pæonies, per doz. bunches, six blooms in a bunch:		
— red	8 0	10 0
— pink	8 0	10 0
— white	8 0	10 0
Pelargoniums, p. doz. bunches	5 0	6 0
— Double Scarlet	4 0	6 0
Pinks, white, per doz. bunches	1 6	2 0
Pyrethrums, dble., per doz. bchs:		
— white	2 6	3 0
— coloured	2 0	3 0
— single, mixed colours	2 0	2 6
Roses, 12 blooms,		
— Bridesmaid,	0 9	1 0
— C. Mermet	0 9	1 0
— Frau Karl Druschki	1 6	2 6
— General Jacqueminot	0 9	1 0
— Liberty	1 0	1 6
— Madame A. Chateney	1 0	2 6
— Niphetos	1 0	1 6
— Richmond	1 0	2 6
— Sunrise	1 0	1 6
— President Carnot	1 6	2 6
— Lady Roberts	1 0	1 6
— Lady Hillingdon	1 0	1 6
— Franz Deegan	1 0	1 6
— Kaiserine	1 0	2 0
Spiræa (Astilbe) japonica, per dz. bunches	5 0	6 0
Statice, mauve, per doz. bunches	3 0	4 0
Stephanotis (72 pips)	1 6	2 0
Sweet Peas, pr. dz. bunches:		
— coloured	3 0	5 0
Violas, small blue, p. doz. bunches	0 9	1 0

Cut Foliage, &c.: Average Wholesale Prices.

	s.d.	s.d.
Adiantum Fern (Maidenhair), best, dz. bnchs.	4 0	5 0
Agrostis (Fairy Grass), per dz. bunches	2 0	4 0
Asparagus plumosus, long trails, pr. ½ doz.	1 6	2 0
— medium, doz. bunches	12 0	18 0
— Sprengeri	10 0	12 0
Carnation foliage, doz. bunches	4 0	—
Croton foliage, various, per dozen bunches	12 0	15 0
Cycas leaves, artificial, per doz.	3 0	12 0
Eulalia japonica, per bunch	1 0	1 6
Moss, per gross	6 0	—
Myrtle, dz. bchs. (English), small-leaved	6 0	—
— French	1 0	—
Smilax, per bunch of 6 trails	0 9	1 0

Plants in Pots, &c.: Average Wholesale Prices.

	s.d.	s.d.
Aralia Sieboldii, p. dozen	6 0	7 0
Araucaria excelsa, per dozen	18 0	21 0
Asparagus plumosus nanus, p. dz.	10 0	12 0
— Sprengeri	8 0	9 0
Aspidistra, p. dz., green	21 0	30 0
— variegated	30 0	60 0
Cocos Weddeliana, per dozen:		
— 60's	6 0	12 0
— larger, each	2 6	10 6
Coleus, per doz.	4 0	5 0
Crassula, various (in 48 pots) per dozen	9 0	12 0
Croton, per dozen	18 0	30 0
Cyperus alternifolius, per doz.	5 0	6 0
— laxus, per doz.	4 0	5 0
Dracæna, green, per dozen	10 0	12 0
Ericas, per dozen:		
— Willmorei, 48's	15 0	18 0
Ferns, in thumbs, per 100	8 0	12 0
— in small and large 60's	12 0	20 0
— in 48's, doz.	6 0	—
— choicer, sorts per doz.	8 0	12 0
— in 32's, per dozen	10 0	18 0
Ficus elastica, per dozen	9 0	12 0
Fuchsias, per doz.	8 0	9 0
Geonoma gracilis, 60's, per dozen	6 0	8 0
— larger, each	2 6	7 6
Heliotropes	6 0	8 0
Hydrangeas, white, 48's, per dozen	18 0	21 0
— pink	8 0	12 0
— blue, each	2 0	5 0
— paniculata, per dozen	18 0	24 0
Kentia Belmoreana, per dozen	5 0	42 0
— Fosteriana, 60's, per dozen	4 0	6 0

Plants in Pots, &c.: Average Wholesale Prices (*Contd.*).

	s.d.	s.d.
Kentia Fosteriana, larger, per doz.	18 0	63 0
Latania borbonica, per dozen	12 0	30 0
Lilium lancifolium rubrum in pts., per dozen	15 0	18 0
— lancifolium alba	15 0	18 0
— longiflorum, per dozen	12 0	15 0
Lily of the Valley	21 0	24 0
Marguerites, in 48's, per doz., white	8 0	10 0
— yellow	10 0	12 0
Mignonette, 48's, per dozen	6 0	8 0
Pandanus Veitchii, per dozen	36 0	48 0
Pelargoniums, per dozen	9 0	12 0
— Ivy-leaved	7 0	9 0
Phœnix rupicola, each	2 6	21 0
Rhodanthi, per dz. pots	5 0	6 0
Saxifraga (pyramidalis) 48's, per dozen	15 0	18 0
Spiræa japonica, per dozen pots	10 0	12 0
— pink	10 0	12 0
Stocks, white, pink and red	6 0	8 0
Verbenas, pink	6 0	8 0
— scarlet	8 0	9 0
— white	8 0	9 0
— blue	8 0	9 0

Fruit: Average Wholesale Prices.

	s.d.	s.d.
Apples:		
— Tasmanian per case	7 0	9 0
— Australian per case	7 0	9 0
Apricots, French per box	1 3	1 6
Bananas, bunch:		
— Doubles	10 0	12 0
— No. 1	8 0	10 0
— Extra	10 0	12 0
— Giant	14 0	18 0
— Loose, p. doz.	0 6	1 0
— Red coloured	5 6	6 6
— Jamaica Giants, per ton	£10	£12
— Jamaica Ordinary, per box (9 doz.)	4 0	5 0
Cherries, French, ½ sieve	4 0	5 0
— per box	1 0	2 0
— English, ½ bshl.	6 0	8 0
Cranberries, per case (30 qts.)	10 0	11 0
— Cape Cod, per case (30 quarts)	9 6	—
Currants (Red) per handle	3 0	—
Figs (Guernsey), per dozen	2 0	3 0
— English	2 0	4 0
Gooseberries, per peck	1 0	2 0
— ½ bushel	2 6	3 6
Grape Fruit, case:		
— 96's	20 0	25 0
— 80's		
— 64's		
— 54's		
Grapes, Australian, per case	12 0	25 0
— English (new) per lb.	1 6	4 0
— Canon Hall	4 0	6 0
— Muscats	3 0	5 0
Lemons:		
— Messina, p. case	7 6	17 0
Limes, per case	4 0	—
Mangoes, per doz.	4 0	6 0
Melons (Guernsey)	1 0	1 6
— (English)	1 0	2 6
— Canteloupe	3 0	6 6
Nectarines, per dozen:		
— selected	12 0	18 0
— best	6 0	10 0
— seconds	3 0	4 0
Nuts, Almonds, per bag	52 6	—
— Spanish, per sack	40 0	42 0
— Barcelona, bag	35 6	36 6
— Chestnuts, per bag	3 6	19 0
— Cocoanuts, 100	18 0	23 0
— English Cobs per lb.	0 8	—
— Walnuts (Naples), kiln dried, cwt. cases	54 0	—
Oranges:		
— Navels	14 0	16 0
— Denia, case	30 0	40 0
— Mercia	15 0	18 0
Peaches (Belgian), per dozen	4 0	8 0
— English, dozen:		
— selected	12 0	18 0
— best	6 0	10 0
— seconds	1 6	10 0
Pears (Australian), per case	8 0	10 0
Pineapples, St. Michael	3 0	5 0
Strawberries:		
— Southamptons, baskets	1 0	1 9
— punnets (outdoor), per doz.	0 6	0 8

Vegetables: Average Wholesale Prices.

	s.d.	s.d.
Artichokes (Globe), per dozen	2 0	2 6
Asparagus—		
— (English) bndl.		
— Cambridge	1 0	2 6
— Worcester	1 0	5 0
Beans, Guernsey Dwarf, per lb.	0 8	1 0
— (English) p. lb.	0 8	1 0
— French, per packet, lb.	0 8	0 10
Beetroot, p. bshl.:		
— Long	2 0	2 6
Celeriac, per doz.	2 6	3 0
Cabbages (French) per dozen	1 0	2 6
— Evesham, pots	3 0	3 6
Carrots (English), pr. doz. bun.	2 6	3 6
— (French) per dozen bunches	5 0	7 0
Cauliflowers, per dozen	4 0	5 0
— Dutch, dozen	4 0	5 0
Celery (washed), p. doz. bndls.	8 0	10 0
Chicory, per lb.	0 4	—
Cucumbers, per dozen	1 6	2 0
Endive, per dozen	1 0	1 6
Greens (Spring), p. bag	3 0	4 6
Herbs (sweet), pkts., p. gross	7 0	—
Horseradish, 12 bundles	10 0	12 0
Leeks, per doz.	2 6	3 0
Lettuce (French), per doz.	1 6	2 0
Lettuce (English), per tally	2 0	4 0
Marrows, pr. dz.	6 0	10 0
Mint, per dozen bunches	1 6	2 6
Mushrooms, cultivated, p. lb.	0 4	0 6
— outdoors	0 3	0 4
Mustard and Cress, per dozen punnets	1 0	—
Onions (Egyptian)	6 6	7 6
— (Spring), per doz. bunches	4 0	—
Parsley, ½ sieve	1 6	2 0
— per doz. bun.	2 6	3 0
Peas (French) per pad	4 0	6 0
— per packet	0 6	—
— (English), per ½ bushel	2 3	3 0
— bushel	3 0	6 0
Radishes (English), per dozen	0 6	0 9
— (French) p. dz.	1 0	1 3
— (Jersey) long	0 4	0 6
Rhubarb, forced, per 12 bundles	0 4	0 6
— Outdoor, p. dz.	1 0	2 0
Spinach, pr. bshl.	1 6	2 6
Tomatos, per doz. lbs.:		
— (Guernsey)	4 0	4 6
— (English)	4 0	4 6
— seconds	1 6	2 0
Turnips (English), per dz. bunches	2 0	3 0
Watercress, p. dz. bunches	0 4	0 6

REMARKS.—Consignments of Grapes from home-growers and the Channel Islands have been in excess of the demand, and their prices show a considerable depreciation in value. Australian Apples are a slow trade; the home supply of soft fruit affecting their sales. Peaches, Melons, Nectarines and Figs are all plentiful; the fruits are meeting with a fair demand. Supplies of English Cherries are increasing, the bulk being of the variety Rivers' Early. There is still a supply of these fruits from the Continent. Strawberries from the Southampton district have been a steady supply, as many as 30,000 chip baskets, containing 3 to 4 lbs. each, having reached the market in one day. Growers from the home counties are also contributing large supplies of Strawberries, packed in punnets and peck and chip baskets. Home-grown Tomatos and Cucumbers are arriving in plenty daily. Channel Island, Canary and Valencia Tomatos are also a good supply. Vegetables, with the exception of Marrows, Cabbages and Cauliflowers, are fairly plentiful. *E. H. R., Covent Garden, June 12, 1912.*

Potatos.

	per cwt. s.d.	s.d.
Lincolns—		
Up-to-Date	3 0	3 3
King Edward	2 9	3 3
Northern Star	2 0	2 6
Evergoods	1 9	2 6
Lincolns—		
Maincrops	2 9	3 3
Blacklands	1 9	2 3
Dunbars—		
Up-to-Date	3 9	4 3
Maincrop	3 9	4 6

New Potatos.

Bedfords	9 0 – 9 6	Jerseys	10 0 – 10 6
Kents	10 0 – 12 0	St. Malos	9 0 – 9 6
Teneriffe	8 0 – 10 0	Cherbourgs	8 6 – 9 0

REMARKS.—Trade in old Potatos is very slow and stocks in London are lower, the consignments being small. Prices for new tubers have dropped this week. As the English crop is now being lifted their prices will no doubt be still lower at the end of this week. *Edward J. Newborn, Covent Garden and St. Pancras, June 12, 1912.*

THE WEATHER.

THE FOLLOWING SUMMARY RECORD of the weather throughout the British Islands, for the week ending June 8, is furnished from the Meteorological Office:—

GENERAL OBSERVATIONS.

The *weather*.—The general condition continued very unsettled, and except in the extreme north and north-west of the Kingdom rain was experienced very frequently, sometimes in considerable amounts. Thunderstorms occurred in some parts of England on every day, but were most widespread on the 8th; in Ireland they were also experienced on the 8th.

The *temperature* was below the normal, the deficit being 1° in Scotland N. and W., and more than 2° in several English districts and in Ireland S. The highest of the maxima were recorded on rather variable dates, but generally on the 6th, 7th, or 8th. In England S.W. the thermometer touched 71°, in England E. 70°, while the lowest values recorded were 64° and 63° respectively in Scotland E. and N. The lowest of the minima, which also occurred on various dates, ranged from 32° in Scotland E. and 33° in Ireland S. to 42° in England N.E., and to 45° in the English Channel. The lowest grass readings reported were 29° at Balmoral, 31° at Greenwich, and 32° at Crathes, Newton Rigg, and Aberystwyth. At all stations except Canterbury and Guernsey the temperature of the soil at a depth of 1 foot was below the normal, more than 3° in several parts of Great Britain. At a depth of 4 feet it was also below it in various parts of the Kingdom.

The *mean temperature of the sea*.—The water was warmer for the time of year on most parts of the coast, but colder than during the corresponding week of last year, except at Plymouth, Salcombe and Cleggan. The means for the week ranged from 59·6° at Margate, and 58° at Eastbourne to 48° at Lerwick, and to 47° at Burnmouth.

The *rainfall* exceeded the average except in Scotland N., the excess being larger in most districts. Falls of an inch or more within 24 hours occurred at Guernsey and Salcombe on the 2nd, at West Witton and Newton Rigg on the 3rd, at Spurn Head on the 6th, and at Kilkenny on the 8th; at this last station as much as 1·5 inch was measured. The largest total falls for the week were 2·85 inches at Jersey, and 3·20 inches at Harrogate. At some places in Shetland and the Hebrides the total fall was less than 0·2 inch, and at Blacksod Point the week was rainless.

The *bright sunshine* was less than the normal, the deficiency being very considerable in almost all districts. In Scotland E. the mean daily duration was only 0·3 hour, and the percentage of the possible duration 3. In the English Channel, where the daily mean was about 6¾ hours, the percentage of the possible duration was 43, but elsewhere it decreased to 33 in England S.E., 32 in England S.W., 16 in the Midland Counties and Scotland W., and to 14 and 13 respectively in England N.E. and Scotland N.

THE WEATHER IN WEST HERTS.

Week ending June 12.

Another wet week.—Taken as a whole the past week was of about average temperature. There were two warm days, and on the coldest night the exposed thermometer fell to within 3° of the freezing-point. The ground is now at about a seasonable temperature, both at 1 foot and 2 feet deep. Rain fell on three days, to the total depth of three-quarters of an inch. Since the present month began rain has fallen on all but four days, the total measurement amounting to 1½ inch, which is equivalent to seven gallons on each square yard of surface in my garden. On each day of the week there was some percolation through the bare soil gauge—the total quantity which passed through that gauge being 2½ gallons. On one day, for the first time since the end of March, a few drops of rainwater came through the soil gauge on which short grass is growing. The sun shone on an average for 5½ hours a day, which is three-quarters of an hour a day short of the average duration for the same period in June. On one day the sun shone for 10¼ hours, and on one other day no sunshine at all was recorded. This was a very calm week. On one day the total velocity for the 24 hours amounted to only three miles. The mean amount of moisture in the air at 3 o'clock in the afternoon exceeded a seasonable quantity for that hour by eight per cent. *E. M., Berkhamsted, June 12, 1912.*

The Gardeners' Chronicle

SCALE OF CHARGES FOR ADVERTISEMENTS.

Advertisements intended for insertion in the next issue MUST reach THE PUBLISHER not later than

WEDNESDAY, 5 p.m.

	£	s.	d.
Ordinary Positions ... ... per page	10	10	0
Facing matter and Back page ... ,, ,,	12	12	0
Half and quarter pages, column and half column spaces, pro rata.			
4 line space, about 20 words, single column ...		3	0
Per inch, single column		7	0
Per inch, across 2 columns		14	0
Per inch, across 3 columns	1	1	0

SERIES DISCOUNTS.

For three insertions, 5%; thirteen, 10%; twenty-six, 15%; fifty-two, 20%

Front page (no display allowed) **1/-** per line space.

SITUATIONS WANTED.

26 words, **1s. 6d.**, and **6d.** for every additional **8** words or fewer.

These Advertisements must be prepaid, **AND APPLY ONLY TO GARDENERS, &c., OUT OF EMPLOYMENT.**

Advertisers may have replies to their advertisements addressed to the "GARDENERS' CHRONICLE" Office. A Box Office fee of 6d. is charged for each advertisement, and replies are forwarded post free at the end of each day.
The boxes for answers to advertisements are provided for the use of advertisers only, and no matter will be forwarded which is not, in the opinion of the Publisher, a bona-fide or specific answer to an advertisement. The boxes are not to be used for the distribution of printed or written announcements, or for the benefit of competing businesses. All advertisements and replies are accepted subject to the above conditions.

SUBSCRIPTIONS:—

THE UNITED KINGDOM ... ... **15/-** per annum.
ABROAD ... ... **17/6** ,,

Cheques and P.O.'s to be made payable to "GARDENERS' CHRONICLE, LTD."

41, WELLINGTON STREET, COVENT GARDEN, LONDON, W.C.

Telegrams "GARDCHRON, LONDON."
Telephone: GERRARD 1543.

SITUATIONS VACANT.

Four Lines 3s. (Head-line counted as Two), 6d. for each succeeding line.

PRIVATE.

WANTED, GARDENER (HEAD WORKING), not under 30, for near Haslemere, Surrey; high ground; other gardeners kept; must have good references and be thoroughly experienced in all branches; knowledge of stock an advantage; sobriety essential; state wages required, not under 25s. a week, cottage, light and coal provided; state age and if married and how many children and their ages; also what wife was before marriage; no showing or selling.—Apply, Mr. DEVINE, 20, Wallingford Avenue, London, W.

WANTED at once, GARDENER (HEAD WORKING where three kept).—Can any Gentleman recommend a good all-round thoroughly practical Man, Inside and Out; must be hard-working and methodical; comfortable cottage; 30 miles south of London?—Address, "ARMIGER," United University Club, Pall Mall East, S.W.

WANTED, good, handy ESTATE MAN; single; well up to his work.—Write, stating age, wages required, with room, J. H., Box 22, 41, Wellington Street, Covent Garden, W.C.

WANTED immediately, smart, active MAN for pot-grown Fruit Trees, &c.; must have had good experience and be well recommended; wages 17s. per week, Bothy, milk, vegetables, &c.—Write full particulars to A. R. SEARLE, Castle Ashby Gardens, Northampton.

WANTED, GARDENER (SINGLE-HANDED); good all-round man; married; not over 40, no children; wife assist in house; rooms (not cottage), coals and gas; good wages to thoroughly reliable couple; must have good references.—The Cottage, Watford Road, Radlett.

WANTED at once, GARDENER (SECOND); energetic and well up to his work and good at Plant and Fruit Culture; wages 21s.—Send particulars to Mr. ROBERTS, The Gardens, Bridley Manor, Worplesdon, Surrey.

WANTED, FOREMAN (INSIDE); must be good Plantsman and Decorator; wages 24s., no Bothy.—Particulars and references to J. G. DAVIS, Egginton Hall Gardens, Derby.

WANTED, at once, a smart MAN as FOREMAN (Inside); a good Plantsman and Decorator essential; must be well recommended; state age and height; wages to commence £1 per week, Bothy, &c.—E. BERRY, Pains Hill Gardens, Cobham, Surrey.

WANTED, at once, JOURNEYMAN (FIRST) for Fruit Houses with good experience; wages 18s. and Bothy; five in Bothy.—Particulars of experience and references to C. H. WHEELER, Swinton Gardens, Masham.

WANTED, a good JOURNEYMAN for Inside and Out; duty alternate Sundays; age 22; must be well recommended.—Apply ROBERT PERRETT, Tudor Grange Gardens, Solihull, Warwickshire.

WANTED at once, JOURNEYMAN (FIRST) for Fruit Houses; wages 18s. per week, Bothy, &c.; must be well recommended.—Apply, J. L. MARWOOD, Beesbridge Gardens, Godalming.

WANTED, at once, strong, experienced YOUNG MAN for Outside; knowledge general routine of Kitchen Garden, Fruit, &c.; wages 16s. per week, Bothy, &c.—Apply, with full particulars, to NELSON, Muckross, Killarney.

WANTED, strong, active YOUNG MAN for Pleasure Grounds; used to mowers; capable of taking duty; 15s. weekly and Bothy.—H. SILCOCK, The Lodge, Basset Wood, Southampton.

WANTED, active YOUNG MAN for Pleasure Grounds and to take duty; age 18-20; 14s., Bothy, &c.—J. LISNEY, Berwick House Gardens, Shrewsbury.

WANTED, a YOUNG MAN to take charge of eight Houses; good knowledge of his work; wages 24s.—HENDERSON, Rownham House, Clifton, Bristol.

WANTED, YOUNG MAN for Lawns and Flower Gardens, Pony Machine; wages 18s., Bothy, milk and vegetables; duty every third week; churchman.—N. GERMAN, The Gardens, Llandough Castle, Cowbridge, South Wales.

WANTED, GARDEN LABOURER; understand Pony Lawn Mowing; wages 19s. a week; find own lodging.—Apply, A. ATTWOOD, The Gardens, Clifton Court, near Rugby.

WANTED, HANDY MAN for Estate work (under Gardener); must be good rough carpenter; help with oil engine and fill up time in garden; wages 25s. per week; no cottage.—Apply, with reference, to W. RENNIE, Hawthorn Hill Gardens, Bracknell, Berks.

TRADE.

WANTED, GROWER; Tomato, Strawberry, &c.; with few years' experience; must be abstainer and married; suitable work for wife found if desired; for nursery near London; good references essential.—State wages, &c., to R. E., Box 23, 41, Wellington Street, Covent Garden, W.C.

WANTED, an experienced MAN to take charge of our outside department of hardy climbers and plants in pots, to execute and pack orders.—Apply, stating experience and wages required, to GEO JACKMAN & SON, Woking Nurseries, Surrey.

WANTED, for well-known Nursery, a few miles from Cambridge, Smart MAN, with good knowledge of Trees, Shrubs and Fruits; well up in growing and showing Roses, and to assist generally in executing orders; permanency for good man.—Apply, stating age, wages required, experience, and where gained, to "RAYON," Box 24, 41, Wellington Street, Covent Garden, W.C.

WANTED, for Carnation and Rose Growing, a smart YOUNG MAN; wages 21s. to 23s. per week.—Apply, MANAGER, Ivybridge Nursery, Ivybridge, South Devon.

WANTED, YOUNG MEN in Rose-growing Department.—State age, reference, and wages required, GUNN & SONS, Olton, near Birmingham.

WANTED a few NURSERY HANDS; well up in Carnations and Ferns; careful watering; state wages; good references required.—E. H., Box 24, 41, Wellington Street, Covent Garden, W.C.

WANTED, general KNIFESMAN for Young Fruit Trees.—Apply, B. SCOTT, The Durdans, North Road, Southall.

WANTED, intelligent Young Man as PROPAGATOR; take correspondence occasionally; good writing and spelling essential; Alpine and Herbaceous Plants.—WOOD, Nurseries, Boston Spa, Yorks.

WANTED, two capable YOUNG MEN for Budding and Growing Roses; permanent situations for good men; state experience and wages required.—GROWER, Box 7, 41, Wellington Street, Covent Garden. W.C.

WANTED, several YOUNG MEN used to Ferns, quick at potting and watering.—HOLDUP, The Nurseries, Hillingdon Heath, near Uxbridge.

WANTED, YOUNG MAN for Growing Outdoor Cut Flowers; must have knowledge of Budding, and willing to be useful; permanent; 22s. to commence.—FROOME & SON, High Road, East Finchley, N.

WANTED, YOUNG MAN, about 22, for Jobbing Gardening work; used to Scythe and Mowers, &c.; of strict, sober habits; live in; good wages.—BENTLEY, 1, Silver Crescent, Gunnersbury, W.

WANTED at once, IMPROVER in Herbaceous Plants.—State age, wages required and references, to BROADHEAD'S, Wooldale Nurseries, Thongsbridge Huddersfield.

WANTED, SHOPMAN, with good knowledge of Seed and Bulb Trade; North of England; state wages required, previous experience.—HORTUS, Box 6, 41, Wellington Street, Covent Garden, W.C.

WANTED, ASSISTANT, for Seed, Bulb and Nursery Trade; must be fully competent and capable of taking charge; all-round knowledge essential.—H. A. LEAK, The Seedsman, Oxford Street, Swansea.

WANTED, JUNIOR ASSISTANT to Seed and Florist Trade; county town; one from similar town preferred; all-round work required.—Apply, stating experience, references, and salary required, MIDLANDS, Box 1, 41, Wellington Street, Covent Garden, W.C.

WANTED, capable ASSISTANT; with thorough knowledge of Garden Tools and Horticultural Requisites, Seeds and Bulbs.—Write, stating full particulars, to 347, Sell's Advertising Offices, Fleet Street, London.

WANTED, a thoroughly trustworthy and reliable Man as BOOK-KEEPER and CASHIER to an old-established firm of Nurserymen and Landscape Gardeners in the North of England.—Apply, stating qualification, references and salary required, to W., Box 9, 41, Wellington Street, Covent Garden, W.C.

SITUATIONS WANTED.

Twenty-six words for 1/6, & 6d. for each succeeding Eight words or less.

Gardeners desiring their Advertisements repeated *must give full particulars, otherwise no notice will be taken of their communications. Name and address alone are insufficient.*

Gardeners writing to Advertisers of Vacant Situations are recommended to send them **copies** *of testimonials only, retaining the originals. On no account should they enter into communication with unknown correspondents who require a fee beforehand.*

Advertisers are cautioned against having Letters addressed to Initials at Post-offices, as all Letters so addressed are opened by the Postal authorities and returned to the Sender.

PRIVATE.

Gardeners, Farm Bailiffs, Foresters, &c.

DICKSONS, Royal Nurseries, Chester, are always in a position to RECOMMEND MEN of the highest respectability and thoroughly practical at their business. All particulars on application.

CLIBRANS, Nurserymen to H.M. the King, Altrincham, can recommend thoroughly practical, well experienced Men, of high character, as GARDENERS (Head or Under), FORESTERS, &c. Correspondence invited.

GARDENER (HEAD) and ORCHID GROWER; age 32; life experience in first-class trade and private establishments; thoroughly qualified in all branches; excellent references; married when suited.—WOOD, 3 Victor Cottages, Lewes Road, Lindfield, Sussex.

GARDENER (HEAD, where two or more are kept); life experience Inside and Out; good references; age 30.—A. Y., 66, St. John's Wood Terrace, N.W.

GARDENER (HEAD); 39; married; life experience in Fruit and Plants under glass and outside, Vegetables, Pleasure Grounds, &c.; 12 years as Head; seven in present situation; good references.—STEVENTON, Lodge, Orchard House, Erith, Kent.

GARDENER (HEAD, where several are kept); thoroughly practical all-round man; experienced in first-class places; highest recommendations; married, no family.—E. S., care of Messrs. Peed & Son, West Norwood. (No circulars.)

GARDENER (HEAD).—E. MARKHAM, Bishopsgate, Englefield Green, Surrey, for nearly five years as above to Lady Marcus Beresford, seeks Situation as HEAD on a well-kept establishment, where a thoroughly experienced man is required; excellent credentials; age 34.

GARDENER, age 27, seeks Situation as HEAD, where about two more kept; experienced in Vines, Peaches, Melons, Cucumbers, Tomatos, Stove and Greenhouse Plants, Kitchen Garden, Flower Garden and Pleasure Grounds; 10 years' experience.—FERGUS ATKINSON, Montreal Gardens, Riverhead, Sevenoaks, Kent.

GARDENER (HEAD or good SINGLE-HANDED); life experience in all branches; thoroughly understands Fruit, Flowers, Vines, Vegetables, House and Table Decorations; age 30; married, one child; abstainer; three years present place as Head.—MEAD, 75, Crown Street, Peterborough. (No circulars.)

GARDENER (HEAD or thorough SINGLE-HANDED); 14 years' practical experience; six years last situation; age 29; excellent references; disengaged when suited.—W. WAITE, 121, Taunton Road, Lee, S.E.

GARDENER (HEAD or SINGLE-HANDED); life experience in all branches; age 30; abstainer; disengaged when suited.—C. M., 2, Barmeston Road, Bromley Road, Catford.

GARDENER (HEAD WORKING); experienced in all branches under Glass and Outside, Landscape and Estate Work, Land and Stock if required.—HEATON, South Lodge, Cressingham Park, Reading.

GARDENER (HEAD WORKING); life experience; age 38; well recommended as good all-round man; 12½ years Head in present place; leaving through death; well experienced Orchids, Herbaceous, and Alpines.—WARREN, Highfield Gardens, Gainsborough.

GARDENER (HEAD WORKING, where three or more are kept).—R. BEGG is anxious to meet lady or gentleman requiring the services of a good, all-round man; life experience in all branches, including Orchids; highly recommended; married, no family; disengaged when suited.—R. BEGG, Redenham Park, Andover, Hants.

GARDENER (HEAD WORKING, with one or two under); life experience in all branches; excellent references; age 34; married.—Apply to C. FLACK, Cholmondeley Castle Gardens, Malpas.

GARDENER (HEAD WORKING).—Mr. H. G. BULL, Breakspears, highly recommends C. HARBERT as above; well versed in Cultivation of Flowers, Fruit, and Vegetables; practical experience; age 30.—Breakspears Gardens, Uxbridge, Middlesex.

GARDENER (HEAD WORKING); thoroughly experienced Inside and Out, with Flowers, Fruit, and Vegetables; six years present situation; age 35; married, one boy aged 12.—T. BUTCHER, The Lodge, Grove Hall, Twyford, Berkshire.

GARDENER (HEAD WORKING, where more are kept); 25 years' practical experience in all branches, Inside and Out; Vines, Peaches, Cucumbers, Melons, Orchids, Stove and Greenhouse Plants, and Herbaceous Borders; thoroughly reliable and highly recommended; married, without encumbrance.—F. WOODHOUSE, Blackboys, Uckfield, Sussex.

GARDENER (HEAD WORKING, where several are kept); life experience in all branches; Land and Stock if required; disengaged; 12 years' good character; age 42.—F. COLES, 108, Third Cross Road, Twickenham.

GARDENER (HEAD WORKING, where two or three are kept).—Mr. M. R. AIRD can thoroughly recommend E. ALLNUTT as above; age 37; married when suited.—Detailed particulars will be given by Mr. BERRY, Head Gardener, Wilton Park, Beaconsfield, Bucks.

GARDENER (HEAD WORKING, where three or four are kept); life experience Orchids, Stove, Vines, Cucumbers, Flower and Kitchen Garden, Land and Stock; leaving through place being let; age 40; married, no family.—DOWNHAM, Southfield Cottage, Queensmere Road, Wimbledon Park.

GARDENER (HEAD WORKING); thoroughly experienced in all branches Inside and Out; highly recommended; married, no family.—T. ELLIS, 63, Liverpool Road, Reading.

GARDENER (HEAD WORKING); thoroughly experienced in all branches; Roses and Herbaceous; good knowledge of French Gardening; highest references; age 35; no family.—GETSOM, Epsom Road, Leatherhead.

GARDENER (HEAD WORKING, with two or three under); good all-round experience; six years in present; can be well recommended; age 36; married, one boy, age 11.—E. RELF, Tanyard, Fernhurst, Sussex.

GARDENER (HEAD WORKING or good SINGLE-HANDED); 19 years' excellent references; age 38; married, one child; disengaged.—W. ELLIS, 27, Spa Hill, Upper Norwood.

J. GARDNER, Batsford Park Gardens, Moreton-in-Marsh, highly recommends H. CRISP, age 30, as GARDENER (Head Working, where three or more are kept); has been Foreman here two years and had long experience in good gardens; a first-class man in all branches, including House and Table Decorations; married when suited.

GARDENER (HEAD WORKING, where two or more are kept); life experience Inside and Out; Fruit, Flowers, Orchids, Vines, Vegetables; married, no family.—BLAGBURN, Sherwood Farm, Mitcham.

GARDENER (HEAD WORKING, where more are kept); thorough practical first-class man; experienced in all branches; excellent testimonials.—G. BARTLE, 43, Wigston Lane, Aylestone, Leicester.

GARDENER (HEAD WORKING, where several are kept); 17 years' practical experience all branches; five years Head last place; age 34; married, one child (age 4); excellent references.—ARTHUR SPRINGHAM, North Cote Gardens, Westbury-on-Trym, Bristol.

GARDENER (HEAD WORKING, where more are kept); 25 years' practical experience in all branches Inside and Out; Orchids, Vines, Peaches, Cucumbers, Melons, Stove and Greenhouse Plants, and Herbaceous Borders; highly recommended; age 36; married, no family; abstainer.—F. BUSH, 56, Buxton Villa, Rusthall, Tunbridge Wells.

GARDENER (HEAD WORKING); thorough Inside and Out; age 37; married, no family; personal interview and character present situation.—HEAD GARDENER, The Lodge, Whitehanger, Marley Common, Haslemere.

GARDENER as LEAD; Kitchen Garden or Pleasure Grounds; 14 years' experience; excellent references; age 29.—G. SIMS, Dark Lane, Steeple Ashton, near Trowbridge, Wilts. (No circulars.)

MR. R. DAVIDSON, The Gardens, Polesden Lacey, Dorking, wishes to recommend GARDENER, Kitchen, or Kitchen and Pleasure Ground; 10 years' experience; age 28; married when suited.—G. TURNER, Orchard Cottages, Lent Rise, Burnham, Bucks.

GARDENER; 19 years' practical experience Inside and Out; excellent references, and can be well recommended; age 32; married.—4, North Road, Hoddesdon, Herts.

GARDENER, age 30, desires Situation; life experience Inside and Out; seven years in present situation.—E. COX, Bilton Hill, Rugby.

GARDENER (SINGLE-HANDED); 15 years' experience; good references; age 32.—G. GRANT, The Plain, Epping, Essex.

GARDENER (good SINGLE-HANDED or with help); life experience; age 34; married, one child; five years last situation.—A. KING, Glan Marteg, North Drive, Streatham Park, S.W.

GARDENER (SINGLE-HANDED); 12 years' experience in all branches; married, no family; age 27.—WATERS, 38a, Strathville Road, Southfields, Wandsworth.

GARDENER (SINGLE-HANDED or with help); experienced; four years' good personal character; disengaged when suited; married; age 28.—TANDY, 121, Clonmore Street, Southfields, S.W.

CHARLES THACKRAH, Esq., highly recommends W. LUFF as good SINGLE-HANDED GARDENER, or with help; life experience, Inside and Out; abstainer; married, one child; age 36.—Apply, LUFF, Sellers Hall Cottage, Church End, Finchley.

GARDENER (SINGLE-HANDED or where two are kept); eight years' experience in Flowers, Vegetables, and Pleasure Grounds; five years last place; good testimonials; age 22; abstainer.—GEORGE DUFFELL, 2, Orchard Road, Dorking.

GARDENER, age 47 (as SINGLE-HANDED, or where help is given); used to Glasshouses, Flower and Kitchen Gardens; good references; married.—BAILEY, Stowell Mill, Chedworth, Glos.

GARDENER (SINGLE-HANDED or with help); experienced in all branches; age 39; married, no family; good references.—GARDENER, 2, Chase Road, Brentwood. (No circulars.)

GARDENER (SINGLE-HANDED or with some help or SECOND); good experience Inside and Out; age 24; single; abstainer; good reference.—A. H. LANE, Eggleton, Ledbury.

GARDENER (SINGLE-HANDED); practical experience; understands electric light plant, gas or oil engines; 2½ years present place; well recommended; married.—E. COOK, Debden Hall, Loughton, Essex.

GARDENER (SECOND, INSIDE and OUT, where three or four are kept); age 29; single; good reference.—F. STAMP, Chapmanslade, Westbury, Wilts.

GARDENER (SECOND, where three or four are kept); good experience Inside and Out; age 26; good references.—E. MILES, Beech Hurst Lodge, Lingfield, Surrey.

GARDENER (SECOND, INSIDE and OUT); 10 years' experience in all branches; can be well recommended; age 25.—F. T., Knights Cottage, Gladstone Road, Buckhurst Hill, Essex.

GARDENER (SECOND, INSIDE and OUT); 13 years' practical experience Inside and Out; good references; age 28; single.—E. SLOSS, Kingsbury, The Hyde, N.W.

GARDENER (SECOND, INSIDE and OUT) seeks Situation; three years present place; age 23; leaving through place being let.—G. MANNING, 114, Brookwood Road, Southfields, S.W.

GARDENER (SECOND, INSIDE or INSIDE and OUT); 10 years' experience; age 25; good references.—J. E. HARRISON, The Gardens, Ewell Castle, Surrey. (No circulars.)

GARDENER (SECOND); well up in all Fruit, Inside and Out; Orchids, Carnations, Chrysanthemums; good Decorator; excellent references from good establishments; married.—EVANS, 4, Ashes, Maesbrook, Llanymynech, Mont.

GARDENER (SECOND, INSIDE or INSIDE and OUT); 14 years' experience; age 27; married when suited.—A. ROBINSON, Queen's Road, Royston, Herts.

MR. KEMP, Hazel Hall Gardens, Peaslake, Guildford, wishes to highly recommend R. BEESLEY as SECOND (Inside and Out); age 26; two years here as Second; disengaged.

GARDENER (UNDER) as LEAD in Kitchen Garden; three years last situation; good experience Inside and Out; age 26. JAMES FOSSEY, 23, High Street, Markyate, Dunstable, Beds.

GARDENER (UNDER), age 20, seeks Situation in Kitchen Garden and Pleasure Grounds; excellent references.—W. CORBETT, Cottage, Sandroyd House, Cobham, Surrey. (No circulars.)

GARDENER (UNDER, OUTSIDE, or INSIDE and OUT); age 23; seven years' experience; two years' good reference.—W. STEVENS, Mayford, Woking, Surrey.

MR. CARTER, Sunnyfield Gardens, West Heath, Hampstead, also Mr. JOHNS, Milton House Gardens, Alsager, Stoke-on-Trent, highly recommend L. MOON as Foreman or SECOND; age 27; married.

FOREMAN (INSIDE or good SECOND); 11 years' good experience, three Foreman; all Fruit, Plant and Carnation Houses, Begonias, Chrysanthemums, and Decorating; well recommended; age 25; married when suited.—MARSH, Penzance Lodge, Arthur's Hill, Shanklin.

FOREMAN (INSIDE) or good SECOND; 10 years' experience in all branches, Fruit, Plant-houses; 3½ years present place as First Journeyman; age 26; well recommended.—Apply, G. RICHARDS, Ecton Gardens, Northampton.

FOREMAN (INSIDE); 13 years' experience in Fruits, Plants, and Decorating; excellent references from first-class establishments; age 27.—H. BALDWIN, 37, Stamford Road, Fulham, S.W.

FOREMAN (INSIDE).—Mr. QUAINTON, Gardener to Viscount Midleton, Peper Harow, Godalming, can highly recommend H. DINNAGE, three years here, as above; life experience; age 28; single.—H. DINNAGE, Taylor's Gate, Capel, near Dorking, Surrey.

FOREMAN (OUTSIDE); good experience in all Outside work; good references, including one of 10 years; age 30; single.—NEWMAN, Manor House, Wilcote Charlbury, Oxon.

JOURNEYMAN (OUTSIDE) seeks Situation; age 22; eight years' experience; well recommended.—Apply, E. DENCH, Buckingham Road, South Holmwood, Surrey.

JOURNEYMAN (SECOND), age 21, seeks Situation in Pleasure Grounds; seven years' experience; Bothy preferred.—F. SIMMONS, Goddington Gardens, Chelsfield, Orpington, Kent.

J. HAYNES, Thornes Beech Gardens, Beaulieu, Hants., wishes to recommend W. BRANNON as JOURNEYMAN (Inside); Bothy; age 25. (No circulars.)

JOURNEYMAN (INSIDE); nine years' good general experience; age 23; good references; last place Hardwicke Grange, near Shrewsbury.—E. BUTLER, Wychnor Park Gardens, Burton-on-Trent.

JOURNEYMAN (INSIDE) seeks Situation; age 21; eight years' experience; well recommended; Bothy preferred.—A. KERBY, 170, Bennett's Place, Hamworthy Junction, Poole, Dorset.

MR. NORRIS, Ibstone House Gardens, Stokenchurch, Bucks, can recommend H. MAGUIRE as JOURNEYMAN in Gardens or Pleasure Grounds; strong, willing, obliging; abstainer; age 19; Bothy preferred.

MR. J. HAMMOND, The Gardens, Smallwood Manor, Uttoxeter, Staffs., can highly recommend A. TUTTON as JOURNEYMAN (Inside or Inside and Out); six years' experience; age 20.—Apply as above. (No circulars.)

JOURNEYMAN (INSIDE and OUT); 7½ years' good general experience, gained in good places; age 21; good references.—R. WILSON, Becca Hall Gardens, Aberford, Leeds, Yorkshire.

JOURNEYMAN seeks Situation in Kitchen Garden and Pleasure Grounds; age 22; seven years' experience; excellent references; Bothy preferred.—A. MACKRELL, 57, Nutley Lane, Reigate.

HEAD GARDENER can confidently recommend Young Man (24) for Pleasure Grounds and Herbaceous Borders; strong, willing; abstainer.—J. DUDLEY, Ravensworth Gardens, Carlisle Road, Eastbourne.

YOUNG MAN as GARDENER (UNDER), Inside or Inside and Out; age 20; six years' good character from last place; wishing to improve himself.—F. HAVARD, 7, N.E. Terrace, Tewkesbury.

YOUNG MAN, age 21, seeks Situation as IMPROVER (Inside or Inside and Out) in good establishment; six years' experience; well recommended.—P. DE PEARE, The Gardens, Hatchlands Park, East Clandon, Guildford.

YOUNG MAN seeks Situation as IMPROVER (INSIDE or INSIDE and OUT); age 17½; 2½ years' experience; Bothy preferred.—A. H. MASSEY, Misbourne Gardens, Chalfont St. Giles, Bucks.

TWO Young Men seek Situation as SECOND and THIRD, or would take small garden as FIRST and SECOND; good references.—THORP, 115, Upland Road, East Dulwich.

D. HAZELWOOD, Parlington Gardens, Aberford, Leeds, wishes to recommend ALAN HARTLEY; age 28, as IMPROVER (Inside and Out); two years' experience.

IMPROVER, age 17, seeks Situation, 3½ years' experience; highly recommended.—D. BITTEN, Branches Park Gardens, Newmarket.

IMPROVER (INSIDE or INSIDE and OUT); strong and willing; at liberty; good references.—GARDENER, Holly Tree Cottage, Blackwater, Hants.

IMPROVER, age 17½, seeks Situation Inside and Out; two years' experience; tall and willing.—WHEELER, Newnham Lodge, Newnham, Daventry, Northants.

GARDENER wishes to recommend his Son, age 16; two years' experience; height, over 5 ft.; strong and active; Bothy preferred.—STEVENS, 13, Connaught Road, Newbury, Berks.

LAD (17) seeks Situation under good Gardener; 3½ years' experience; good references; Bothy preferred.—Apply, J. H. FAYERS, Whight's Corner, Washbrook, near Ipswich, Suffolk.

MR. E. BECKETT, The Gardens, Aldenham House, Elstree, highly recommends Mr. A. GREGORY, 10, Shakespeare Street, Watford, Herts, as a capable and reliable CARPENTER.

TRADE.

NURSERY MANAGER (WORKING); 28 years' experience in all its branches; expert Propagator and Knifesman; highest references as Foreman for English and Irish Firms.—ROGERS, "Beaumont," Ballintemple, Cork.

MANAGER or FOREMAN; London and Provincial experience; good Grower of everything required for Market and Shop sale; good references.—A. LAWRENCE, 27, Formosa Street, Paddington.

FOREMAN (WORKING) requires Re-engagement growing all Soft-wooded, Pot, Bedding Stuff, Cut Bloom, Ferns, Palms, Chrysanthemums, Fruit, routine Forcing, Propagating, &c.; good references.—W., Rose Cottage, Hampden Road, Belgrave, Leicester.

FOREMAN (WORKING); life experience Cucumbers, Tomatos, Chrysanthemums, Bedding Plants, Bulb Forcing, Fern Growing, Budding, Grafting and general Nursery work; good testimonials from present and past employer.—C. B., 2, Park Place, Petersham, Surrey.

FOREMAN seeks Re-engagement; 20 years' Market, Fern and Plant Raising, Propagating and Growing; two years present situation, 3½ last, four previous.—WRAIGHT, Weald Villas, Willoughby Road, Langley, Bucks.

FOREMAN, age 35; life experience in Ornamental, Fruit, Forest, Roses, &c.; 12 years as Foreman; first-class reference.—D. J., Box 17, 41, Wellington Street, Covent Garden, W.C.

GROWER requires Situation; good experience in Fern Raising and general Nursery work; experienced in leading London firms; distance no object.—F. C., Box 16, 41, Wellington Street, Covent Garden, W.C.

GROWER seeks Situation in Nursery; 10 years' experience in Tomatos, Cucumbers, Bedding Stuff, Ferns, Bulbs, &c.; good references; capable of taking charge.—Apply, W., Box 21, 41, Wellington Street, Covent Garden, W.C.

GROWER of General Stuff under Glass seeks situation under a Foreman, or would run a small place; would entertain partnership later; single; age 28; disengaged.—A. C. SELLEY, 42, Brandenburgh Road, Gunnersbury, W.

ADVERTISER, married (28), seeks situation as GROWER, or could take charge of small place; well up in Grapes, Tomatos, Cucumbers, Chrysanthemums, &c.; excellent references from last and previous employers.—ALFRED TANDY, Ashton-under-Hill, Tewkesbury, Glos.

ADVERTISER (26) requires Situation as GROWER; Cucumber, Tomatos, Chrysanthemums, Bedding Stuff, and general Nursery work; good references.—A. BARNARD, 5, West's Place, Norwood Green, Southall, Middlesex.

YOUNG MAN (22) requires Situation as general Nursery Hand; thoroughly understands Bedding, Grafting, Potting, Watering, &c.—H. M., Box 18, 41, Wellington Street, Covent Garden, W.C.

YOUNG MAN seeks Situation in general Nursery; Palms, Ferns, and Bedding Stuff, &c.; life experience; South of England preferred; state wages.—C. HARTLY, 67, Gladstone Road, Wimbledon, S.W.

TRAVELLER requires Situation; Seeds or Sundries, Wholesale or Retail.—Particulars, &c., G. L., Box 25, 41, Wellington Street, Covent Garden, W.C.

SITUATION required as ASSISTANT SHOPMAN; age 21; with good knowledge of Vegetable, Flower and Agricultural Seeds; well up in Sundries; five years' experience; leaving through death.—J. K., 51, Cambridge Street, Eccleston Square, London.

FLORISTS.—Young Lady desires Re-engagement; good Mounter and Saleswoman; knowledge of Bulb and Seed Trade; age 24; excellent references.—E. M., care of Mr. MADGETT, Florist, Barmeston Road, Catford.

FLORIST or FRUITERER.—Young Lady (24) desires Re-engagement; West End experience; used to all Making-up; good Saleswoman.—Miss NORTON, 9, Loftus Road, Shepherd's Bush, W.

LADY FLORIST; disengaged; used to Seeds, Bulbs, &c.; excellent references.—Apply, Snowdrop Villa, 62, Chandos Street, Hereford.

SITUATION required as LADY FLORIST; first-class experience; good Saleswoman; good references.—T. H., Box 19, 41, Wellington Street, Covent Garden, W.C.

By Special Appointment to His Majesty The King.

MACKENZIE & MONCUR, Ltd.,

HOTHOUSE BUILDERS AND HEATING ENGINEERS.

CONTRACTS—We are at present carrying out Contracts for the following:—

His Grace The DUKE OF ABERCORN, Baron's Court, Co. Down.
His Grace The DUKE OF MONTROSE, Buchanan Castle, Drymen.
The Most Hon. The MARQUIS OF LINLITHGOW, Hopetoun House, Linlithgow.
The Right Hon. The EARL OF MORAY, Doune Lodge, Doune; and Lendrick Lodge, [Callander.
The Right Hon. LORD DUNLEATH, Ballywalter Park, Co. Down.
The Right Hon. LORD DERWENT, Hackness Hall, Scarborough.
The Right Hon. LORD HOWARD DE WALDEN, Chirk Castle, N. Wales.
The Right Hon. LORD St. OSWALD, Appleby House, Appleby, Lincolnshire.
Sir GEO. W. M. DUNDAS, Bart., Dunira, Comrie, Perthshire.
Sir THEODORE DOXFORD, Grindon Hall, Sunderland.
Sir STEPHEN H. GATTY, Lochbuie, Isle of Mull.
Lady BAILLIE, Polkemmet House, Whitburn.
W. A. BAIRD, Esq., Lennoxlove, Haddington.
Colonel BERTRAM, Kersewell, Carnwath.
Colonel E. D. MALCOLM, C.B., Poltalloch, Lochgilphead.
Major F. C. FOSTER, Faskally, Pitlochry.
F. B. BEAUCHAMP, Esq., Woodborough House, Bath.
OTTO BEIT, Esq., Tewin Water, Welwyn, Herts.
H. D. BELL, Esq., Peelwalls, Ayton.
W. H. BENN, Esq., Willaston, Harrogate.
G. A. MACLEAN BUCKLEY, Esq., Shuna House, Isle of Shuna.
H. C. CRAIG, Esq., Cairnduna, Strandtown, Belfast.
Rev. THOS. CRAWFORD, Orchill House, Braco.
LAURENCE CURRIE, Esq., Minley Manor, Hants.
Colonel DUDGEON, C.B., Cargen, Dumfries.
Captain GILMOUR, M.P., Pollok Castle, Renfrewshire.
J. E. GORDON, Esq., Hassness, Buttermere, Cockermouth.
Mrs. LIDDELL GRAINGER, Ayton Castle, Berwickshire.
Mrs. ARTHUR GRENFELL, Roehampton House, Roehampton Lane, London, S.W.
Mrs. HEAD, Inverailort, Lochailort.
R. W. HERBERT, Esq., Ashville, Sunderland.
Lt.-Col. MILNE HOME, Paxton House, Berwick-on-Tweed.
W. HUSTLER HUSTLER, Esq., Acklam Hall, Middlesbrough.
L. JIRGENSEN, Esq., Furze Down, Stockbridge, Hants.
Miss LAUDER, Dhuloch, Inverkeithing.
CHAS. LIDDELL, Esq., Warwick Hall, Carlisle.
Mrs. LYON, Foxwood, Dumfriesshire.
W. D. MACKENZIE, Esq., of Farr, Glenmazeron Lodge, Inverness-shire.
JOHN MACLACHLAN, Esq., Castle Lachlan, Argyllshire.
A. W. MERRY, Esq., Belladrum House, Beauly.
W. MENZIES, Esq., Springcroft, Hornsey Lane, London.
J. W. MOON, Esq., Edenfield, Springfield, Fife.
S. MENTEITH OGILVIE, Esq., Barcaldine House, Argyllshire.
A. W. PAGE, Esq., Summerhill Park, Bath.
A. P. FORRESTER PATON, Esq., Gean Plantation, Alloa.
Mrs. POLLOCK, Glenfairn, Ayr.
Captain TALBOT PONSONBY, Newberry, Kilcullen, Co. Kildare.
JOHN ROBERTS, Esq., Wellwood Park, Selkirk.
Mrs. JOHNSON ROBINSON, Preston Towers, North Shields.
G. CRAIG SELLAR, Esq., Ardtornish, Morvern.
H. E. SPENCER, Esq., Craighead, Huntly.
ALEX. THOMSON, Esq., Burgie House, Forres.
E. J. WYTHES, Esq., Copped Hall, Epping, Essex.
JAS. YOUNGER, Esq., Denbrae House, St. Andrews.
Messrs. VICKERS, Limited, St. Albans.
ABERDEEN UNIVERSITY, Aberdeen.
ALL SAINTS BURIAL BOARD, Newcastle-on-Tyne.
BANK OF ENGLAND BUILDINGS, Threadneedle Street, London.
CARNEGIE DUNFERMLINE TRUST, Pittencrieff Park.
CRICHTON ROYAL INSTITUTION, Dumfries.
DUMFRIES AND GALLOWAY ROYAL INFIRMARY.
EDINBURGH UNIVERSITY—New Laboratories.
LONDON JOINT STOCK BANK, Ltd., Newcastle-on-Tyne.
THE SEAFIELD TRUSTEES, Castle Grant, Grantown-on-Spey.

Before placing orders for Hothouse Work, write for the New Edition of our complete Catalogue.

LONDON—8, Camden Road, N.W. **GLASGOW—121, St. Vincent St.**
EDINBURGH (Registered Office and Works)—Balcarres Street, Morningside.

TELEGRAMS: "TREIBHAUS, LONDON," AND "HOTHOUSE, EDINBURGH."

By Special Appointment To His Majesty The King.

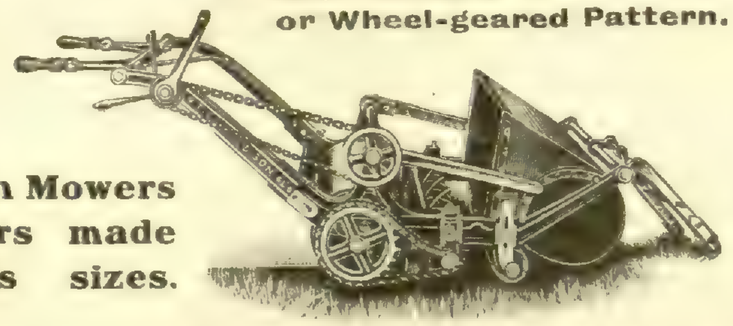
LAWN MOWERS. GREEN'S AND ROLLERS.

STAND PRE-EMINENT.
Hundreds of Thousands in use.

Highest Awards, Royal Botanic Society, Royal Horticultural Society, and numerous others.

GREEN'S "SILENS MESSOR" LAWN MOWERS

PONY AND HORSE MOWER.
"Silens Messor"
or Wheel-geared Pattern.

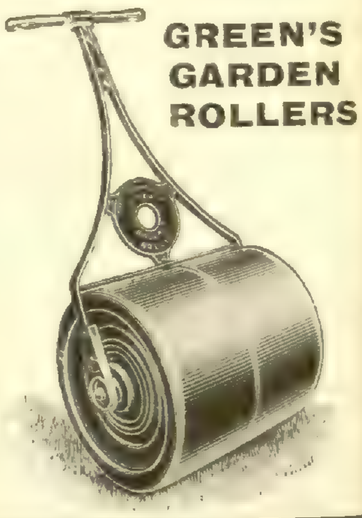


Motor Lawn Mowers and Rollers made in various sizes.

May be had from any Ironmonger or Seedsman in the United Kingdom.

PLEASE WRITE FOR ILLUSTRATED PRICE LIST No. 4 FREE.

GREEN'S GARDEN ROLLERS



THOMAS GREEN & SON, Ltd., Smithfield Ironworks, Leeds, and New Surrey Works, Southwark St., London, S.E

THOMSON'S Celebrated MANURES

FIRST, alike for quality and results.

SAFE, SURE & LASTING.

The result of many years' **practical** experience.

VINE, PLANT AND VEGETABLE MANURE.—1 cwt., **20/-**; ½ cwt., **10/-** ¼ cwt., **6/-**; 14 lbs., **3/6**; 7 lbs., **2/6**; Tins, **2/6, 1/- & 6d.** Car. paid on 1 cwt. anywhere.

SPECIAL TOP-DRESSING MANURE.—½ cwt., **20/-**; ¼ cwt., **11/-**; 14 lbs., **6/-** 7 lbs., **3.6**; Tins, **1/-** Carriage paid on ½ cwt. anywhere.

Also Thomson's Book on the Vine. **Thomson's Styptic.**

1868 WM. THOMSON & SONS LIMITED 1912

SOLD BY NURSERYMEN & SEEDSMEN EVERYWHERE.

Write for Pamphlets, Price Lists, etc., to

Sole Makers: WM. THOMSON & SONS, Ltd., Clovenfords, Scotland.

REDNALL'S INSECTICIDE.

An ideal spraying fluid for the Garden and Greenhouse' Instant death to all Aphides, Red Spiders, Scale Insects, Thrips, Mealy Bugs, Ants, Caterpillars, etc., but absolutely non-injurious to plant life. Non-poisonous, pleasant odour, no trouble to prepare, mixes readily with cold water. Trial bottles, 9d., post free; quarts, 2/6; 1 gallon, 7/6 (car. paid), REDNALL, Chemist, WOKINGHAM. Agents wanted.

MILDEW. MILDEW. MILDEW.

Effectually destroyed by Meredith Bros.'

Special Concentrated Mildew Destroyer.

One gallon will make 60 gallons for use.

Non-poisonous—**6/-** per gallon; **3/9** ½-gallon; **2/6** quart.

Manufactured by—

MEREDITH BROS., 141, Richmond Terrace, DERBY.

Printed for the Gardeners' Chronicle, Limited, by TEMPLE PRESS LTD., 7-15, Rosebery Avenue, London, E.C., and Published Weekly by "The Gardeners' Chronicle, Ltd." 41, Wellington Street, Covent Garden, City of Westminster, SATURDAY, June 15, 1912. Agent for Manchester: JOHN HEYWOOD.

COLOURED SUPPLEMENT.

THE GARDENERS' CHRONICLE

ESTABLISHED 1841

No 3730

No. 1,330.—VOL. LI. {THIRD SERIES.} SATURDAY, JUNE 22, 1912. {Registered as a Newspaper. WITH SUPPLEMENT.} {PRICE 3d. POST-FREE, 3½d.

SUBSCRIPTION—Inland, 15/-; Foreign, 17/6 [22fr. 10c.] [$4 26c.] per annum. Entered at the New York Post Office as second-class matter.

Postal Address—41, Wellington Street, Covent Garden, W.C. Telegraphic Address—"Gardchron, London." Telephone—Gerrard, 1543.

☞ For CONTENTS see page 403.

In consequence of the increase in the circulation, and also of the earlier despatch of the morning trains from London, the hour of going to press has been again advanced, and in future Advertisements received after 5 p.m. on WEDNESDAY will be held over till the following week. On no consideration whatever will any exception be made to this rule.

WEBBS' CHOICE FLOWER SEEDS.—Latest Award: LARGE GOLD MEDAL at the Royal International Horticultural Exhibition for excellence of Flowers raised from Seed.

WEBBS' CHOICE FLOWER SEEDS.—Illustrated Price List of Flower Seeds for present sowing, sent gratis and post free on application.—WEBB & SONS, The King's Seedsmen, Wordsley, Stourbridge.

THE Popularity of "XL ALL" Specialities increases every year. All gardeners proclaim that nothing equals these celebrated preparations. "XL ALL" NICOTINE VAPORISING COMPOUND, the gardeners' favourite Fumigant, both Liquid and Cake. "XL ALL" NICOTINE INSECTICIDE WASH for Syringing, Dipping and Dressing Fruit Trees and Plants; Mealy Bug, Scale, etc., cannot exist where this is used. "XL ALL" INSECTICIDE WASH B (*sine* Nicotine), best non-poisonous Wash on the Market. No licence required to sell this. Other preparations of great renown are:—"XL ALL" WEED KILLER, "XL ALL" FERTILISER, "XL ALL" ROSE MANURE. Richards' GREEN SUNSHADE, finest powder shading on the market, 1s. packet, does 100 feet of glass. Don't forget to ask your Nurseryman or Seedsman for my small pink list.—G. H. RICHARDS, Manufacturer, 234, Borough High Street, London, S.E.

ALPINES & HERBACEOUS PLANTS, —Himalayan and other rare Rhododendrons, rare Shrubs, Construction of Rockeries. Catalogues ready. G. REUTHE, Keston, Kent.

LISSADELL ALPINE & HERBACEOUS PLANTS.—Write for our new illustrated and enlarged List, containing many beautiful novelties at moderate prices. Also List of Seeds collected from above in 1911. J. A. COOPER, Lissadell (No. 2), Sligo, Ireland.

GISHURST COMPOUND is harmless in use; its soluble Sulphur, &c., has for 40 years cured Blights and Fungus on Plants, and is good for washing unhealthy dogs. Gishurstine keeps boots dry in all weathers; they will polish. Good for Harness. Wholesale from— PRICE'S PATENT CANDLE CO. LTD., London.

OSMUNDA for Orchids.—Consignments arrive fortnightly. 2s. 6d. per bushel; per bag, 8s. 6d. SANDER & SONS, St. Albans.

CHOICEST WALLFLOWERS.—Dicksons selected Dark Blood Red, Dicksons Golden Beauty, Primrose Dame, Eastern Queen, Ruby Gem, Golden Monarch, Vulcan, and Harbinger—all distinct and beautiful varieties, per packet 6d. and 1s., post free. DICKSONS, Royal Seed Warehouses, Chester.

WALTERS & CO., Morland Rd., Croydon, Makers of Lath Roller Greenhouse Blinds; Pinoleums, Scrim, Tiffany; also Garden Trellis, Arches, Rose Trainers, of best designs. New Catalogue 1912, free.

SUTTON'S ROYAL BLUE MYOSOTIS. Famous for its intensely deep colour. Per packet, 1s. 6d., post free.

LUPINUS POLYPHYLLUS, SUTTON'S HYBRIDS. Give a very wide range of beautiful shades with perfect form, Per packet, 1s., post free.

SUTTON & SONS, The King's Seedsmen, READING.

LAXTON'S STRAWBERRIES.—Order early. Fine early pot plants for forcing, of Royal Sovereign and other varieties, 16s. 100. For new varieties, see our Catalogue, gratis on application. LAXTON BROTHERS, Bedford.

Kent, the Garden of England.

GEORGE BUNYARD & CO., LTD., invite inspection of their extensive Nurseries at MAIDSTONE. Herbaceous, Alpines, Climbers, Fruit Trees and Shrubs, 10,000 varieties. Roses are extra fine. Nurseries, 200 acres.

IRON & WIRE FENCING for GARDENS, Tree Guards, Gates, Arches, Espaliers, Rose Stakes, and Ornamental Garden Iron and Wire Work of every description. Send for Illustrated Catalogue, free. BOULTON & PAUL, Ltd., Manufacturers, Norwich.

GARDEN PESTS.—Cross's "Clubicide" is the Gardeners' Insurance against damage by Eelworm, Wireworm, Slugs, Maggot, and all Disease Germs and Insect Pests. Kills all harmful Bacteria, reinvigorates the soil, stimulates plant life. In 1s. flasks and ½-gall. and 1 gall. drums. From all Seedsmen. Sole Manufrs.: A. CROSS & SONS, Ltd., Glasgow.

AUTO SHREDS FUMIGANT kills Leaf-mining maggot, insects in greenhouses, frames. For 1,000 cubic feet, 6d.; 10,000, 3s. 6d. No apparatus. WM. DARLINGTON & SONS, Patentees, Hackney, N.E.

SELECT YOUR ALPINES IN FLOWER. —A large collection, in pots, also Aquatics for present planting. Visitors cordially welcomed.—THE GUILDFORD HARDY PLANT NURSERY, Guildford.

WM. DUNCAN TUCKER & SONS, Ltd., 27, Cannon Street, London, E.C.; Works, Tottenham. Conservatories, Winter Gardens, Vineries, Peach-houses, Portable Buildings, etc. Catalogue gratis.

Roses and Herbaceous Plants.

GUNN & SONS were awarded the 25 Guinea Challenge Cup in each collection at the Leamington Show. Up-to-date List for each now ready. Address: Olton, Warwickshire.

RIVERS' FRUIT-TREES, ROSES, VINES, FIGS, ORANGES, & ORCHARD-HOUSE TREES. A large and select stock always on view. Illustrated and descriptive Catalogue, post free, 3d.— THOMAS RIVERS AND SON, Sawbridgeworth, Herts. Station: Harlow, G.E.R.

GREENHOUSE PAINTING & GLAZING "Vitrolite" superior to White Lead Paint, 9/- per gall. "Plastine" supersedes Putty, 16/- per cwt. Full particulars from W. CARSON & SONS, Grove Works, Battersea. Agents throughout the country.

COOPS, COOPS, for the season. The Keeper's Coop. Best on the market, 5s. 6d. each; 60s. per dozen, carriage paid. Runs, 2s. 6d. each extra. Send for list, showing numerous other designs. BOULTON & PAUL, Ltd., Rose Lane Works, Norwich.

For Advertisement Charges see page ix.

Now is the time to plant

KELWAY'S GAILLARDIAS, which are among the most brilliant and the most easily grown of the hardy herbaceous perennials; they give abundant bloom in the same year that they are planted, and blossom profusely from June to November. The flowers are on long stems, and last in water for a fortnight. Choice named collections, 12s. a dozen. From pots. Carriage and packing free for remittance with order.—KELWAY & SON, The Royal Horticulturists, Langport, Somerset.

KELWAY COLOUR BORDERS.—Now is the time to plan these for Autumn planting. Full particulars and estimates for Hardy Borders of any dimension, and to suit any taste, packed ready for planting on arrival, on application. Send information as to measurements, position and soil to KELWAY & SON, The Royal Horticulturists, Langport, Somerset. ———, Lodge, Northallerton. "Mrs. ——— writes to say that the plants all came safely and beautifully packed; she is greatly obliged to Messrs. Kelway for the plants they so kindly put in gratis, and for all the help they have given her in the arrangement of the border."

HARRISON'S "RELIABLE" WEED KILLER.—Best and cheapest. See p. v. this issue.

FRUITING VINES IN POTS.—Muscat of Alexandria, and leading Market varieties. We make Vines a speciality. G. COLEMAN, The Vineries, Burgess Hill, Sussex.

New Phloxes.

GUNN & SONS were Awarded a Silver Cup at the Great Show at Olympia. New Lists now ready. Address: Olton, Warwickshire.

HARDY BORDER CHRYSANTHEMUMS FOR PRESENT PLANTING.—Special offer of surplus stock; large-flowered Japanese, Pompon, and single varieties to name, 25s. per 100; 3s. 6d. per dozen.—BARR & SONS, King Street, Covent Garden, London.

BEGONIA GLOIRE DE LORRAINE, old variety, also Rothschild var. and Turnford Hall, well-rooted young plants, 2s. 6d. doz., 50 for 6s., 10s. 6d. per 100; The King, 3s. 6d. doz., 50 for 12s.; carriage paid for cash.—H. DUDDERIDGE, The Dorset Nurseries, Blandford

CUTHBERT'S SPECIALITE MUSHROOM SPAWN.—NEW SPAWN NOW READY. We continue to receive the most gratifying testimonials as to the productiveness and good quality of our Spawn. Per bushel, 5s.—R. AND G. CUTHBERT, Seed and Bulb Merchants, Southgate, Middlesex.

ASPARAGUS.—Now is the time to make an Asparagus bed; strong two year roots, 5s. per 100, packed and carriage paid.—BIRD & VALLANCE, Nurserymen, Downham, Norfolk.

PERPETUAL FLOWERING CARNATIONS; strong, established plants in pots, from 4s. per doz., carriage paid; 20s. per 100, carriage forward; illustrated catalogue, describing 75 leading varieties with cultural hints, post free.—C. F. A. VAN DER SLUYS, F.R.H.S., Ramee, Guernsey.

ORCHIDS.—To be Sold cheap; overstocked; all healthy plants, including Cypripediums, Dendrobiums, Lælia purpurata, Cattleyas Cristata, Odontoglossum grande, &c.—Apply, HEAD GARDENER, Elstree, Redhill.

SALES BY AUCTION.

Friday next, June 28th, at 12.45 o'Clock.

Importations received direct from various sources of 12 Zygopetalum Gautieri, 110 Oncidium Marshallianum, also O. flexuosum and O. species, 130 Cattleya intermedia and 50 C. Leopoldii, a quantity of Dendrobium species, probably new, also Cymbidium species, &c. 200 lots of choice established Orchids in variety, Orchids in flower and bud.

MESSRS. PROTHEROE & MORRIS will SELL the above by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, E.C. On view morning of Sale and Catalogues had.

Messrs. PROTHEROE & MORRIS will include in the above Sale 10 imported Dicksonia antarctica tree Fern stems, from 6½ to 9 ft. in height, in grand condition, without reserve.

By Order of Executors.

Bracebridge, near Lincoln.

FREEHOLD RESIDENCE FOR SALE.

To be SOLD by AUCTION by

MR. J. PEACOCK RAYNER, at the Saracen's Head Hotel, in the City of Lincoln, on FRIDAY, the 28th day of June, 1912, at 3 o'Clock in the afternoon, precisely, subject to such conditions as shall then be produced, the exceptionally attractive FREEHOLD RESIDENTIAL PROPERTY known as THE MANSE, situate in the parish of Bracebridge, and about two miles from Lincoln, late in the occupation of the Reverend Charles Christopher Ellison, deceased.

This delightful residential estate is approached by a drive from the road leading from Lincoln to Waddington, and comprises a very convenient modern family Residence, containing on the Ground Floor: Entrance Hall, with porch, Drawing Room, Dining Room, Morning Room, Study, Work Room, Servants' Hall, Butler's Room, Lobby, Housemaid's Pantry, Kitchens, Pantry, Larder, Lavatory, and W.C.

On the First Floor: Nine Bedrooms, two Dressing Rooms, Night Nursery, Day Nursery, two Bathrooms, two W.C.'s, and Box Room.

There is also a very good Billiard Room, and extensive cellarage.

There is excellent stabling accommodation on the North side of the House, and a large Coach House or Motor Garage, and conveniently arranged out-offices.

Also the large and exceptionally beautiful gardens, including the Rose Garden, with its many thousands of Rose Trees of the newest and choicest varieties in the highest state of cultivation, and the FRUIT GARDENS, which are exceedingly well stocked with about two thousand well-trained Fruit Trees of all the best known kinds.

Also the THREE COTTAGES, with gardens and the usual out-offices, situate in the grounds, together with about 4½ acres of excellent Grass Land.

The whole comprises an area of 9a. 3r. 23p.

The Residence is lighted throughout with gas, and water from the perfect supply of the Lincoln Corporation is laid on throughout the house, and water is also laid on throughout the Rose and Fruit Gardens.

The Sanitary arrangements are believed to be in first-rate order, and in accordance with modern principles.

The whole of the buildings are in first-rate order, and the gardens are in the highest state of cultivation, and the Sale offers a unique opportunity to anyone desiring to acquire an exceeding desirable Residence, with exceptionally beautiful gardens and surroundings.

There are three packs of Hounds within easy distance, and excellent shooting and fishing can generally be obtained in the near neighbourhood, and there are first-class golf links at Torksey, near Lincoln.

Possession of the Residence can be given on completion of the purchase, or earlier by arrangement.

Permission to view, and plans and particulars may be obtained from the AUCTIONEER, Silver Street, Lincoln; or from us at our Offices,

BURTON, SCORERS, and WHITE,
Stonebow, Lincoln, 28th May, 1912. Solicitors.

PROPERTY FOR SALE.

FOR SALE, about two acres of Grass Land suitable for Glasshouse Nursery; south aspect; good soil; 15 minutes from main line station; south coast.—E. J. KENT, Haywards Heath.

BUSINESSES FOR SALE, &c.

FLORISTS, FRUITERERS; doing £240 to £280 monthly; splendid position opposite station; low rent, £40; horse, van, and all utensils.—For full particulars, apply (Owner), J. GOODSELL, 45, Perry Vale, Forest Hill, London, S.E.

NURSERY; one acre; near large town; 300 ft. modern glass, well stocked; excellent house.—R. C., Box 20, 41, Wellington Street, Covent Garden, W.C.

FOR SALE, FREEHOLD NURSERY, near Worthing, comprising about 2 acres land in a high state of cultivation, with frontage to main road of 180 feet; seven glasshouses (three 100 by 25 ft., three 100 by 12 ft., one 30 by 10 ft.); 60 ft. of Frames, all thoroughly heated; windmill with good water supply; large packing shed; near station; price £950; stock at valuation.—Apply, A. S., Box 6, 41, Wellington Street, Covent Garden, W.C.

A LEASEHOLD NURSERY FOR SALE, under exceptional circumstances, within 20 miles of London; 3½ acres of land planted with good Apples and Pears; 1,275 feet of modern, well-built houses (heated), with about 175 feet heated brick pits; well stocked; any reasonable offer accepted.—Particulars, apply to C. BIRTS, Esq., 5, Salters Hall Court, Cannon Street, London, E.C.

GREENGROCERS and FRUITERERS BUSINESS for Sale in rapidly developing district; old-established (same hands 40 years); average weekly turnover £50; corner shop; good house, stabling, &c.; low price of £150 for quick sale, includes horses, vans, harness, and every convenience for trade.—Fullest particulars of HOLLIS, 15, Church Road, Hendon.

FOR SALE, a FREEHOLD MARKET NURSERY, in full working order, comprising nearly 4½ acres, with nine houses (four 20 by 70 and five 20 by 65); seven small pits and two large, and numerous frames.—Apply, H. DENNING, Heathfield Nursery, Hampton, Middlesex.

SUCCESSFUL NURSERY BUSINESS to be SOLD; five acres, 600 ft. glass; good local trade; handy to Covent Garden; lump sum or everything at valuation; no agents.—C. H., Box 27, 41, Wellington Street, Covent Garden, W.C.

TO NURSERYMEN, MARKET GARDENERS, Etc.—To be SOLD by Valuation, on basis of going concern, the Stock, Fixtures and effects of a MARKET GARDENER'S BUSINESS, in the gardens attached to Tidworth House, in the heart of the Salisbury Military District, and doing a high-class trade; probable capital required, £200-£250.—Apply, THE OFFICIAL RECEIVER, Salisbury.

W. A. GARAWAY, Deceased.

FOR SALE,

the old-established BUSINESS of

JAMES GARAWAY & CO.

NURSERY 35 acres at Keynsham;

SEED, BULB & FLOWER BUSINESS at Clifton, Bristol.

Immediate possession at valuation.

Apply, F. J. TARR & SONS, Solicitors, Bristol; or
JAMES GARAWAY & CO., Nurserymen, Bristol.

BUSINESSES WANTED.

WANTED, Cottage, with small Nursery and Poultry Farm; going concern; local trade.—Write particulars, PULMAN, 120, Villiers Road, Cricklewood, N.W.

BUSINESS CARDS.

IF you want a ROCKERY built for a rational price, or any kind of rockery stone or plants, write for quotation to J. WOOD, Nurseries, Boston Spa, Yorks. Awarded Irish Cup and Gold Medal at the International Exhibition.

PARTNERSHIPS.

GARDENER (HEAD) wishes employment; Market Nursery, Florists, or Jobbing Business; well recommended; could invest £50.—D. J., Box 23, 41, Wellington Street, Covent Garden, W.C.

NOTICES.

THE RHODODENDRONS planted in Rotten Row, Hyde Park, are supplied by ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey. Kindly note Christian name and address.

In consequence of the increase in the circulation, and also of the earlier despatch of the morning trains from London, the hour of going to press has been again advanced, and in future Advertisements received after 5 p.m. on WEDNESDAY will be held over till the following week. On no consideration whatever will any exception be made to this rule.

PUBLISHERS' NOTICES.

Present-Day Gardening.

Edited by R. HOOPER PEARSON, Managing Editor of the GARDENERS' CHRONICLE. Now Ready. Post free. **1/9** each.

Numerous Beautifully Coloured Plates are contained in Each Volume.

1.—**SWEET PEAS.** By HORACE J. WRIGHT, late Secretary and Chairman of the National Sweet Pea Society. With Chapter on "Sweet Peas for Exhibition," by THOS. STEVENSON.

2.—**PANSIES, VIOLAS, AND VIOLETS.** By WILLIAM CUTHBERTSON, J.P., and R. HOOPER PEARSON.

3.—**DAFFODILS.** By the Rev. J. JACOB.

4.—**ORCHIDS.** By JAMES O'BRIEN, V.M.H., Secretary of the Orchid Committee of the Royal Horticultural Society.

5.—**ROOT & STEM VEGETABLES.** By ALEXANDER DEAN, V.M.H., Chairman of the National Vegetable Society.

6.—**CARNATIONS & PINKS.** By T. H. COOK, Head Gardener at Sandringham; JAMES DOUGLAS, V.M.H., and J. F. McLEOD, Head Gardener to Mr. Pierpont Morgan. Contains 8 full-page coloured plates.

7.—**RHODODENDRONS & AZALEAS.** By W. WATSON, with preface by Sir F. W. MOORE, M.A. (the first popular volume published on this subject). Contains 8 full-page coloured plates.

8.—**LILIES.** By A. GROVE, F.L.S., with preface by H. J. ELWES, F.R.S. Contains 8 coloured plates.

9.—**APPLES & PEARS.** By GEORGE BUNYARD, V.M.H. Contains 8 coloured plates.

10.—**ROSES.** By H. R. DARLINGTON, with 8 full-page coloured plates. A double volume, price **2/10**, post free. Special presentation edition, with beautiful cover design, in cloth gilt, gilt top, price **3/10**, post free.

11.—**IRISES.** By W. R. DYKES, M.A., with preface by PROF. BAYLEY BALFOUR. 8 full-page coloured plates.

12.—**ANNUALS, HARDY AND HALF-HARDY.** By C. H. CURTIS, with 8 coloured plates. **1/9.**

THE PUBLISHER,

"Gardeners' Chronicle" Offices, 41, Wellington St., Covent Garden, London, W.C.

EXHIBITIONS.

ROYAL SHOW

DONCASTER,
July 2nd to 6th, 1912.

£10,900 in PRIZES.

LIVE STOCK, POULTRY, MACHINERY, JUMPING, RIDING, DRIVING, PIT PONIES, FORESTRY, DAIRYING, HORSE SHOEING, SHEEP DOG TRIALS, DOG SHOW, FLOWER SHOW.

For particulars SEE DAILY PROGRAMME.

Band of The Queen's Own Yorkshire Dragoons.

Prices of Admission: Tuesday, July 2nd, 5s.; Wednesday and Thursday, July 3rd and 4th, 2s. 6d.; Friday and Saturday, July 5th and 6th, 1s.

THOMAS McROW, Secretary,
Royal Agricultural Society of England,
16, Bedford Square, London, W.C.

HANLEY PARK, STAFFORDSHIRE

JULY 3rd & 4th, 1912.

SIXTEENTH GREAT

Annual Floral Fete

£500 IN PRIZES.

SILVER CUPS, GOLD AND SILVER MEDALS.

SILVER CHALLENGE CUP, VALUE £10 10s

offered for "Trade Exhibit" (for particulars, see page 7 in Schedule).

Valuable Special Prizes offered by the principal firms in England.

Schedules post free on application to WM. POULSON, Secretary, Town Hall, Hanley.

THE
Gardeners' Chronicle

No. 1,330.—SATURDAY, June 22, 1912.

CONTENTS.

Arnold Arboretum ...	413	Orchid notes and gleanings—	
Books, notices of—		Cattleya Mossiæ ...	405
Garden Design in Theory and Practice	407	Lælio-Cattleya Aphrodite "Lord Faber"	405
The Guild of the Garden Lovers ...	407	Megaclinium leucorhachis	405
Carnations, border, in pots	416	Peat-moss litter, the manurial value of ...	404
Clematis, a fine plant of...	415	Plants, new or noteworthy—	
Coleus thyrsoideus ...	412	Lilium Brownii leucanthum	404
Crops, prospects of the	414	Mesembryanthemum decorum	403
Deutzia longifolia ...	409	Primula uniflora ...	407
Disease resistance in plants	412	Rhododendron Victorianum	406
Education, a gardener's	416	R.H.S. summer show...	413
Ficus repens fruiting ...	416	Scotland, notes from ...	415
Flowers, exhibiting ...	416	Societies—	
Fruit crop, the	415	Birmingham Botanical and Hort. ...	421
Horticultural society, a new	413	Essex Agricultural ...	413
Horticulture, State department of	412	National Gladiolus ..	418
Hot water circulated by pumping	413	National Hardy Plant	418
Insurance Act, the, 415; commercial travellers and the	415	Royal Horticultural...	416
International Horticultural Exhibition 408,	413	Saltaire and District Rose	413
Ireland, notes from ...	414	United Hort. Benefit and Provident ...	421
L.C.C. gardeners ...	413	Yorkshire Gala ...	419
Lily season in Scotland, prospects of the ...	406	Strawberries, record ...	416
Market gardening in Belgium	414	Tomatos, outdoor ...	403
Neill memorial prize	413	Trees and shrubs, hybrid	414
Nesting place, a curious	415	Wallace, Dr. Alfred Russel	413
Obituary—		Week's work, the—	
Hay, Lawrence ...	414	Apiary, the	411
Jennings, William John	414	Flower garden, the ...	411
Strasburger, Professor Eduard	414	Fruits under glass ...	410
		Hardy fruit garden, the	410
		Kitchen garden, the...	410
		Orchid houses, the ...	411
		Plants under glass ...	410

ILLUSTRATIONS.

Clematis Mrs. H. Wood 415
Coleus thyrsoideus (Coloured Supplementary Illustration)
Deutzia longifolia 409
Jennings, the late William John, portrait of 414
Lælio-Cattleya Aphrodite "Lord Faber" 405
Odontioda Cooksoniæ, "Fowler's variety" 418
Primula uniflora... 407
Rhododendron Victorianum... 406

OUTDOOR TOMATOS.

JUST as the indoor varieties of Tomato have been improved out of all knowledge in recent years, so have the kinds suitable for outside work undergone a remarkable development in the right direction. In this variable climate, however, the outdoor Tomato crop must ever be regarded as uncertain, for we cannot expect often to enjoy a summer so entirely propitious to the crop as that of last year. Early planting—or, rather, the putting out of forward plants at the first possible moment—is, of course, half the battle in Tomato culture in the open, but even that will not ensure anything like a full crop in a damp or cool summer. Those who make a point of outdoor cultivation of this precarious crop aim at having at least one bunch of fruit practically set at the time the plants go outside at the end of May or the beginning of June, and when this is the case the chances are that some six weeks after planting three or four other bunches have passed through the flowering stage and are on the way to form fruits. After the flowering of the fourth or fifth truss, most growers adopt the practice of stopping the plants altogether, and the plan is a wise one on the whole, for, although under this system some further fruits that would have ripened may be stopped from forming, those that are already formed are given a much better chance of doing well and reaching maturity before the cold nights of autumn reduce the strength of the plants to too low an ebb. The single-stem system of growing may be said to be quite the best for outside work, as it is held to be for inside, and the thinning of the leaves is usually advisable. This latter process may, however, be carried too far. If the leaves are shortened or removed when they are full of sap, i.e., before they become hard and glossy, the plant is weakened through loss of sap, and much of the protection from wet which the fruits derive from the foliage is taken away. One of the worst troubles that the outdoor Tomato-grower has to put up with is "cracking," which renders the fruit almost valueless from a market point of view, and this is largely caused, or, at least, aggravated, by too hard leaf-pruning. The fruit gets wet, and then when the sun comes out after the rain, it shines fully upon the fruit and cracks it immediately. The thinning of the blossom is a good practice wherever the necessary time and labour can be afforded, though the process is less necessary with some sorts than with others.

The commonest fault with the inexperienced is to over-feed their outdoor Tomato plants in the early stages of growth. A good, rich soil is, of course, absolutely necessary to success, but recent manuring is as bad for the Tomato as it is for its near relative, the Potato. The plants make wonderful progress and look well, but the development of stem and leaf is at the expense of the fruit, and the plants are rendered far more liable to disease than they otherwise would be. Tomatos, by the way, should never be planted outside anywhere near a crop of Potatos, for the latter will almost certainly contract disease to some extent before the end of summer, and they will assuredly communicate it to the Tomatos. One has seen the Potato blight carry off a whole crop of Tomato plants in the space of a day or two, for a slight touch of it, such as would hardly be noticeable on the Potato, is quite sufficient to be fatal to the more tender Tomato.

Mildew, so well known and so much dreaded by every Tomato-grower, is the next most likely disease to attack the crop, and if it once gets a firm footing there is nothing that will stop it. But it may be largely, if not entirely, prevented if precautionary measures be taken; a good deal, of course, will depend upon the nature of the season. Sulphur is the time-honoured and still, apparently, the most efficacious substance for preventing or checking the ravages of mildew, and the wise grower employs it long before the disease makes its appearance. Instead of dusting the plants with powdered sulphur, as is most commonly done, it would seem that syringing the plants with a solution made of sulphur and skimmed milk is a better plan. Sulphur is difficult to mix, but the process becomes comparatively simple if a small quantity is first worked into a paste with cold water and the milk added afterwards. The mixture should be well stirred and then strained, after which it can be applied with a sprayer or fine syringe. The plants should have a good wetting with this once a week, especially on the undersides of the leaves. If the plants are put out on raised ridges, as they should be, the application is comparatively easy.

After the first bunch or two of fruit is set, feeding may be started—gently at first, of course—and there is nothing better for this than the drainings of the stable or the cowshed. By the time all the fruit is swelling, this mixture may be applied at great strength—that is to say, diluted with no more than its equal bulk of water. Meanwhile, the plants should be mulched with stable manure that may be almost fresh, that is manure which has been turned only once or twice to let out the rank heat. The great thing is to push the crop on as much as possible, so that by the first week in September a good portion of it has been gathered. After that time rapid ripening becomes doubtful, and it is usually considered safer to pluck all the fruits as soon as they cease to swell, and to bring them under cover to ripen. Last year outdoor Tomatos matured almost as quickly as those grown in cold houses, but one cannot expect such good fortune as that every season. If the grower can ripen three good bunches on the plant he ought to be satisfied, and very grateful if he can achieve anything beyond that. Green Tomatos, by the way, make an excellent pickle, so that even the smallest of those which fail to ripen need not be wasted. *F. B.*

NEW OR NOTEWORTHY PLANTS.

MESEMBRYANTHEMUM DECORUM, N. E. BROWN, N. SP.

THIS plant was introduced into Kew Gardens about 40 years ago, and flowered there in 1873, when it was placed in my hands for determination. As I could not find any description or figure to agree with it, a drawing was made of it for the *Botanical Magazine*, concerning which drawing an unfortunate error has occurred. When it was being prepared for publication, it was indicated by Mr. Baker as being "near M. intonsum," which was unfortunately mistaken by the late Sir Joseph Hooker as being actually M. intonsum, Haw., and it was so published in the *Botanical Magazine*, t. 6057, where by a printer's error the name is spelt "M. introrsum."

Recently the plant has been re-introduced from South Africa by Prof. Pearson, who sent it to Cambridge Botanic Garden, where it flowered in May of this year. It is quite distinct from M. intonsum, Haw., being distinguished by its more erect branches, leaves ascending and subparallel with the stem, unless they have young shoots or

flowers arising from their axils, when they become divergent, and the calyx is destitute of hairs except the tufts at the tips of the lobes. In M. intonsum the stems are procumbent. the leaves are widely spreading, and the tube of the calyx is covered with long spreading hairs. As it has already been well figured and a description given in the *Botanical Magazine*, it is unnecessary to give more than such characters supplementary to those given in that publication, where, however, the colour of the hairs at the tips of the leaves and of the flowers do not correctly apply to this plant, but are partly taken from the description of the true M. intonsum.

In M. decorum the branches are erect or ascending, usually terminating in one or a cyme of three flowers, subwoody, greyish, slightly rough from a covering of minute hardened whitish papillæ. Leaves ascending or erect and parallel to the stem, terete, with a short abrupt curve at the base and similarly recurved at the apex and there bearing a tuft of 7-9 radiating white hairs, otherwise entirely covered with conspicuous bead-like papillæ, which are usually obtusely rounded, but on some leaves are occasionally tipped with a minute hair or point; in colour the leaves are somewhat bluish-green, but not at all glaucous. Calyx papillate and the segments tipped with tufts of hairs like the leaves, but otherwise quite glabrous; the tube and basal part of the lobes in unopened flowers are somewhat globose-pear-shaped, from being constricted just above the base of the lobes, which are terete and two of them much longer than the other three. Petals bright rosy-mauve, entire. A native of the western part of Cape Colony, probably collected between Piquet Berg and the Orange River by Prof. Pearson during the Percy Sladen expedition there in 1910. *N. E. Brown.*

LILIUM BROWNII LEUCANTHUM.

I DO not agree with Mr. E. H. Wilson (see p. 385) as to the identity of Lilium Brownii leucanthum. This name was given by Mr. J. G. Baker to a Lily which flowered for the first time at Kew in 1894, particulars of it having been published in *Gardeners' Chronicle*, 1894 (2), p. 180. It is there noted that the plant differed from other forms of L. Brownii "by the perianth being without any tinge of red-brown outside, not being narrowed so gradually to the base, and tinged with pale yellow in the lower half inside." Also, perianth "rather rounded to the pedicel." The plate (No. 1,000) published in *The Garden* the following year was prepared from a drawing of the same plant as that described by Mr. Baker; of this I am positive, because I invited the late Mr. H. G. Moon to draw it and saw him doing it a day or two after Mr. Baker decided to name it. The description by Baker in *Gardeners' Chronicle* and the plate by Moon in *The Garden*, therefore, are a botanist's and an artist's presentment of this particular Lily. On the other hand, the figure published as leucanthum in the *Botanical Magazine*, t. 7722 (1900) represents a different Lily. I hesitate to say what, but certainly not leucanthum. Nor does the description there given tally with that given by Baker in *Gardeners' Chronicle*. Whether these various Lilies of the L. Brownii relationship are more than mere forms of one species need not be discussed here. The presence or absence of the brown purple colour on the perianth means very little. Colour in the bulbs of Lilies, we know, is not a character of any value. They may be white or yellow when in the soil and change to pink, brown, or purple on exposure. They also vary in the same species, as for example in L. speciosum, the bulbs of which may be either yellow, brown or claret-coloured, in which respect they behave like Potatos. Nor can much importance be attached to the particular shape of the bulbs. I do not remember to have seen what Mr. Wilson describes under the name of L. Sargentiæ, but, as Mr. Farquhar has promised to send bulbs of it to Kew, we may hope soon to be able to see what it is like. *W. W.*

THE MANURIAL VALUE OF PEAT-MOSS LITTER.

THE *Journal* of the Board of Agriculture for December, 1911 (pp. 756-758), contains an article which reports very unfavourably on the value of peat-moss litter manure. Since the results obtained in the Royal Botanical Gardens at Kew do not agree with the experience in other countries, and since the article might lead farmers and gardeners to form a wrong opinion on the manurial value of peat-moss litter, I give herewith a brief account of my experience in the subject.

Peat-moss litter or moss-litter is manufactured from Sphagnum-peat on a large scale, chiefly in those countries in Europe which contain large areas of peat-bog, e.g., Sweden, Norway, Finland, Germany, and Holland. The peat must be as little humified as possible, as it is the high absorbent power that gives this substitute its great advantage over other materials used in stables and byres for the purpose of absorbing liquid excretions of animals.

According to analyses made in the laboratory of our experimental station in Jönköping the absorption of water by different materials used as litters is—in well-air-dried state—as follows:—

Sawdust absorbs from 2⅘ to 5¼ times its own weight of water; straw absorbs from 3⅗ to 4½ times its own weight of water; moss-litter absorbs from 8 to 16 times its own weight of water.

The higher mechanical absorption for liquids is not, however, the only advantage which moss-litter possesses over the other materials in general use in stables, &c. Thus, it is a better absorbent of the gases which are given off from decomposing manure, and, hence, it renders the air in the stables, where it is used, odourless, and makes for more hygienic conditions therein.

C. von Feilitzen has found, from his investigations, that peat-moss litter absorbs in air-dried conditions in different samples (15 samples) 1.80-3.30, or on the average 2.51 per cent. ammonia as a gas, and that the loss of this valuable substance is less in a stable where this litter is used than with other litters.

This is due partly to the colloid substances and partly to the humic acid in the peat-moss litter, which neutralises the ammonia by forming humic salts or humates.

As to the effects of peat-moss litter on the farmyard manure as compared with those of straw and other litters, many investigations have been made, especially by Fleischer in Bremen, Immendorff in Jena, Rhodin in Stockholm, and also, more recently, in our experimental farm in Flahult (1909). All results agree that the losses of manurial constituents, and chiefly of nitrogen, are much less with moss-litter than with other litters in the stable.

In our investigations, which were carried out with the greatest possible accuracy, each litter—moss-litter, straw, and sawdust—was used for 10 days and to 10 milking cows. All foodstuffs, litter, milk, and dung were weighed every day, samples were also taken daily for analysis, and the cows were weighed at the beginning and end of each period. Our results were as follow:—

LOSS OF NITROGEN PER CENT.

Litter used	Loss in the stable	Loss during the storage for 8½ months.	Total Loss.
Peat-moss	7.1	7.4	14.5
Straw	19.8	20.0	39.8
Sawdust	11.1	7.5	18.6

(In this experiment much more sawdust was used than is usual, as we could not get a dry sample, and, therefore, the results, we believe, are unduly favourable for that litter.)

As to the effect of peat-moss litter manure on the field, very good results have been recorded, both in our country and elsewhere (in Germany, Denmark, Austria, &c.).

The dung from the above-mentioned experiments in Flahult, which was kept stored for 3½ months, was then used for a fertilising experiment on very poor, sandy soil for Potatos in the year 1909. There were given 50,000 kgr. per hectare of each manure, and each manure was tried separately on three plots: six check plots were unmanured.

The crops were as follow:—

	Average. Potato tubers, 1 hectare, kgr.	More than unmanured, kgr.
Unmanured	2,466	
50,000 kgr. farmyard manure with moss-litter	13,334	10,868
Straw	7,400	4,934
Sawdust	4,400	1,934

We studied also the after-effect for two years (1910 and 1911) on Potatos, and the total effect was then reduced to the amount of manure produced at the same time from the same number of cows:—

For manure with peat-moss litter ...	100
,, ,, straw	49
,, ,, sawdust	44

We have also made many other experiments with peat-moss litter manure, but in no cases have we seen any injurious effect on the vegetation. On the contrary, the effect was always favourable, and much better than that obtained with other litters.

In Flahult, peat-moss litter alone was also directly used for the amelioration of sandy soil, poor in humus, and in this case there was no unfavourable effect, as is said to have been seen in Kew.

As to the effect of peat-moss litter manure on garden plants and flowers, our experience in Flahult in the garden of our inspector and of the labourers has been very favourable, and in our experimental farm in Torestorp there were made in the last four years special experiments with different market-garden crops, which show that this manure may be used without disadvantage.

Moreover, it is used in our country, not only by the farmers, but also by the gardeners, to a great extent.

A few months ago I met one of our most famous practical gardeners, Mr. M. P. Andersen, Jönköping. I told him of the results at Kew, and he said, laughing, that he had for many years used peat-moss litter in his own stable, and had given the manure to different plants in his gardens, and never had he seen any bad effect; on the contrary, very good results were obtained by its use.

In further proof of the value of peat-moss litter is the fact that the production and consumption of this litter has increased in Sweden so rapidly that there are now more than 200 factories for its production, and the yield has reached to about five million bales yearly.

Then the moss-litter and peat-moss mull are used to a large extent for closets in the towns, and in many towns in Sweden (and also in Germany and other countries) the use of peat-mull for that purpose is made compulsory. There the peat acts as an absorbent, deodoriser, and to a certain extent as a disinfectant.

To come back to the uses of moss-litter in gardens, many experiments have been made in Germany, and all have given good results, both in the open and also in greenhouses.

In Belgium the moss-litter is also used for Mushroom beds.

As to the moss-litter manure, Dr. Bürstenbinder says that horse manure with moss-litter alone is not so suitable for hot-beds, as this manure does not heat quickly enough, but, mixed with straw-litter manure, it regulates the too-rapid fermentation of the latter, and hence is valuable for early hot-beds.

Lastly, regarding the unfavourable results obtained at Kew and reported in the *Journal* of the Board of Agriculture, there is no evidence that it is due to the moss-litter used, as no comparable experiments appear to have been made.

The acidity of the manure noted by Dr. Voelcker is so little that it cannot have had any unfavourable influence on the soil. Dr. Voelcker mentions that he found iron compounds in the soil present in the ferrous condition, and it seems to him "that it was the result of the liberal use of an organically-acid body, such as the peat-moss, and that an unhealthy, imperfectly oxidised condition of the soil has been brought about."

This seems to me to be an unsatisfactory explanation. If the soil contains no fully-oxidised iron compounds, which are well known to be injurious to the plants, this must depend on causes other than the addition of peat-moss litter manure, as such unfavourable results have not been recorded with this manure on soils of the most different composition in our and other countries.

That the effect of peat-moss manure is better if it is stored for some time than if it is used quite fresh is well known, and therein it agrees with other farmyard and stable manures, but to let it rot for one to two years, as is proposed, is not necessary.

We have used it with very good effect two to three months after its production.

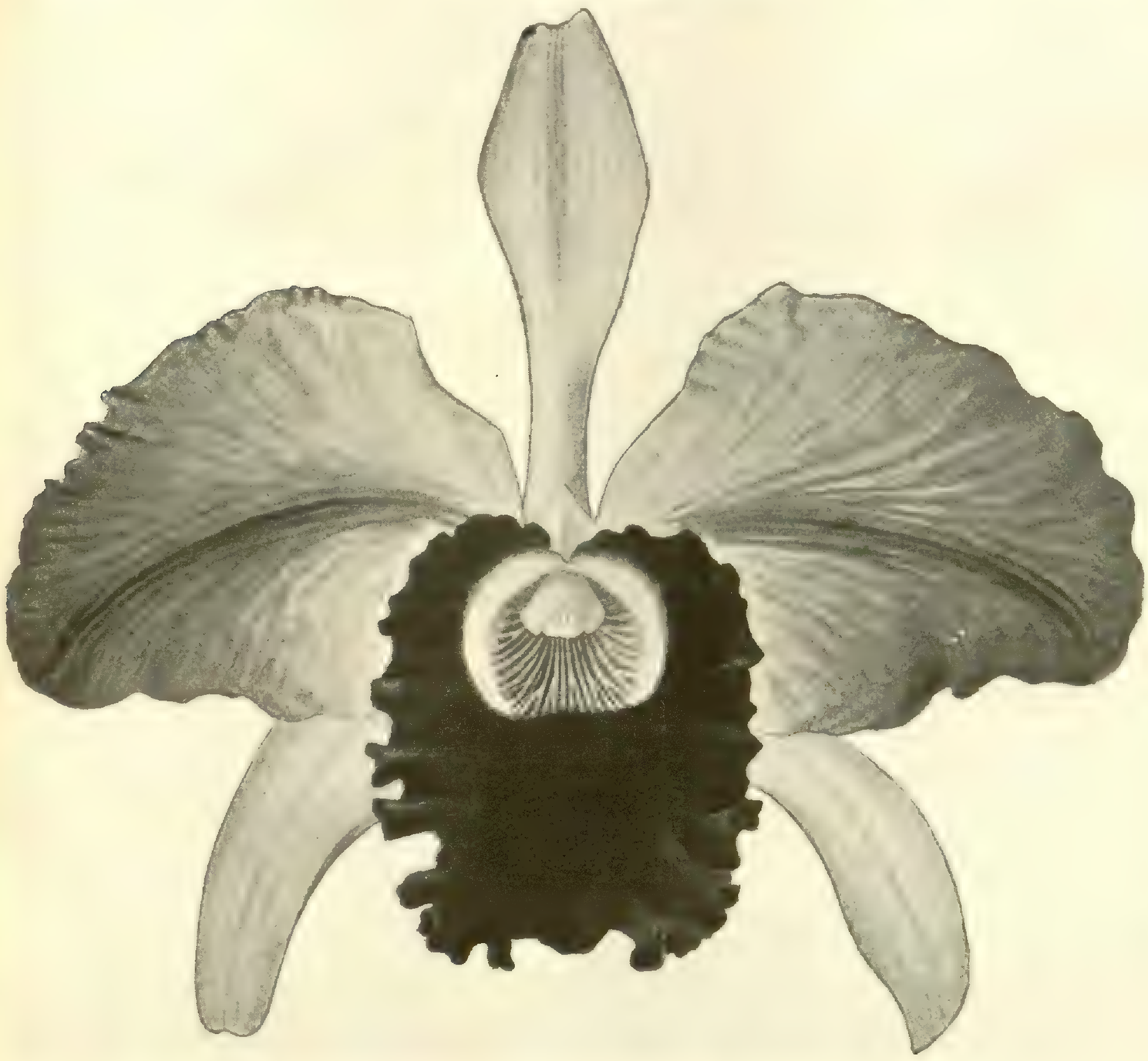


FIG. 192.—LÆLIO-CATTLEYA APHRODITE "LORD FABER."

In the article it is said that the moss-litter was imported from Denmark. This must have been an error; in Denmark there exists, so far as I know, only one moss-litter factory—at Herning. It must, then, have been rather from Sweden, if the author means that it was imported from Scandinavia.

SUMMARY.

1. Peat-moss litter is the best absorbent substance for liquid excretions of horses and cattle in stables.

2. Peat-moss litter is the best litter to diminish losses of nitrogen and other nutrient substances from the farmyard manure.

3. It is deodorising and, to a certain extent, disinfectant. It keeps the air fresh and odourless in the stables, and is an excellent substance to use in closets (as peat-mull).

4. Peat-moss litter manure has a much better fertilising value than the same amount of manure with other litters.

5. It is used with excellent results on field and garden crops.

6. There are no records in other countries of injurious effects on vegetation produced by the use of peat-moss litter manure.

7. The results obtained in the Royal Botanical Gardens, Kew, must have been due to other causes than the use of peat-moss litter.

APPENDIX.

Through the kindness of the Board of Agriculture I received a sample of the Kew garden soil, where the moss-litter manure had caused the injurious effect, and the first chemist of the laboratory of our experiment station, Mr. T. Lugner, has carefully analysed the soil.

It was sandy and of grey-brown colour; its reaction with litmus solution neutral. The amount of lime in water-free soil was: soluble in strong (27 per cent.), hydrochloric acid 0.26 per cent., and soluble in 10 per cent. ammonium chloride 0.20 per cent. The amount of sulphuric acid as sulphates (of lime, &c.) determined in the hydrochloric acid solution was 0.11 per cent. Iron compounds in ferrous condition could not be detected.

If this soil is treated and manured in an ordinary way I cannot see how it is possible for the peat-moss litter manure to have an injurious effect on it.

It has been said that the reason was that the manure was mixed with the soil and not used as a top-dressing, but we have used the same manure in our experiment field in Flahult both mixed and as a top-dressing for different plants, and have never seen any bad effect in either case.

To get exact information about the acidity of moss-litter manure we collected different samples of moss-litter and moss-litter manure from horse stables, cow stables, and closets, where peat-mull was used as an absorbent and disinfectant.

The results were, according to the analyses of Mr. Lugner:—Moss-litter, sample (a), 0.11 per cent. acidity, reckoned as acetic acid in the sample considered water-free, and in sample (b) 0.12 per cent. Moss-litter manure from cow stable, sample (a), three months old, reaction alkaline; sample (b), three months old, reaction neutral; from horse stable, sample (a), fresh, reaction neutral; sample (b), stored from three to four weeks, reaction neutral; from closets, sample (a) fresh, acidity as acetic acid water-free, 0.87 per cent.; sample (b), stored from three to seven weeks, reaction neutral.

With one exception all samples of the manure had no acid reaction, which is due partly to the formation of alkaline compounds during the fermentation of the manure, and which fermentation begins as soon as the excreta leave the animal body.

From this analysis of the peat-moss litter manure there is no evidence to suggest that the application of it on the soil as a manure would have an injurious effect on vegetation. *Hjalmar von Feilitzen, Ph.D., Director of the Experiment Station of the Swedish Peat Society in Jönköping.*

ORCHID NOTES AND GLEANINGS.

LÆLIO-CATTLEYA APHRODITE "LORD FABER."

OUR illustration (fig. 192) represents the showy Lælio-Cattleya exhibited by Messrs. Sander & Sons, St. Albans, at the Royal International Horticultural Exhibition on May 22. The variety is probably the finest in colour yet shown. The sepals and petals are flushed with a glowing crimson-purple; the front of the labellum is a deep shade of violet-crimson, the tube being white with red lines. It is the result of a cross between a fine form of Lælia purpurata and a dark-coloured Cattleya Mendelii. The plant was shown under the name given by Messrs. J. Veitch & Sons to the batch originally raised by them, namely, L.-C. Eudora.

CATTLEYA MOSSIÆ.

A FLOWER of a fine specimen of this showy species, together with a photograph of the plant, is sent by Mr. A. E. Luttmann, gardener to G. A. Gale, Esq., Crockley Park, Horndean, Hampshire, who states:—"It was a very small plant when imported four years ago. Since then it has grown into a very fine specimen. It is now growing in a 10-inch pot and bears 49 fully-developed blooms at the present time, which is 20 more than last season." The photograph showed that the plant is a mass of bloom and almost a perfect specimen. Few growers can cultivate Cattleya Mossiæ so as to improve the plant for many years, and its culture testifies to the skill of Mr. Luttmann.

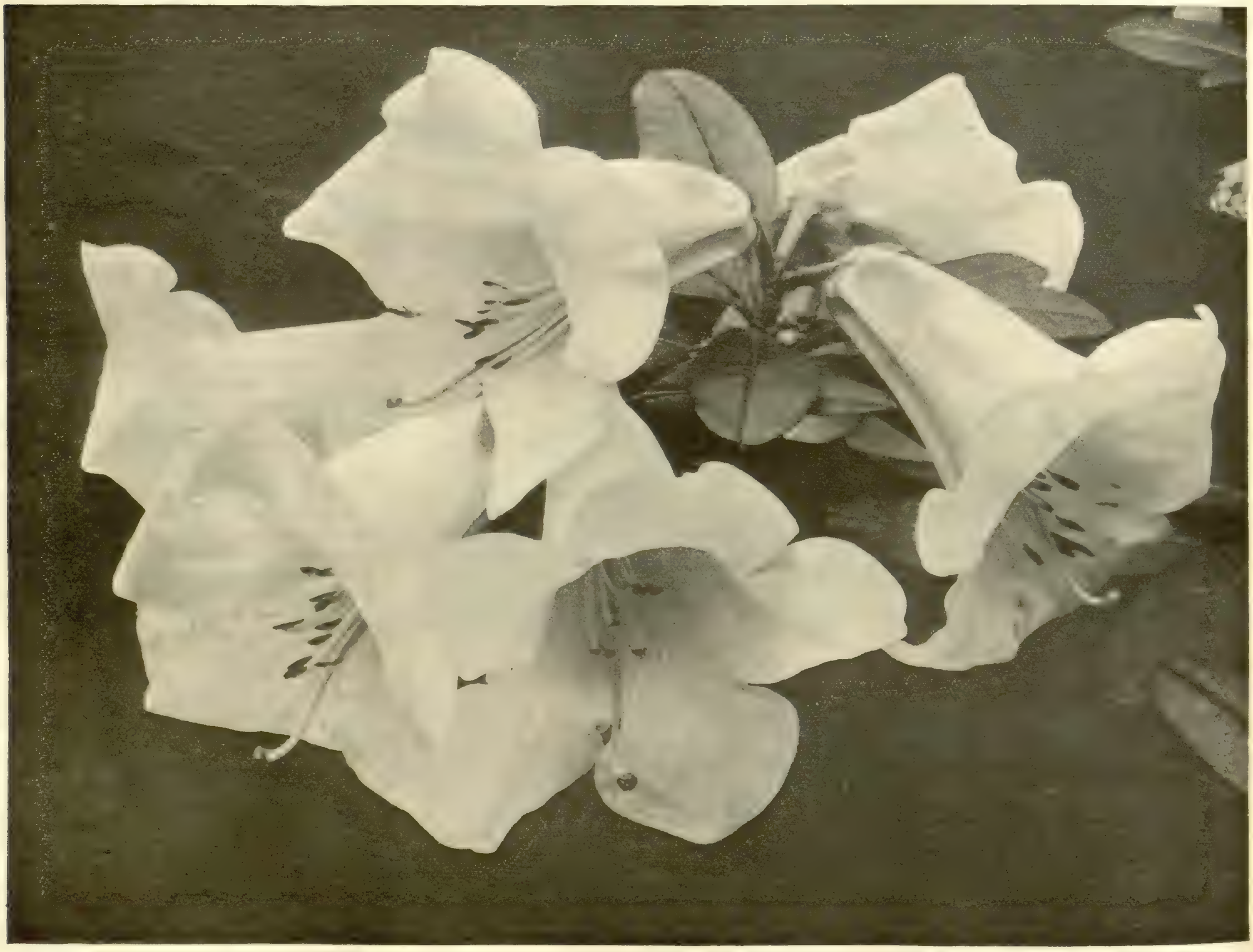
MEGACLINIUM LEUCORHACHIS.

THIS tropical African species is one of the most remarkable of the singular genus, and a very attractive plant when well grown and flowered. A handsome specimen is in flower in the collection of J. S. Bergheim, Esq., Belsize Court, Hampstead (gr. Mr. H. A. Page). The inflorescence is about 10 inches in height, the lower part of the stem being terete, the upper part consisting of a thick, waxlike, white rachis, curved, and bearing on each side a row of bright-yellow, insect-like flowers, each appearing to be coming out of a singular bract, with which the base of each flower is covered. The almost black M. triste, the singular M. minutum, M. falcatum, and another species not yet determined have also flowered in these gardens lately.

RHODODENDRON VICTORIANUM.

THIS magnificent hybrid was raised and first flowered by Mons. Cuvelier, Belgium, in 1887, in which year it was figured and described in the *Revue de l'Horticulture Belge*, p. 49. The parents were R. Dalhousiæ and R. Nuttallii, the former being the seed-bearer. Both its progenitors are natives of the Himalayas, and well known in gardens. They are somewhat tender and require the protection of a greenhouse, succeeding better if not exposed to frost. In their native habitat both species are more or less epiphytical and are subjected to almost tropical conditions for several months of the year. In cultivation they thrive in open, sandy peat or leaf-soil, with an abundance of moisture both in the air and at the roots at all times. Whilst R. Dalhousiæ has long, slender growths and a free flowering habit, R. Nuttallii is somewhat tree-like and rather shy in blooming. But what the plant loses in paucity of flowers it gains in their individual size, for the flowers are probably the largest of the genus. They resemble in general effect those of a fine Lily, being often 5 inches long and 3 to $3\frac{1}{2}$ inches in diameter. The colour of the expanding blossoms is yellow, changing to ivory-white with age, but retaining the richer shade of yellow in the tube. The flowers of R. Dalhousiæ are similar in shape, but much smaller, and with a suspicion of green in the flowers when they first open. This, however, soon changes to yellow and later to almost white. The leaves of R. Dalhousiæ are from 2 to 6 inches long, nearly glabrous, elliptic or elliptic-ovate in shape; those of R. Nuttallii are from 6 to 12 inches long, elliptic, prominently veined and bullate.

The hybrid shows the dominance of the seed-bearer (R. Dalhousiæ); the leaves and habit are practically those of the mother parent. The flowers, when they first open, are shaded with green over yellow, but are much larger and finer; they change rapidly to yellow, become almost pure white with age, and hence are much cleaner and purer than the blooms of either parent. The large and characteristic foliaceous calyx of R. Nuttallii is reproduced on a somewhat smaller scale in the hybrid. The flowers last fresh for several weeks, and are produced during late April or early May. *C. P. R.*



[*Photograph by C. P. Raffill.*

FIG. 193.—RHODODENDRON VICTORIANUM (R. DALHOUSIÆ × R. NUTTALLII): FLOWERS YELLOW, CHANGING TO IVORY-WHITE.

PROSPECTS OF THE LILY SEASON IN SCOTLAND.

LILIES, in south-western Scotland at least, are, for the most part, remarkably early this year. There the variety most advanced in its development is the beautiful yellow Martagon, Lilium Hansonii, which had its flower-buds distinctly formed on May 15. This is one of the most graceful of Lilies, and, at the same time, one of the most reliable, for it has flowered in my garden in the same sheltered and comparatively sunny situation for the last ten years, for which adequate reasons I greatly marvel that it is not more frequently and extensively grown. Next to it in promise of early bloom is L. monadelphum var. Szovitzianum, which is in this region one of the most stately and grandly effective of all Oriental Lilies, after reaching a height of at least 8 feet. It is a native of Mount Caucasus and Northern Persia. Nothing can be lovelier than a perfect specimen of this noble Asiatic Lily with its majestic aspect and its affluence of exquisite, citrón-coloured flowers. Its only rivals are L. giganteum and L. auratum platyphyllum, both of which promise to be extra fine this year. The great Lily of the Himalayas, grown from an offset, usually takes four or five years to reach the full dimensions of its imposing flowering bulb. When grown from seed, as I understand Sir Herbert Maxwell grows it in his "Paradisus Terrestris" at Monreith, it must demand immense patience on the part of its most earnest and enthusiastic cultivator. Unlike many other Lilies, L. giganteum is greatly benefited by a rich soil, yet I know from sad experience that to give it an application of liquid manure with ammoniacal properties when its flower-buds are formed is a great mistake. On the other hand, a surface mulching, if not too strong, may safely be given at an earlier stage. While L. giganteum grows well in ordinary garden loam, I find that it is most rapidly and adequately established when planted in leaf-mould. I think that this Lily, when it attains to a height of more than 8 feet or, at the most, 10 feet, loses a great deal of its floral impressiveness, by dwarfing, through its extreme elevation, the dimensions of its long and lustrous flowers, the full splendour of which is more distinctly seen on plants of lesser stature.

The least satisfactory, perhaps, of all eastern

Lilies is L. longiflorum, which I usually have to treat as an annual and plant every year. The obvious reason of this is that it is not reliable, having a strong tendency, after flowering admirably for one short season, thereafter to exhaust its highest floral potentialities or render them impotent by the creation of a large number of miniature bulbs. Of a widely different character are L. Henryi and L. chalcedonicum (the brilliant "Scarlet Martagon," so finely contrasted to L. Hansonii when grown side by side), which, when cultivated in congenial and sheltered situations, last for years. Such Lilies as Krameri, Brownii, and rubellum I have found evanescent; they flowered gracefully for a season and then the place that knew their gentle beauty was glorified no more; but, on the other hand, I have specimens of L. speciosum rubrum and L. auratum platyphyllum in my garden, obtained from Messrs. James Carter & Co. at least 15 years ago, which, *mirabile dictu!* are flowering still. Nor have these received so much attention during that long period as many other species of considerably less importance for garden decoration seemed to demand.

I have recently had the gratification of adding to my already extensive collection of Oriental and American Lilies such supremely attractive varieties as L. sulphureum (also called "Wallichianum superbum"), a native of Upper Burma; L. Humboldtii magnificum; and L. Washingtonianum purpurescens, a highly-attractive Lily of the most exquisite Woodbine-like fragrance, whose habitats are found in far California. *David R. Williamson, Manse of Kirkmaiden, Wigtownshire, Scotland.*

NOTICES OF BOOKS.

GARDEN DESIGN.*

MANY people interested in making a new garden or renovating an old one have often felt the want of an authoritative work on the subject. In the past there has been no scarcity of good guides, but these books are out of print, and have also, of necessity, become out-of-date. Mawson, in *The Art and Craft of Garden Making*, has contributed to the literature of landscape gardening an excellent book, well illustrated with plans of some of his delightful gardens, which tells the would-be garden maker well-nigh all he wants to know. The "formal garden" has also been thoroughly dealt with in recent years by Mr. Reginald Blomfield, who may well be called the master of formal gardening. But the former work is too expensive for the average dabbler in garden-making, and *The Formal Garden in England* deals with only one style of gardening, so that there has been for a considerable time the need of what may be termed a handbook on garden designing, at a moderate price, and, in *Garden Design in Theory and Practice*, Miss Madeline Agar has endeavoured to supply this want. In the book under notice 261 pages have been divided amongst seven sections, which deal in turn with such subjects as "History and Description of Styles," "Preparation of Design," "Structural," "The Component Parts of a Garden," and "Planting." The chapter on the history and description of styles is interesting and pleasantly written; the author rightly remarks there is no more a national type of garden than there is an English costume, and yet the garden-designer is probably more often called upon to design "an English garden, you know, a real old English garden" than any other form. Miss Agar deplores the widespread prevalence of colour in our English gardens, alleging that beauty of form is sacrificed to colour, and quotes the Japanese garden (of Japan, not the monstrosities which libel the Japanese gardeners in this country) in support of her contention. But it seems to us that the author is mistaken. Our English climate calls for colour, and plenty of it. The Japanese garden does not suit our climate, and the fact that we do not understand the significance of the grouping of the stones, or the precise meaning of a particular tree in a particular spot should be immaterial. We can, and do, admire pictures that are artistic, in the true sense of the word, without wanting to know all about their technique, or their inner meaning. Any work of art which demands dissection stamps itself as being second-rate. How many European visitors honestly admired the Japanese garden which was on view at the exhibition of 1910? Thousands of visitors were evidently interested, but, although this garden was presumably laid out in the true spirit of Japanese landscape gardening, we do not think many of them desired a copy in their own gardens. Miss Agar has gone thoroughly into detail in connection with the laborious work of design-making. As the quotation from Rudyard Kipling at the commencement of this chapter feelingly puts it:—

". . . . Gardens are not made
By singing 'Oh, how beautiful,' and sitting in the shade."

There is a deal of tedious work entailed in the necessary surveying and levelling and setting out the plan, of which the client never even guesses,

FIG. 194.—PRIMULA UNIFLORA: FLOWERS PALE LILAC.

(The plant is reproduced natural size.)

nor does he hear the deep, involuntary sigh of relief when all the "quantities have been worked out." On these matters the inquirer will find much useful information, and the various tables, plainly set out, will be found a great aid.

The kitchen garden is rightly looked upon as an important adjunct of the garden, and Miss Agar would make it a thing of beauty rather than hide it away from the owner's ken; but we cannot agree that the "ash paths" she recommends are either beautiful or useful; no gardener would thank a garden-designer for giving him cinder paths.

The theoretical portion of this book is reliable, and is such pleasant reading that, when we come to the chapters dealing with practice, we are almost forced to the conclusion that there has been an unfortunate collaboration, for the author is far from happy when dealing with plants, and we fear that but few persons would approve of her suggestions for the grouping of herbaceous borders. The literary style also deteriorates; in many instances we read of "stuff," herbaceous "stuff," bedding "stuff," and the text is disfigured by such sentences as:—"The path that leads out of the formal garden, may, with advantage, run between mixed beds; or they may be planned to give an interest to the connection between kitchen and flower gardens; and they are often seen at their best in the kitchen garden itself," "The stronger-growing herbaceous plants, such as . . . may be introduced into large shrub beds, by omitting some shrubs and running in a bay of other plants. This is a mixture that has to be carefully done, or the appearance may be muddled," and "What is more disappointing than to see a tree which is beginning to be a feature, stop growth and look out of health?" Probably in future editions this portion of the book will be brought up to the standard of the remainder.

The diagrams are clear and useful; as is usual, a certain amount of artistic licence has been taken with the coloured illustrations, amongst which that of "An Alpine Garden" is poor in detail; it gives the impression of a few Alpine plants growing in a west-country stone hedge. *A. C. B.*

* *Garden Design in Theory and Practice*, by Madeline Agar. (Sidgwick and Jackson.) 7s. 6d.

THE GUILD OF THE GARDEN LOVERS.*

THIS is not a gardening book, the authoress having conjured into existence certain ladies of like sympathies with herself, formed a guild, and under cover of their names, with Sister Rosemary as president, offers the reader her views on various phases of gardening. The essays as a whole are pleasing, though by no means exhaustive, and one could imagine that the authoress's acquaintanceship with gardens is not very extensive. Leading off with Our Own Gardens, there is a charming chapter on An Invalid's Flowers, in which the subject is treated with much insight and sympathy. Next come My Neighbours' Gardens, The Garden in Winter, succeeded by a chapter on Delicate Gardeners, those who are able to undertake a little gardening but not robust enough to do rough work. The Wandering Gardener is another essay that may be mentioned with approval. There are also problems from the individual sisters and the replies from the other members of the guild. The text is singularly free from error in plant names, but Wichuraiana, as it is to many others, is a difficulty, and affords a spelling problem which the authoress never solves. She wishes yellow Sternbergias had an English name. They have several; the earliest being that of John Gerard, who called them winter-flowering Daffodils. The illustrations are by no means worthy of the text.

PRIMULA UNIFLORA.

THIS species is one of a small group of interesting members of the Primrose family found growing at high altitudes (13,000 to 14,000 feet) in the Sikkim Himalayas. They are remarkable for their dwarf stature, small leaves, and comparatively large flowers (see fig. 194). One of the group, P. Wattii, was illustrated in the *Gardeners' Chronicle* (April 27, p. 286), while one of the smallest, P. sapphirina, with heads of beautiful blue flowers on stems from 1 to 2 inches high, was in cultivation at Kew in 1887, but was soon lost. P. uniflora was illustrated in the *Gardeners' Chronicle*, 1884, i., p. 545, f. 106, from a drawing prepared from dried specimens, in company with several others. There is probably no other member of the genus with flowers so large in comparison with the foliage. The leaves are ovate lanceolate, stalked, and deeply-toothed, while the stems with one, or rarely two flowers are from 2 to 3 inches high. The pale-lilac or mauve-coloured flowers open nearly flat, and are about ¾ inch in diameter. Seeds of this remarkable little plant were received with those of P. Wattii from the Calcutta Botanic Garden in the spring of the year 1911, as well as those of another interesting species, P. Elwesii, which bears very large flowers. The latter, however, has not yet flowered in cultivation, so far as I am aware. *W. I.*

* *The Guild of the Garden Lovers*, by Constance O'Brien. Illustrated. (London: George Routledge & Sons.) Price, 3s. 6d. net.

ROYAL INTERNATIONAL HORTICULTURAL EXHIBITION.

LEGISLATION IN CONNECTION WITH PLANT DISEASES AND PESTS.

At the conference on Friday, May 24, the Right Hon. A. H. Dyke-Acland, in opening the proceedings, said now that they had recognition of horticulture by the State, it was for them as time went on to try and work upon that beginning and develop, so far as they could, the initial steps which had been announced by Mr. Runciman on Wednesday, May 22.

A paper on "The Value of Importation Regulations as a Means of Preventing the Introduction of Plant Pests from Abroad" was read by Prof. Ritzema Bos, of the Phytopathological Institute, Holland. He said it was a natural consequence of world traffic that animal and fungous enemies of agriculture and horticulture were sometimes transported with the plants on which they lived from one country to another. Thus two very dangerous enemies of the vine, the Downy-mildew (Peronospora viticola) and the only too well-known Phylloxera vastatrix had been successively transported from America to nearly all vine-growing countries of the Old World. Similarly in recent times the serious American Gooseberry-mildew had come from America to Europe, where it had spread over several countries in a short time; and also the not less grave San José Scale had been carried from one State of the American Union to nearly all others, and the authorities in several European countries, too, feared its introduction. In like manner the Gypsy Moth and the Brown-tail Moth were transported from Europe to America; and last, but not least, the Potato "black-scab" was spreading in every country where the diseased tubers were brought by trade and heedlessly planted for seed. Now the question suggested itself: in what way should a country guard against the invasion of injurious animals and plant diseases from abroad?

The answer seemed simple. When some very injurious organism feeds on a certain plant in a certain country, care should be taken not to import from that country specimens of the plant or parts of it.

While not absolutely dissenting from the idea of prohibitive regulations, he drew attention to some difficulties connected with those measures, and showed that in most cases they only represented a sad misuse of both labour and money.

As to the difficulties, he touched on the principal ones. To-day one pest, to-morrow another, menaced our country from abroad. Again and again new prohibitive orders would be necessary in every country. Till the several States would become almost entirely isolated, much to the cost of their trade, their culture; in short, of their whole life.

Often the insistence on prohibitive measures was not free from protectionistic inclinations. Interested persons were anxious to find pests or blight on the stock of competing countries in order to have a pretext for asking the Government for a prohibitive order.

And the results of the importation regulations—were they proportional to the expectations they raised? No, indeed!

In the first place, they were nearly always issued too late. Not until a certain pest seriously damaged our crops, and not until the newspapers interfered with it, as a rule, did the Governments make up their minds to do something. So between the intention and the issue of a Governmental order much time passed, and when busy commercial relations existed between the country where the pest was feared, and the country where it had got a firm footing, no doubt it would steal across the boundaries long before the order had come into force. That the San José Scale had not hitherto gained footing in Europe was not because of the prohibitive measures enacted in several European countries concerning the importation of American stock. The difference in climate, in soil, in cultivation, furnished reasons why it could not thrive in these regions.

He was not an absolute opponent to prohibitive orders as a method of checking pests. All diseased plants when discovered should be burnt. Dealing with the question—could inspection of the port of landing be relied upon, he answered "No!" He set upon it more value when it was combined with disinfection. There should be inspection and certification of health before exportation. In no other way could disease be prevented. But this inspection only gave what reasonably could be required of it—a guarantee for the health of the stock—when a well-equipped phytopathological service existed in the country from which it came. Summing up, he stated that the best guarantee against the importation of plant diseases and injurious animals was given by the combination of two measures: First, certificates of health, delivered by the State phytopathologist of the country of origin, and required for each imported consignment; secondly, inspection and, if need be, disinfection executed before the consignments were accepted by the consignee.

Only in very exceptional cases prohibition of importation was to be adopted as a method of preventing the introduction of pests; but this method was not at all to be relied upon as a never-failing expedient.

Mr. A. G. L. Rogers, Intelligence Division, Board of Agriculture and Fisheries, in his paper, said the real danger to be feared in this country was of a very different order from that which beset more extensive countries, especially those which were still thinly populated, where farms were large and means of communication still imperfect. In an old and densely-populated country there were few localities which were not under cultivation of some kind. The area classed as mountain and heath in England was very small, and though the districts covered by towns were large and numerous, there were gardens attached to the houses among the mountains and in the towns where fruit and vegetables were grown which might harbour diseases and pests and render the task of extermination correspondingly difficult. Even in the districts that could properly be described as agricultural there were no natural boundaries which would check the spread of disease, while the means of communication by human as well as natural agencies were rapid and easy. The fact that pests were regarded as serious in countries with which English nurserymen trade was one which the Board were bound to take into consideration. In recent years British colonies and foreign countries had imposed regulations dealing with the importation of plants which rivalled in number and hardness the rules called the Pie, and it was to be feared that in some cases nurserymen had abandoned their overseas connections on the ground that the trade was not worth the trouble involved. It would probably not be contended by anyone that it was the duty of the Government to push the business of any particular trader, or even the business of any class of traders, except in a general way. Those who made private profits must depend on their own exertions and the reputation which the high quality of the goods they offered brought them. But it might reasonably be urged that it was the duty of every Government to smooth away the difficulties which other Governments laid in the path, and that the Board should help exporters to surmount the barriers imposed on importation when they could properly do so. With this object, the Board had been at some pains to collect and publish as complete a collection as possible of all the regulations in force in other countries dealing with the importation of plants. A study of these regulations showed that they might roughly be divided under three heads, namely, those which required that the actual plants to be imported had been inspected by an officer of the Board and were certified to be healthy; those which required that the plant should come from a nursery which had been inspected by an officer of the Board and declared to be free from disease; and those which required a certificate that no case of certain specified diseases had occurred within a certain distance of the place where the plants were grown. The utmost that the Board could do was to ascertain the nature of the regulations and offer the nurserymen facilities for complying with those that required some inspection or report as regards the freedom from disease of that part of England from which they came. Arrangements had accordingly been made for such inspection and the issue of such certificates, and a memorandum setting out what the Board were prepared to undertake had been circulated to all the principal nurserymen in England. It was in order that the Board's inspectors might be in a position to enter premises where disease might exist and search all places where it might be found that the pests recently referred to had been scheduled, for in some cases at any rate it was necessary to examine not only the premises or the plants in respect of which an application for a certificate had been made, but the adjoining premises as well. There were few, if any, pests that could be introduced from or into countries with a temperate climate that would breed or spread to neighbouring plants so rapidly that they could not be readily stamped out. In the case of the few pests to which that did not apply the introduction of the host plant should be prohibited altogether.

Mr. H. M. Lefroy, M.A., F.E.S., F.Z.S., Imperial Entomologist for India and Lecturer in Economic Entomology at the Imperial College of Science, London, in his paper said the problems of legislation in regard to checking the importation of insect pests to tropical areas had as yet received little detailed attention, and, while this was largely due to the fact that many tropical colonies were only partially developed, it might also be due to the belief that insect pests were little likely to be introduced, and that, if they were, they would not become established or live under tropical conditions. Greater attention was now being given to the development of tropical agriculture and horticulture, and the study of the pests that affected plants in these areas was showing that the problem was an important one, which should not be neglected either in the interests of the growing industries on the spot or of the existing horticulture of Europe and other temperate regions. The dangers were perhaps mainly from scale insects, insects that live in tubers or roots, fruit-flies, such insects as weevils, which could endure long fasts, and aphides, in which reproduction was reduced to so simple a business that one egg sufficed to establish the race.

The lesson of the past was clear. It should be possible to prevent a recurrence of such cases as the Potato Moth, Woolly Blight of the Apple, Boll-weevil, San José Scale, and the like. In his view, they should be awake to the danger and should be taking steps to meet it. It was deplorable to see countries fencing themselves blindly with indiscriminate prohibitions, fumigations, quarantine, inspections, &c. They wanted to move towards a common basis of legislative action, upon which was built the measure adapted to the needs of each area, a necessary preliminary to that being a far wider knowledge of the dangers that existed, so that our legislation might be framed against them. Progress towards reasonable legislation would be made when the pests of all countries were known. What was wanted was a survey of the pests of all areas in which plants were cultivated; to know of new pests, how far they were likely to spread, whether they were likely to be imported and on what. To know this, the pests and their habits must be known, and those of many of our colonies in the tropics were not known at present.

An entomologist, with a list of the pests of any country and their food-plants, should be able, with some knowledge of their habits, to see which of those were likely to become established in his area, how they might be introduced, and how to guard against them; in most cases very few were likely to be carried by commerce at all, and the knowledge we had of the spread of pests showed that there were special cases which could be fairly easily guarded against provided one knew of them.

Mr. H. T. Güssow, Dominion Botanist, Department of Agriculture, Ottawa, Canada, said the only practical means of obtaining results from legislation would be the co-operation of experts, assisted by farmers, gardeners, fruit growers, produce importers, and representatives of all other industries affected by such measures. We were nowadays much concerned about questions of international peace and goodwill, but it appeared that notwithstanding international agreements regulating commercial and trade relations of countries, that one main point was lost sight of—the malpractice of exporting diseased vegetation.

It seemed a surprisingly ludicrous policy, but countries willing to spend millions to control diseases within their own borders distributed the very same disease all over the world without the

slightest hesitation or concern. Not until we were able to devise practical means to prevent the continuance of this extraordinary practice would the problem of fighting diseases be successfully solved. The control of all kinds of diseases within our country should be its most earnest aim, and would result in increasing confidence in the trade and commerce with one's neighbours, preserving peace, and encouraging closer relations among all nations.

In order to effect an efficient protection, it was imperative to concentrate efforts upon the thorough control of diseases within one's own country. Every country would certainly have to work out its own salvation along these lines.

THE DISCUSSION.

Mr. A. W. Sutton said there was no doubt that suitable restrictions were necessary, especially in certain countries, and it seemed strange that while very elaborate precautions were taken by some countries others took no precautions at all. It was, of course, difficult for them to look at the matter from the point of view of other parts of the world, and though it might be necessary to take the opposite view, all would agree that everything should be done to prevent the spread of plant disease. He considered that proper precautions should be taken at the port of export and a certificate issued declaring that the plants were free from disease and that no disease had been discovered within a radius of a given number of miles. Of course, that might hamper trade, and it should not be forgotten that these pests might develop on the voyage. It was a difficult subject, and he did not wish to make any suggestions, but he hoped the discussion would bring out some points which might be of value to exporters and importers.

Sir Frederick Moore, Keeper of the Botanical Gardens, Glasnevin, Dublin, said the papers had given much food for thought, and had suggested many practical things. The Conference might do a great deal by bringing about a system of education in proper inspection. It was impossible to institute a regiment of highly-paid qualified inspectors to go about through the country, but a system of compulsory inspection must be instituted by a minor staff of inspectors. There was some difficulty in finding these minor inspectors, and experiments had been going on in Ireland to get horticultural inspectors to do the work, which he did not think was satisfactory, because it engendered a feeling of animosity among the local inspectors. Conferences had been arranged by Professor Campbell, head of the agricultural and horticultural section, between the trade and the department, when the principal nurserymen were invited to attend on certain occasions and confer. This had been found acceptable to both sides, and excellent results had been achieved. It had brought about harmony where there was discord, and without co-operation among all sections of growers, public and inspectors there could be no efficient work done.

Mr. H. C. Lobjoit, market grower, Keston, said it must not be forgotten in dealing with growers and their apparent aversion to the officials, that there was a great difference between the point of view and the mental equipment of the practical grower and the officials, but that antagonism had broken down. It was no use exercising vigilance and compelling growers who had got the Gooseberry-mildew to act in accordance with regulations if the latter were not carried out in the case of private gardens where, if the Gooseberries had got the mildew, all regulations were nullified.

Dr. Stewart MacDougall, East of Scotland Agricultural College, regarded the papers as excellent, and was gratified to see that there was nothing "panicky" about the suggestions made. All must agree for legislation to be successful there must be co-operation and co-ordination. There was no excuse for delay. Any man who discovered that he had the pests on his crops could write for information and guidance.

Prof. Potter, Armstrong College, Newcastle, said the remarks had been applied chiefly to the parasite, but it was the host they had to take care of. Over manuring was responsible for much mischief.

Mr. Salmon, South-Eastern Agricultural College, Wye, said the State Department which administered an Act must be in a position to give absolute and authoritative advice.

Mr. C. E. Pearson, Sec., Horticultural Trades Association, said the question had been debated by his association, but no definite conclusions had been reached; they, however, felt there was much danger. Of course, there was a feeling of antagonism between practice and science, but it was not so strong in the nursery business as in others. At the same time it was known what went on. Goods were kept in Customs Houses for days and weeks after arrival. They were sometimes unpacked in frosty weather and so ran very serious risks; and once a parcel packed by an expert had been undone, the contents could not be replaced any more than they could put back a chick in the eggshell an hour after it had emerged. There was great danger of legislation hampering trade. The Phylloxera regulations were absurd. He did not believe Phylloxera now existed in the United Kingdom, and he had been growing vines in pots for 30 years.

Prof. Keeble, University of Reading, said that all must realise that the Board of Agriculture had been most extraordinarily sympathetic towards the Scientific Committee in offering the assistance of the State in their work. He proposed that the conference resolve to request the Science and Education Committee to remain in being, and to confer with the Board of Agriculture with a view to summoning an official conference to consider the means of co-ordinating legislative enactments bearing on plant diseases.

Sir Daniel Morris seconded, and the motion was adopted with acclamation.

FIG. 195.—DEUTZIA LONGIFOLIA: FLOWERS LIGHT-ROSE COLOUR.
(Received R.H.S. Award of Merit on April 30.)

DEUTZIA LONGIFOLIA, FRANCHET.

OF recent introductions from Central and Western China a notable group is formed by the Deutzias, including D. longiflora (see fig. 195), closely allied to D. discolor. They are undoubtedly amongst the handsomest garden plants of the genus. D. longifolia was originally collected in Moupin by one of the French missionaries, and was first described and named by Franchet in 1885. Mr. Wilson introduced the plant to cultivation about 1908, and sent further specimens during his last journey. It is a deciduous shrub, probably 4 to 6 feet high, the young shoots covered with a pale scurf. The leaves are oblong or narrowly oval, the larger ones 5 inches long and 1½ inch wide, the smaller ones about one-third those dimensions. At first they are furnished with small stellate hairs above, the lower surface being whitish, conspicuously veined and clothed with a close felt of stellate hairs. The flowers are from ¾ to 1 inch across and of a light, rosy hue; they are borne in rounded cymose clusters 2 to 3 inches across. The corolla-lobes are ovate; the calyx bell-shaped, scaly, with five short triangular lobes. In common with all the Deutzias, the plant is increased easily by cuttings of half-ripened wood rooted in gentle heat; they grow best in a moist, loamy soil of good depth and quality. Seen at their best, plants of this group are amongst the most beautiful of May and June-flowering shrubs; their only defect is that they are (in low-lying situations especially) liable to injury by late spring frosts. The plant illustrated in fig. 195 was exhibited by Miss E. Willmott at the R.H.S. meeting on April 30, and received an Award of Merit. A specimen was also shown by the Hon. V. Gibbs at the International Exhibition, whilst its near and equally beautiful ally, D. Veitchii, was exhibited from the Coombe Wood Nursery of Messrs. James Veitch & Sons.

The Week's Work.

THE KITCHEN GARDEN.

By EDWIN BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

BROAD BEANS.—Where this vegetable is in request over a prolonged season successional sowings may still be made, selecting varieties of the Broad Windsor type It is essential, when sowing at this season, to have the ground thoroughly prepared. The best plan is to form trenches at a depth of about 18 inches, placing in the bottom at least 1 foot of good, half-decayed farmyard manure. The crop should never be allowed to suffer for want of water, and immediately the young growths appear above the ground a good mulching should be applied. Plants of earlier sowings should have the point of the main shoots nipped out immediately a fair number of blooms have formed. Guard carefully against the presence of black aphis, which is always troublesome to Beans at this season of the year. A thorough syringing with a strong solution of soft soap and water will destroy the aphides and do no harm to the plants. Some kind of support should be afforded the plants; it is a capital plan to place stout stakes at intervals on either side of the row and to stretch stout, soft cord on them.

CELERY.—The earliest plants of Ce'e-y are sufficiently advanced for blanching. The simplest and most efficient method of doing this is to use brown paper, a band of which should be placed not higher than the youngest visible leaves. The paper should be tied in position by means of stout pieces of raffia. Three tiers of paper, applied at intervals of about 10 days, should suffice. The crop should be kept well supplied with water, both overhead and at the roots. The plants should receive frequent applications of liquid manure and soot. Continue to make further plantings for winter and spring supplies as land becomes available; though it is convenient to plant in single rows, it is often necessary to economise space by planting two or three lines in a single trench.

SEAKALE BEET.—This is a most useful vegetable during the summer and autumn. To ensure a constant supply, several small sowings should be made at intervals. Afford the plants every encouragement, that they may make a rapid and good growth. The ground should be enriched with manure and the plants given copious supplies of water, both at the roots and overhead. The leaves should be drawn together carefully by three stout sticks placed around the plants and bound with strong bands of raffia to prevent the wind damaging the growths. The plants will be much benefited if a good surface dressing of spent manure from a hot-bed or old Mushroom bed is applied.

PEAS.—Continue to make successional sowings of Peas in well-prepared trenches. The seed sown should be double the number of plants required, and the seedlings should be thinned later. Autocrat and Masterpiece are both excellent varieties for late cropping, and seldom fail to give good results in any locality. Attend to the staking and mulching of plants of earlier sowings, and see that they do not suffer for the want of moisture at the roots, or, in all probability, mildew will develop and do a great amount of harm to the crop.

RADISHES.—Small sowings of the best varieties should be made every 10 days in a fairly-sheltered position; protect the seeds from birds, and water them frequently in dry weather. One of the best all-round varieties for summer and autumn use is a selection of French Breakfast. It is of first-rate quality and always pleasing in appearance.

SEAKALE.—Owing to the dry spring, newly-made plantations of this vegetable have made but little growth. Every encouragement should, therefore, be given to induce the plants to develop good crowns by the autumn. All except the strongest growths should be removed, fertilisers applied, especially during showery weather, and the surface soil kept constantly stirred with the Dutch hoe. In dry weather drenchings of liquid manure from the farmyard will be of much value.

THE HARDY FRUIT GARDEN.

By F. JORDAN, Gardener to Lady NUNBURNHOLME, Warter Priory, Yorkshire.

INSECT PESTS.—Aphides, caterpillars, and other insects that attack fruit-trees have become very numerous, making their eradication a matter of difficulty. The recent storms have done much good in cleansing the shoots and foliage of some of these pests, and this cleansing, in conjunction with the soaking of the ground, will prove beneficial at once, helping materially in the swelling of the fruits, and enabling the trees to make fresh growths and develop fruit-buds for next year's crop. Do not neglect to apply summer washes to keep insects in check, as, by timely attention, the latter may be easily exterminated. Autumn and winter are the best seasons to combat insect pests, as the eggs and chrysalids are then destroyed. Notes should be taken now of trees badly infested, so that they may receive special attention later. American blight (woolly aphis) is a common pest of Apples at this season. The creature increases rapidly, especially when established on old trees. Syringe the trees with one of the summer washes as soon as the blight is detected, as, later in the season, many of these aphides develop wings and take up their abode in new quarters. Wasps, woodlice and ants all cause a great deal of injury to ripening fruits, and every effort should be made to destroy them. They may be killed by cyanide of potassium dissolved in water: the liquid should be kept in a bottle tightly corked. Soak a little wool with the poison and push it into the mouth of the hole which the insects haunt. Paris green or other dry poison mixed with meal may be used to destroy woodlice; this should be placed in drain-pipes or similar receptacles, and always used before the fruits are ripe. Ballikinrain Ant Destroyer is effective with ants. Vaporite may be used to destroy or dislodge them from the roots of trees and the foundations of walls.

GENERAL REMARKS.—Use the hoe diligently in all fruit quarters, as the surface of the ground will have become quite hard in many gardens after the recent rains. As opportunity affords, continue to tie the shoots of Peaches and Nectarines, pinching the lateral growths as the work proceeds. Morello Cherries will require attention, guarding especially against black aphis. Advantage should be taken of fine mornings and evenings to use the garden engine on all wall trees to thoroughly cleanse them from filth and insects. Barren trees should be syringed occasionally with an insecticide; it may appear a waste of time to give attention to fruitless trees, but next season's crop will largely depend on proper attention being given to this and other small details during the summer months.

FRUITS UNDER GLASS.

By E. HARRISS, Fruit Foreman, The Royal Gardens, Windsor.

PINEAPPLES.—The more forward fruits of the Queen variety are ripening, and the cultivator should endeavour to extend the fruiting season over as long a period as possible. Those plants on which the fruits are colouring may be removed to a house where the atmosphere should be kept cool and dry; if another house is not available, they should be placed all together at the coolest end of the house in which they are growing. Shade them during the hottest part of the day with tiffany. Manures must be withheld from plants which are ripening their fruits, but the roots must not be allowed to suffer from want of water. Later plants which are developing their fruits should be fed liberally with manures. The atmosphere should be kept moist and the plants lightly sprayed with tepid rainwater twice daily. Suckers which are not required for increasing the stock may be removed. In order to have a good batch of suckers ready for propagating next month, the old stools should be placed in a position near to the roof-glass, and be kept well supplied with moisture.

PINES PLANTED OUT.—Pineapples planted out must be carefully watered and syringed. As a rule, the plants mature their fruits very irregularly, for whereas one fruit may be ripening, that of a neighbouring specimen may be only half developed. Plants with fruits ripening will require little moisture at the roots till the fruits are cut, and the latter must be kept dry, or they will split. Should the crowns on the later fruits show a tendency to grow too freely, they should be stopped carefully. The plants which were put out in the spring will now be thoroughly established in the soil. They should be examined at least once a week to ascertain if water is required, but stimulants will not be necessary for some time to come. The plants should be encouraged to grow freely. During very hot weather, fresh air should be admitted to the house early in the morning, opening the top ventilators only, closing the pit again early enough in the afternoon for the sun's warmth to raise the temperature to 95° or 100°, after spraying the plants and charging the house with moisture.

SUCCESSIONAL PLANTS OF PINES.—Young plants of the Queen variety which were potted early in the year are fairly well rooted. The majority of these plants, if well grown, may be expected to fruit next year, but every encouragement must be given them to develop strong and healthy growth. They should be examined frequently to see if the roots require water: when moisture is needed, soak the soil thoroughly. As the roots become more plentiful and growth advances, stimulants may be afforded at an increased strength. Weak soot-water applied occasionally will cause the plants to have a healthy appearance; a little soot may also be mixed with the water when syringing in the afternoons. At this time of year fire-heat must not be used to excess, and, during warm, genial weather, may be dispensed with altogether. The excessive use of artificial heat is injurious to the plants, and is often the cause of premature fruiting. Admit plenty of air early in the morning, when the weather is favourable, but take full advantage of the sun's rays by closing the pit early in the afternoon after syringing the plants. Attend to the potting of young plants before they become pot-bound, and plunge them in a fairly warm hot-bed near to the roof-glass. Water the plants carefully till the roots are active, and encourage them to grow freely during the summer.

PLANTS UNDER GLASS.

By THOMAS STEVENSON, Gardener to E. MOCATTA, Esq., Woburn Place, Addlestone, Surrey.

RICHARDIA ELLIOTIANA AND R. PENTLANDII.—These Aroids are very showy subjects and suitable for the warm greenhouse. Unfortunately, the plants are somewhat shy in blooming; they need considerable attention after the flowering is over, requiring to be kept in a moderately warm house for a time after this stage, and fed with fairly strong liquid manure until such time as the foliage shows signs of maturity. When the leaves commence to wither, the plants should be placed on a shelf in full sunlight and dried off very gradually. By this treatment a greater percentage of bloom is obtained than is usually the case. Unlike the common Arum Lily (Richardia africana), these plants do not develop offsets freely, therefore propagation in this way is a very slow process. But a stock may be raised easily from seeds, which may be saved from one or two inflorescences and sown as soon as they are ripe. The seeds will soon germinate: the seedlings should be kept growing in a warm house and treated much in the same manner as are seedlings of Amaryllis. The variety Mrs. Roosevelt, though not so rich in colour as these species (being cream or primrose-yellow), is a very desirable plant, being much hardier and very much more floriferous; the plant will do quite well in a cool-house, and, when liberally treated, it makes a very fine subject for the conservatory during the summer months.

FUCHSIAS.—Where there is plenty of head-room available in the greenhouse nothing is prettier, when trained up the rafters or pillars, than a well-grown plant of Fuchsia. If it is desired to have plants for this purpose next season, a number of the young free-growing Fuchsias should be grown on in pots, training the shoots to wires underneath the rafters. All the blooms should be removed as they appear and the side-growths stopped close. It is astonishing how much space the plants will cover in a single season, and, if the house in which they are growing is not too cool during the winter, they may be kept growing actively all through

the year. By re-potting them early next season the plants will flower soon and continue to present a display throughout the summer, provided that stimulants are afforded. Plants of the ordinary batch of Fuchsias should be commencing to flower freely, and to have them in bloom for a long time, considerable pains must be taken with their feeding. Cow and sheep manure, with a little Clay's fertiliser now and again, are suitable stimulants. A dry atmosphere is a disadvantage, therefore as soon as syringing overhead has to be discontinued the stages and floors of the house should be kept damped on all bright days.

MIGNONETTE.—To maintain a supply of Mignonette throughout the year frequent sowings must be made. For autumn blooming (after the outside supply is over) a sowing should be made at once in medium 60-sized pots. Fairly rich loam mixed with old mortar is a suitable rooting medium, and the soil should be made very firm in the pots, as this is one of the secrets of successful cultivation of Mignonette, both in the seedling and later stages. After the seeds are sown the pots should be placed in a cool position, where they may be protected from heavy rains. The plants should be repotted as they require increased root-room, and, if not overwatered, they should grow stocky. It is not to be expected that the plants will develop such strong spikes during the autumn as in the spring. For a further succession make a sowing about the middle of July.

THE ORCHID HOUSES.

By J. COLLIER, Gardener to Sir JEREMIAH COLMAN, Bart., Gatton Park, Surrey.

CYPRIPEDIUM.—Plants of the dwarf-growing Cypripediums, such as C. bellatulum and its variety C. b. aubum; also C. niveum, C. concolor, and their hybrids, such as C. Helen II, C. Laurebel, C. Chapmanii, C. Venus, C. Vipani, and C. Mrs. E. V. Low, that have recently flowered should be attended to at the roots, repotting or resurfacing them as is found to be necessary. Well-rooted specimens growing in material that is still in a good condition should not be disturbed. These plants are best grown in pots or fairly deep pans, provided with ample materials for drainage purposes. A suitable compost to grow them in consists of two parts good fibrous loam, broken up in lumps about the size of Walnuts, and one part peat, mixed freely with small pieces of mortar rubble. The potting should be done rather firmly. After the repotting is finished, water should be applied carefully until the roots have grown freely in the new compost, when they should be afforded moisture in sufficient quantities to moisten the soil throughout. They grow well in a position near the roof-glass of the Cattleya or intermediate house. Precautions must be taken against water dripping on the plants, as this might cause the young growths or leaves to rot. The small, yellow thrip is very fond of the young foliage, and should be destroyed by frequent fumigations. Many species and hybrids of the stronger, warmth-loving Cypripediums, such as C. grande, C. Rothschildianum, C. Stonei, C. Lawrenceanum, and its variety C. L. Hyeanum, and C. Maudiæ, should be subjected to a rest for a short period after passing out of bloom that they may recover from the effects of flowering. After resting, the plants should receive attention at the roots; any that are in a root-bound condition should be shifted into larger pots. In potting, remove with a pointed stick as much of the old compost as is possible, without damaging the roots, and fill the pot to half its depth with clean crocks for drainage. Pot firmly, keeping the base of the plant just below the rim of the receptacle. A suitable medium in which to grow them consists of three parts good fibrous loam, and one part A1 fibre or Osmunda fibre cut up rather short, adding Sphagnum-moss, crushed crocks and coarse silver sand. The materials should be well mixed together. After potting them, place the plants in a shady part of the house, and keep the compost just moist until the new roots have grown well into the soil, when water should be applied liberally. During bright weather, the plants will be benefited by a fine spray overhead on mornings and afternoons, and the surroundings should be kept moist.

THUNIA. — Although the flowers of Thunias do not last for a long time after they are fully expanded, the plants are, nevertheless, very attractive. T. Bensonæ, T. candidissima, T. Marshalliæ, T. Winniana, T. pulchra, and the hybrids Veitchiana and T. brymeriana, should, as they pass out of flower, be removed to a cool, well-ventilated greenhouse, where the temperature does not fall below 55°. The stems and leaves should be exposed gradually to the full sunlight, so as to thoroughly mature them. The plants will need to be watered at the roots occasionally for so long as the leaves remain green; when the foliage commences to change to a yellow colour, moisture should be gradually withheld. When exposed to the sunshine and in a dry atmosphere, the plants are apt to become infested with red spider. To prevent this, they should be placed on their sides and syringed with an insecticide, or soft soap in warm rainwater, allowing sufficient time for the leaves to dry before syringing the plants again with clear water. Thunias are easily propagated from the back pseudo-bulbs, which should be cut through joints into lengths of about 4 inches, and inserted in pots in a mixture of chopped Sphagnum-moss and silver sand. If the cuttings are placed in a frame in the warmest house, they will soon develop roots and top growth, when they may be potted singly in a rich compost. They will grow well in the same house, and will soon make good stems. When growth is completed, the plants should be rested in a manner similar to that adopted for the older plants.

THE FLOWER GARDEN.

By J. G. WESTON, Gardener to Lady NORTHCOTE, Eastwell Park, Kent.

SUB-TROPICAL BEDS. — As the majority of plants used for sub-tropical bedding possess very tender foliage, it is a good plan to defer planting them till all the other bedding is finished. There should be no delay in getting all the subjects required for summer effects into their permanent quarters. Sub-tropical plants require a fairly rich soil, in order to develop the beautiful foliage, which is their greatest charm. If, for any reason, no animal manure has been dug into the beds recently, a dressing of artificial manure should be applied before planting. During dry weather an occasional watering must be afforded. In many gardens there are corners which may be made attractive by large Palms and similar plants plunged in the ground, especially where turf exists, as this may be relaid over the receptacles. Large plants of Chamærops Fortunei, C. humilis, Phœnix, Agave, Musa, Cordyline, Phormium tenax (New Zealand Flax), and the hardier Tree Ferns, such as Dicksonia antarctica, are often grown in large pots or tubs for decorative purposes. It will materially assist to keep these plants in good health if they are given out-door treatment for three or four months. They should not be brought out of warm houses and put directly in their positions, but prepared by standing them in a warm, sheltered corner for some days, till they are inured to the out-door conditions. The shady positions should be reserved for the Palms and Ferns. A shady dell may be made charming by a skilful grouping of Tree Ferns, Palms, and Musas. Close attention should be paid to watering, and small applications of manure should be afforded the plants fortnightly, especially in the case of specimens that have been occupying the same tub for several years. During hot weather, the Tree Ferns should be syringed each afternoon, care being taken to saturate the stems.

RHODODENDRONS AND AZALEAS. — These shrubs have flowered remarkably well this season, but they are now practically over. Wherever practicable, and particularly in the case of young plants, the seed vessels should be taken off, thus allowing all the energies of the plant to be devoted to making new growth. A little judicious pruning may be necessary, and should consist in shortening any shoots that are growing too rampantly, and causing the plants to become unshapely. Take off all growths from the base of specimen standards, or they will spoil the shape of the plants. This also applies to shoots forming below the place at which the graft was inserted. The dry spring has been very unfavourable to newly-planted Rhododendrons and Azaleas, but the plants that were watered and mulched are making good growth. The mulch should be replenished if dry weather is again experienced. This will save labour in watering, and is of great help to the plants.

LILIES. — These bulbous plants are often grown with Azaleas and Rhododendrons; which association produces pleasing effects. Liliums, as a rule, thrive well in Azalea beds, and the shade of the shrubs over the roots and stems of the Lilies is of great benefit to the latter plants. There is a charming variety of Lilies to select from, and the various kinds will flower at intervals throughout the season till late in the autumn. L. auratum is probably the most popular species for the purpose, the variety platyphyllum being especially good. L. longiflorum is much liked for the pure whiteness of its blooms, whilst those of the speciosum group are easily cultivated, thriving almost anywhere. L. Henryi is like a yellow speciosum, and should be planted in quantity. L. tigrinum Fortunei is extremely effective in late autumn; L. giganteum is quite distinct from the majority of Liliums, being a noble plant in growth, developing its flower-spikes to a height of 10 or 12 feet. This species should be planted by woodland paths, and not crowded with other plants. Where Liliums have not been planted early, they may be transferred from pots at almost any time, if care is taken in their removal. In planting Liliums, select a position sheltered from wind, and pay timely attention to the matter of staking.

THE APIARY.

By CHLORIS.

THE QUEEN FOR THE HEATHER STOCK.—In some parts of the country beekeepers are fortunate in having early honey from fruit blossom and Clover and a late supply from Heather. When the latter is being harvested the queen is apt to prove disappointing, because she is exhausted from her efforts during the earlier part of the season. This matter is little understood by beemen, but it is well worthy of consideration.

THE QUEEN AND HER FOOD.—The queen, during the egg-laying period, is fed by her attendants on stimulating, predigested food, which is of a creamy nature, but, as the honey flow decreases, less and less is given, so that gradually the queen produces fewer and fewer eggs, and she is compelled to seek her own food in the cells like the rest of the occupants of the hive; conversely, during the beginning of the season, less and less raw honey is consumed, and gradually the amount of bee milk is increased, and apparently the bees in attendance urge her to take it freely, so that her laying powers may be increased to the utmost. So it comes about that, at the end of the first part of the season, she is exhausted and needs a rest.

SUPERSEDING THE OLD QUEEN.—If the Heather harvest is to prove as bountiful as the profusion of bloom would indicate, it is necessary to take away the old queen and allow another queen to take her place. For this purpose one that was raised earlier in the season could be utilised, of course using one of proved fecundity.

INTRODUCING THE NEW QUEEN.—Remove the queen and examine the comb to make sure there are no queen cells in any stage of construction, and adopt one of the following methods, either of which may be used with almost certain success: (1) During the evening smoke the stock to make the bees gorge themselves with honey, move the hive to a quiet corner of the garden, take out the frames one by one, shaking off the bees on a sheet on which a skep is resting on a stone to provide a good entrance. Should the bees fail to be dislodged with the sharp shake, they must be brushed off with a stout quill. When all the bees have been hived in the empty skep, take the hive back to its original stand, place a board in front covered with a sheet, shake out the bees in front as is done in hiving a swarm, putting the new queen among them, when it is very rarely they reject her. (2) Remove the queen as before and examine the hive for queen cells. In the evening, just before dusk, liberate the new queen in front of the entrance, making as little disturbance as possible, and she will run in unnoticed, in all likelihood, and be accepted. When taking bees to the Heather, it is often wise to add some driven bees to each stock to make the colonies very strong.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, *as well as specimens of plants for naming, should be addressed to the* **EDITORS, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Special Notice to Correspondents.—*The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.*

Local News.—*Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, JUNE 24—Midsummer Day.

TUESDAY, JUNE 25 -
Royal Scottish Arboricultural Soc. Excursion to Deeside (5 days).

WEDNESDAY, JUNE 26—
Nat. Rose Soc. Sh. at Southampton. Colchester Rose and Hort. Soc. Summer Sh. Richmond Fl. Show. Royal Botanic Soc. meet.

THURSDAY, JUNE 27—Isle of Wight Rose Exh. at Ryde.

FRIDAY, JUNE 28—Canterbury and Kent Rose Soc. Sh.

SATURDAY, JUNE 29—
Windsor, Eton and Dist. Rose Sh. at Windsor. Sutton Rose Soc. Sh.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—62·2°.

ACTUAL TEMPERATURES:—

LONDON.—*Wednesday, June 19* (6 P.M.): Max. 80°; Min. 54°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—*Thursday, June 20* (10 A.M.): Bar. 29·7°; Temp. 65°; *Weather*—Overcast.

PROVINCES.—*Wednesday, June 19:* Max. 71° Spalding; Min. 56° Liverpool.

SALES FOR THE ENSUING WEEK.

FRIDAY—
Imported Orchids from various localities; also choice Established Orchids and Tree Fern Stems, at 67 & 68, Cheapside, by Protheroe & Morris, at 12.45.

Disease Resistance.

Some years ago widespread interest was aroused by Professor Biffen's discovery that the susceptibility of Wheat to attack by the yellow rust (Puccinia glumarum) is inherited in a regular and simple manner; and that it is, therefore, possible, given the existence of an immune (disease-resistant) variety, to create a race of Wheat which shall combine resistance to this disease with the characters possessed by the susceptible parent.

Experiments carried out by Professor Biffen on these lines led him to claim that this very desirable object had been achieved. For example, crosses between a susceptible variety and "American Club," a Wheat very resistant to yellow rust, gave rise to a Wheat as susceptible as the parent; when, however, the first generation was self-fertilised it yielded plants some of which were susceptible and some of which were immune. The ratio of rust susceptible to rust-proof plants was as 3 : 1. Whence it was concluded that susceptibility to this disease depends on the presence of a factor in the germ plasm, and that immunity depends upon the absence of this factor.

It is only natural that a discovery of such importance should give rise to a considerable amount of discussion and criticism, and although, so far as we know, no destructive evidence of anything like the convincingness of Biffen's original evidence has been produced, it cannot be denied that Biffen's conclusions have been regarded with suspicion in many quarters.

This suspicion would appear to be based on a confusion of thought, which goes not infrequently with a suspicious turn of mind. It was not claimed by Biffen that he could produce infallibly in two generations a Wheat which should have all the virtues of the one parent and only lack its defect, that of susceptibility to yellow rust. For it is sheer common sense that if the characters' susceptibility and immunity separate from one another in the second generation of the cross in such a way that three-quarters of that generation are susceptible and one quarter is immune, *so also may other characters.* Whence it follows that it will be a matter of time and trouble before a descendant of the original cross is obtained which has a large proportion of the characters of the one parent and only the one desirable character (that of immunity) of the other.

To expect any other course of events is to be ignorant both of Mendelian science and the law of averages.

What, of course, is of first importance is to ascertain whether the immunity obtained in a proportion of the plants of the second generation is, or is not, a fixed character; that is, one which is handed down intact from one self-fertilised generation to the next. If that prove to be the case, then the hope of establishing disease-resistance strains is a high one; if it prove impossible, then that hope appears vain.

This inquiry has now been made ("Studies in the Inheritance of Disease Resistance, II.," *Journ. of Agric. Science*, June, 1912), and as a result of it Professor Biffen claims that the immunity from yellow rust of the individuals of the second generation of a cross between susceptible and immune varieties has been maintained for no fewer than eight generations.

The fact thus demonstrated, that immunity, once it is conferred on a variety, is not a fluctuating character, but one which manifests itself in, at all events, many generations of pure-bred descendants, is, of course, of the highest horticultural importance. For if, after all the labour entailed in the discovery of an immune variety, in crossing it with an otherwise desirable but susceptible variety, and in isolating the immune individuals of the second generation, it were found that the hardly-won immunity was as unstable as a house of cards, the encouragement to pursue this line of research would be slender indeed.

If, on the other hand, the immunity remains a permanent character of the cross-bred race, then no pains and no labour in the breeding of such a race are to be counted as excessive. We are confident, therefore, that Professor Biffen's brilliant and successful investigations of disease-resistance in Wheat will encourage other workers to pursue similar lines of research with respect to other plants and their resistance to the several diseases which affect them.

OUR SUPPLEMENTARY ILLUSTRATION.—Amongst greenhouse plants which have deservedly become great favourites during recent years is Coleus thyrsoideus, the subject of our Supplementary Illustration. This species is a native of British Central Africa, where it grows on the hillsides at an altitude of 6,000 to 7,000 feet. Its first appearance at the exhibitions was during the winter of 1900-01, when Messrs. JAMES VEITCH & SONS and Messrs. SANDER & SON exhibited plants at the Royal Horticultural Society's fortnightly meetings. It first flowered at Kew in 1898, and for many seasons good groups have been conspicuous objects in the No. 4 house at the Royal Botanic Gardens. During the past winter and early spring, the Kew plants were exceptionally ornamental, and compelled the admiration of visitors. C. thyrsoideus was illustrated in these columns January 1, 1901, and was described by Mr. BAKER in the *Botanical Magazine*, tab. 7672. The plant has a long flowering period, for as fast as the spent flowers drop they are succeeded by others.

BIRTHDAY HONOURS.—SIR DAVID PRAIN. The news that a knighthood has been conferred or Lieutenant-Colonel PRAIN will be received with the greatest pleasure by horticulturists and botanists. Sir DAVID PRAIN had already rendered distinguished services to science when he was appointed, in December of 1905, to succeed Sir WILLIAM THISELTON-DYER as Director of Kew. The early years of Sir DAVID's professional life were passed in India, where he occupied successively the posts of Curator of the Calcutta Herbarium (1887-1895), Professor of Botany at the Medical College, and Superintendent of the Royal Botanic Gardens, Calcutta (1895-1898), and Director of the Botanical Survey of India. Sir DAVID PRAIN has held the office of Director of Kew for seven years, and he has shown himself an admirable administrator, cautious, yet progressive, and, needless to say, he is devoted to his work and to the science which he adorns.

——**SIR GEORGE PRAGNELL,** also a new Knight, is the head of the firm of Messrs. COOK, SON & Co., St. Paul's Churchyard, and is the eldest of three sons of the late GEORGE PRAGNELL, who was for many years gardener at Sherborne Castle, Dorsetshire, a regular contributor to the *Gardeners' Chronicle*, and the raiser of PRAGNELL'S Crimson Beet. Forty years ago Sir GEORGE PRAGNELL'S father was one of the most prominent exhibitors of vegetables and hardy fruit, and a most highly-respected man.

——**SIR ALEXANDER CROSS,** one of the new Baronets, is the senior partner in the firm of Messrs. A. CROSS & SONS, manure merchants and sundriesmen, of Glasgow.

THE HORTICULTURAL BRANCH OF THE BOARD OF AGRICULTURE.—In the House of Commons on Tuesday last, Mr. RUNCIMAN, replying to questions asked by Mr. BATHURST, stated, according to the *Times*, that the duties of the new horticultural branch will embrace all sections of the horticultural industry. The head of the branch will be Mr. A. G. L. ROGERS. Mr. ROGERS will have the assistance of an entomological expert, eight other expert outdoor officers with various technical qualifications, and an adequate clerical staff. As agriculture and horticulture have many interests in common, it is not possible to state what proportion of the revenue of the Board will be allocated exclusively to horticulture. Whether small holdings would come under the new department of horticulture would depend on the size of the small holding, and upon the nature of the cultivation that is conducted on the holding. Lord C. HAMILTON asked whether the right hon. gentleman would say who Mr. ROGERS was and what were his qualifications for the post he was to occupy? Mr. RUNCIMAN replied that if the noble lord would put down a question he would be glad to give him the information.

COLEUS THYRSOIDEUS

R.H.S. SUMMER SHOW.—The Royal Horticultural Society is to be congratulated on having again obtained permission from MARY Countess of ILCHESTER to hold its summer exhibition in Holland Park, Kensington. The dates are fixed for Tuesday, Wednesday and Thursday, July 2, 3 and 4. Holland House lies due west of Hyde Park and Kensington Gardens, and is within five minutes walk of four railway stations. Visitors from the City and West End will find the Holland Park (Tube) Station, on the Central London Railway, very convenient. Those travelling from Kew, Ealing and the western suburbs will find the electrified District Railway a good route, or they may travel by tram to Hammersmith Broadway, and thence by omnibus to the entrance gates. Kensington High Street is the nearest station on the Metropolitan and District Railways and Addison Road is the nearest railway station from Waterloo, Clapham Junction, Willesden and Richmond.

A NEW HORTICULTURAL SOCIETY.—The first exhibition of the newly-formed West Surrey Horticultural Society will be held on July 10 next, at the Camberley Recreation Ground. The President offers an all-comers' cup for the best group of plants and flowers.

SALTAIRE AND DISTRICT ROSE SOCIETY.—Owing to the National Rose and the National Sweet Pea Societies having fixed their respective shows for July 9, which was the date originally decided upon for the exhibition of the Saltaire and District Rose Society, the Saltaire show has been postponed until Wednesday, July 17.

HORTICULTURE AT THE ESSEX AGRICULTURAL SHOW.—At the Essex Agricultural Show, held recently at Chelmsford, there was a tent for horticultural exhibits, and good displays were made by Messrs. WALLACE & Co., B. R. CANT & SONS, FRANK CANT & Co., W. CUTBUSH & SONS, SEAGRAVE & Co., and DOBBIE & Co. In the special tent of the Essex Education Committee, a most interesting series of specimens was shown illustrating diseases in Wheats, Potatos, &c., and Mr. WAKELY, the county instructor in horticulture, was responsible for a series of excellent examples illustrating the effect of cross-pollination in fruit trees. A table of varieties was given for the guidance of planters.

NEILL MEMORIAL PRIZE.—We announced in our last issue the awarding of the NEILL Memorial Prize to Mr. J. W. M'HATTIE. The prize was presented to Mr. M'HATTIE on the 13th inst. in the Royal British Hotel, Edinburgh. There was a large attendance, consisting mainly of members of the executives of the Royal Caledonian Horticultural Society and the Scottish Horticultural Association. Mr. DAVID W. THOMSON, vice-president of the Royal Caledonian Horticultural Society, presided. The presentation consisted of a silver coffee pot and salver and a cheque, and was handed over by the chairman, who recapitulated the circumstances which led to the foundation of the NEILL Prize. The first award was made in 1864 to the late Professor BALFOUR, and, in all, up to the present occasion, the prize had been awarded to seven botanists, one amateur, 15 gardeners, and one superintendent of parks, the latter being the late Mr. M'LEOD, Mr. M'HATTIE's predecessor.

ARNOLD ARBORETUM.—An illustrated guide to the Arnold Arboreteum, Jamaica Plain, Massachusetts, U.S.A., containing a map showing the position of the different groups of plants, has recently been published. Copies may be obtained at the Administration Building in the Arboretum, and from the secretary of the Massachusetts Horticultural Society, Boston. Price, 30 cents.

A DUTCH VIEW OF THE "INTERNATIONAL."—We have received a letter from one of the Dutch visitors to the Royal International Show, setting forth the general views entertained in respect to the display by the numerous visitors from Holland. He states that they considered the Show very magnificent; that they had never seen anything like it before, nor expected to again. The stove plants, the flowering plants, the Ferns and Orchids were much admired. The Roses caused considerable surprise, especially the ramblers. The Carnations, the Sweet Peas, the displays of Schizanthus, Calceolarias, Cinerarias, and other flowering plants were all of very high quality. The visitors were likewise impressed by the excellence of the fruit and vegetables, including the fruit trees in pots. Our correspondent says it is not possible to enumerate all the expressions of delight that he heard, but it ought to be stated that the rockeries came in for much admiration. The sun itself, however, is not without specks, and some of the visitors from Holland mingled a little criticism with their large meed of praise. It must be borne in mind that in Holland visitors are never permitted to walk on the grass, and the way the exhibits at Chelsea were put on the grass seemed incomprehensible to them. They thought the effect would have been better if nicely-kept paths had been provided. At the same time they admitted that visitors could inspect the groups from every side, and this is a privilege not always to be obtained at large exhibitions. Others thought it a pity that efforts had not been made to distribute the exhibits in such a manner as to provide pieces of well-characterised scenery and suitable backgrounds to the groups. In short, some contended that the decorative side of the show had been somewhat neglected.

AWARDS AT THE INTERNATIONAL EXHIBITION. Messrs. J. KELWAY & SON, Langport, Somersetshire, inform us that they were awarded a Silver-gilt Medal at the Royal International Show. This was not included in the official list printed in these columns.

HOLYROOD PALACE GARDENS.—The KING has commanded that the gardens of Holyrood Palace, Edinburgh, should again be open to the public from Monday last, the 17th inst., to the end of September. They will be open every Monday from 2 till 5 o'clock.

L.C.C. GARDENERS.—For some time past the Parks Committee of the London County Council has had under consideration the conditions of service of the out-door staff of the Parks Department, and they have now prepared a comprehensive scheme of reorganisation, designed to secure one day's rest in seven, reduction of overtime and of work on Sundays and other leave-days, more equal distribution of necessary overtime, relief of certain officers in charge of single-man places from excessively long hours of duty, improved basis of classification of places and staff, improved scales of pay, especially for the lower ranks, and recognition of long service, good conduct and maintenance of discipline. As regards the gardening ranks, the present rate of pay of under-gardeners is 27s. a week, but those who have passed the examination held by the Royal Horticultural Society are paid 28s. a week, with the prospect of promotion to the rank of gardener when vacancies arise. The rate of pay of under-gardeners when entering the service is to remain at 27s. a week, but after five years they will receive a special service allowance of 1s. a week, with another 1s. after 10 years. Gardeners now receive 28s. a week, but the wages of those who possess first or second-class certificates rise automatically to 30s. a week. It appears, however, that a large number (90) of men who are now classed as gardeners have not passed the examination of the Royal Horticultural Society, as they entered the service and were placed in that rank before the examination was instituted. Under present regulations, their wages would remain stationary. After considering the relative position of these men in the light of the present proposals, which provide for the limitation of the number of gardeners to 150, the Committee think that, instead of designating them as under-gardeners, as their wages will practically correspond with those paid to men of that rank, the uncertificated gardeners and gardeners with a third-class certificate should be constituted a class of gardeners by themselves, provided that no vacancies therein be filled, and that the class be permitted to disappear by lapse of time. It is proposed that these men should receive the special allowance of 1s. a week after 10 years. Gardeners who now receive 30s. a week will also be granted the special allowance after 10 years' service. In all cases in which a special service allowance is granted, the period of service up to date will be taken into account. The scale of salaries of superintendents of parks has also been revised.

ALFRED RUSSEL WALLACE.—The issue of *Nature* for June 13 is of more than ordinary interest in that it contains a portrait and appreciation of ALFRED RUSSEL WALLACE. As all the world knows, WALLACE, who is in his 90th year, is the sole survivor of the distinguished band of naturalists whose work shed such lustre on the 19th century. That band included LYELL, DARWIN, WALLACE, GALTON, HOOKER and HUXLEY, and it is a remarkable fact that not only was each of these men distinguished in an extraordinary degree by scientific attainments, but also by exceptional literary ability. The appreciation of WALLACE published by *Nature* is from the pen of Professor OSBORN, and should be read by all who admire the splendid contributions which WALLACE has made to the science of biology.

HOT-WATER CIRCULATION BY PUMPING.—The Bank of England is about to be fitted with a system of heating by hot water, which will be one of the largest and most complete private installations in this country. The heating will be effected by means of hot-water pipes and radiators, and, as the building covers an area of 2½ acres, the circulation will be accelerated by electrically-driven pumps, so that the radiators at the extreme points of the system will be practically as hot as those close to the boilers. Altogether there will be about 600 of these radiators, and they will be supplied from six boilers, some of which can be cut off when the weather conditions do not require the whole power. The work will be carried out by Messrs. MACKENZIE & MONCUR, LTD., Edinburgh and London.

THE STARLING: FRIEND OR FOE?—In the course of his investigations of the food of birds, Mr. J. HAMMOND reaches the conclusion (*Journ. Agric. Sci.* IV., 4, June, 1912) that the starling is very beneficial during the late spring, summer and early autumn months, in that it eats many harmful insects. It is to be noted, however, that it also devours a number of beneficial insects. On the other hand, the starling changes from friend to foe during the autumn and early spring, since it does much harm in this period by consuming seed corn and particularly wheat; but even at this period the work which the bird does is not all evil, for it preys also on harmful insects as well as on sown corn. Mr. HAMMOND suggests that, if seed corn cannot be rendered distasteful to the birds, the autumn migrants who are the corn stealers should be killed off in large numbers.

MARKET GARDENING IN BELGIUM.—*The Field* (June 8, 1912) contains the following interesting note on the extent of market gardening in Belgium:—It will be news to many that so small and densely-populated a country as Belgium contains about 165,000 acres under fruit, and an even greater area under vegetables. The export trade is of considerable importance, and continues to expand at a rapid rate. Thus the best Apples and Pears go to England, as also an immense amount of other produce of many kinds, and also to other countries, particularly Germany. In good seasons, for example, no fewer than 60,000 packages of fruit are sent off from one railway station alone; every week over a long season about 1,000 cases of choice Grapes are sent to the United States, to which country also some 25,000 baskets of "Witloof" (Brussels chicory) are annually dispatched in cold storage. The dimensions and organisation of this Belgian trade in horticultural produce are comparable to those of Denmark in dairy produce. Thus in 23 villages around Brussels the Strawberry growers have formed syndicates united in a federation of 1,350 members.

PROFESSOR EDUARD STRASBURGER.—The death of Professor STRASBURGER, one of the most eminent botanists of the present age, took place on May 19. The late professor contributed to many branches of botanical science, but chiefly to that which deals with the minute structure of plants, and in this domain his discoveries were of fundamental importance. STRASBURGER'S researches into the mechanism of the ascent of water in trees provided in the domain of physiological botany an example of his untiring industry and acute intelligence. His commanding position among botanists is illustrated in a striking manner by the large number of British and American botanists who have, for many years, proceeded to Bonn in order to complete their training in the laboratory of one who was an acknowledged master and devotee of research.

HYBRID TREES AND SHRUBS.—According to *The Bulletin of Popular Information*, June 5, issued by the Arnold Arboretum, U.S.A., some of the most valuable shrubs now found in gardens are natural hybrids of related species, or have been produced by hybridisers. One of the most beautiful of Lilacs, Syringa chinensis, is a natural hybrid which appeared 100 years ago in the Botanic Garden at Rouen. Several of the most attractive Honeysuckles are hybrids, and in recent years the crossing of different species in several genera has produced new races of garden plants which have vigour, hardiness and beauty not possessed by their parents. A good example of the value of such hybrids is found in Deutzia Lemoinei, obtained by a French nurseryman by crossing the Japanese D. gracilis with D. parviflora of northern China. Although it resembles D. gracilis in habit, it grows into a taller and broader shrub. The flowers also are larger and the plant is much hardier. It is certainly one of the best garden plants of recent introduction. The systematic crossing of shrubs with the object of creating new forms, except perhaps in the case of Roses, is a comparatively new industry, but it has already produced startling results in such genera as Magnolia, Deutzia, Philadelphus, Ceanothus, Rhododendron, and Diervilla. With the great number of new shrubs discovered in recent years in eastern Asia and eastern North America at his disposal, the hybridiser has now new and abundant opportunity to show his judgment and skill in producing new races of plants. Hybrid trees are naturally less common than hybrid shrubs, and, except in the case of fruit trees, comparatively few attempts to cross different species of trees have been made. Trees which are believed to be natural hybrids, however, are not rare. There are several American Oaks which are probably hybrids, and these, so far as they have been tested in the Arboretum, grow more rapidly than their supposed parents. For example, Ulmus vegeta, which is believed to be a hybrid between two European species, grows more rapidly than any other Elm tree, and the so-called Carolina Poplar, which is not an American tree but probably a hybrid between the American Cottonwood and the European Black Poplar, outgrows, at least while young, all other Poplar trees.

PROSPECTS OF THE CROPS.—According to the monthly report of the crops for June, issued by the Board of Agriculture and Fisheries, root crops are very backward, owing to the dry spring. Potatos are generally looking fairly well, although in most districts frosts have done a little damage to the early crops. The area under Potatos is slightly larger than last year. Mangolds are backward, and germinating slowly; some areas had not yet been sown. They are looking well, particularly since the recent rains, but in some localities the crop is patchy. More progress has been made with Turnip and Swede

THE LATE WILLIAM JOHN JENNINGS.

sowing in the north of England than in the south. Both clover and meadow hay will be much below the average. The eastern, south-eastern, and Midland districts are very much the worst, and considerable areas of "seeds" have been ploughed up. In the north and Scotland many districts report promise of good crops, although they are outweighed by the number of bad reports. The indications on the 1st June were that in Great Britain, as a whole, the yield per acre of "seeds" hay would be only 87 per cent. of the average, while that of meadow-hay might be 92 per cent. Hops are looking strong and healthy and growing freely, though somewhat unevenly in places. There is a great deal of vermin, and washing, in Kent, Sussex, and Hereford particularly, is already general. A rough survey indicates that the area under Hops this year will be 3 to 4 per cent. greater than in 1911, most of the increase being in Kent. Of fruit, Strawberries would appear to be somewhat under average; there are rather more reports of large than of small crops, but more of the latter come from the chief Strawberry districts, such as Kent. Raspberries are fairly promising; still more so are Currants and Gooseberries. Apples seem variable, but should probably be an over-average crop. Pears are much better, while Cherries may possibly reach a bare average. Plums appear likely to be appreciably below average.

PUBLICATIONS RECEIVED.—***Kew Bulletin of Miscellaneous Information.*** Catalogue of the Library; additions received during 1911. (London: Royal Botanic Gardens, Kew.) Price 2d.—***Teaching Through the Eye:*** Modern Methods in a Model Factory. The National Cash Register Co., Ltd., 225, Tottenham Court Road, London, W.—***Thirty-third Annual Register of the Officers and Students of the Colorado Agricultural College; Agriculture and Mechanic Arts.*** (Fort Collins, Colorado: Colorado Agricultural College.)—***The Journal of the Board of Agriculture for June.*** (London: Board of Agriculture and Fisheries.) Price 4d.

Obituary.

WILLIAM JOHN JENNINGS.—We regret to record the death of William John Jennings, gardener to Lord Derby, at Knowsley Park, near Manchester, and son of Mr. John Jennings, gardener to Leopold de Rothschild, Esq., Ascott, Leighton Buzzard. Mr. Jennings, who had been at Knowsley only six months, was previously gardener to Lord Hereward, at Hereward Hall, near Leeds, for a period of 12 years. He commenced his gardening career under his father at Ascott, and subsequently served for various periods at The Dell Gardens, Egham, Eaton Hall Gardens, near Manchester, Baron Rothschild's garden near Paris, and other first-class places. Mr. Jennings visited the International Show at Chelsea, and appeared in perfect health, but on his return home he developed symptoms of septic poisoning, and death occurred somewhat suddenly. Deceased, who was 42 years of age, leaves a widow and five children.

LAWRENCE HAY.—*Horticulture* of U.S.A. records the death of Mr. Lawrence Hay at West Barrington, Rhode Island, U.S.A., aged 80 years. Mr. Hay was a native of Perthshire, Scotland, and for 30 years was gardener to Col. Sir William Gordon, at Earlston. Deceased settled in America about 20 years ago, and was employed as head gardener in various places. During the past few years Mr. Hay has been working with his four sons, all of whom are prominent gardeners. These are Mr. Lawrence Hay, of East Providence, who has charge of the grounds of the Agawam Hunt and of the Wanamoiset and Metacomet Golf Links; Mr. William Hay, who has a large range of greenhouses at Oaklawn; Mr. James Hay, gardener to Mrs. William Goddard at Potowomut; and Mr. Daniel Hay, gardener to Mrs. Elsie French-Vanderbilt, at Newport.

NOTES FROM IRELAND.

TWO FORTHCOMING SHOWS.

THE Irish Rose and Floral Society will hold its second annual show in conjunction with the National Rose Society in the Botanic Park, Belfast, on Friday, July 19. Last year's show was a great success, and resulted in a profit. It is expected that this year's exhibition will be even more successful, in view of the importance given it by the National Rose Society. There are 49 classes for Roses, and six N.R.S. medals will be awarded. The schedule is comprehensive, and includes 24 classes for Sweet Peas. The prizes are considerably in advance of what has been usually offered. There are also classes for hardy garden flowers, annuals, Carnations, and Begonias. Schedules may be obtained from Mr. H. P. Pinkerton, 18, Victoria Street, Belfast.

Another exhibition will be held in the western counties of Ireland (Galway). Cups are offered for Gladioli, Sweet Peas, and Carnations. The secretary and treasurer is Miss J. T. Armstrong, Mount Pleasant, Ballinasloe.

A FINE PLANT OF CLEMATIS.

THE Clematis illustrated in fig. 197 is growing in the gardens of Mr. Frank Beard, Ivydene, Coggeshall, Essex, who has kindly furnished the following particulars:—The variety is Mrs. Henry Wood, and the flowers are of a pale mauve colour inside, the tint running up the veins and passing to white. I purchased the plant some 20 years ago whilst staying in Huntingdon. It is growing against a malting wall and measures about 16 feet in width by 12 feet in height. I counted over 400 blooms, and then gave up the attempt at numbering them, for some of the flowers overlapped each other three and in some cases four deep. For several seasons past blooms have been measured and found to be 9 inches in diameter, but owing to the enormous number of flowers this year they are not more than 8 to 8½ inches across. Hundreds of visitors, including many professional and amateur gardeners, have inspected the plant in bloom, and all declare they have never seen anything approaching it for beauty. The picture does not show all the flowers, as many are hidden by arches of rambler Roses on either side.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

INSURANCE ACT.—The Insurance Act has been so widely discussed in the daily newspapers that it is probably needless to attempt to assist your readers with any formal article on the subject. I venture to think, however, that it may be useful to impress upon gardeners the necessity of joining, so far as may be possible, only those approved societies (or local branches of approved societies) which include workers of as healthy a class as themselves. Gardeners are proverbially a temperate and well-balanced race, and they should therefore avoid mixing themselves up for insurance purposes with the ordinary town-workers, who, possibly, from sheer force of circumstances, are less healthy and less temperate than those who devote their lives to cultivating the soil. The moral, of course, is:—If a man is healthy and likely to live to a good old age he should endeavour to select a society which mainly comprises members as healthy as himself. The "touting for business" will, of course, be very great, and many insurance agents will doubtless cast longing looks on the healthy race of horticulturists whose "good" lives may help to counterbalance the inferior lives of their factory-employed subscribers. *Your Legal Correspondent.*

COMMERCIAL TRAVELLERS AND THE INSURANCE ACT.—May I be permitted to announce to your traveller readers the formation of an approved society under the Act, for commercial travellers only? It is very confidently anticipated that the results obtainable in this society will be such as to add materially to the ordinary benefits given by the Act, and for this reason all men on the road who are affected by the Act are invited to become members. Membership form and full details will be sent on application. *Fred. Coysh, Secretary, 4, Southampton Row, London.*

THE FRUIT CROP.—*A Southern Grower* is by no means alone in his unhappy experiences of this year's fruit crop. Never in my remembrance has such a delightful early promise so completely fallen to the ground. The early Apples have a moderate crop, but the later-growing varieties are bare of fruit. Pears gave a splendid promise, but the young fruit now simply covers the ground. Of Plums we have a moderate crop, but the leaf-curling pest is rampant on both Plums and Apples, including old and young trees. Spraying has been expensive in labour during the busy time, and the effect has been most disappointing. Soft soap and paraffin emulsion killed the aphides where it reached them, but, as your correspondent suggests, it is simply impossible to reach those which are within the curled leaf. Gooseberries are good, Strawberries only moderate; Currants were all grubbed, the mite making them worthless. May I express my appreciation of the articles by *A Southern Grower*; they are so helpful, on account of their practical character. *H. Williams, Redruth.*

A CURIOUS NESTING PLACE.—With reference to Mr. Gardner's note on a curious nesting place (p. 379), a rather peculiar case has come under my notice. We observed a tom-tit flying in and out of the drainage hole in an inverted 12-inch pot which had not been disturbed for some time. On investigation, I found that the bird had built a nest, principally of moss, reaching from side to side of the pot, and in the nest were 10 young birds. Unfortunately, owing to circumstances over which I had no control, the pot had to be removed, otherwise I was curious to know how they would have contrived to get the young ones out of the pot. I cannot see how the old birds could have carried them out through the small hole in the top, and they could hardly have taught the ten little ones to fly in the confines of a 12-inch pot and in partial darkness. I much regret that I was unable to satisfy my curiosity. *Frank A. Edwards, Grayswood Place Gardens, Haslemere.*

FIG. 197.—CLEMATIS "MRS. HENRY WOOD," AT IVYDENE GARDENS, COGGESHALL: COLOUR OF FLOWERS, PALE MAUVE.

SCOTLAND.

ABERDEEN MARKET GARDENERS' STANCES.

A PROPOSAL having been made to shift the site of the present stances held by the Aberdeen Market Gardeners on Fridays on The Green, a meeting of the gardeners has been held to consider the question. The proposal is to move the stands from their present position to one in the centre of the street and about 9 feet from the kerb. At a meeting held in the Trades' Hall, Aberdeen, it was unanimously decided that the gardeners should not agree to the suggested removal. A committee was appointed to see into the matter.

A GARDENER'S EDUCATION.—After a perusal of the opinions expressed on this subject at the recent conference at Chelsea, many practical gardeners who, through no fault of their own, are unable to secure a situation will have a subject for deep contemplation. When we remember the number of fully qualified professional men who are either in situations as gardeners where they are poorly paid, with no or very little scope for their abilities, or are temporarily employed in a nursery waiting for a situation, we may ask ourselves what prospects are there for the gardener in the future? Are there better prospects in view? I do not wish to undervalue the importance of a thorough education. We often hear it said that it is difficult to obtain the services of really good, persevering young men as journeymen. I am inclined to think that many of the most energetic and well-educated youths quickly forsake the following of gardening for a more lucrative and secure profession. *Roamer.*

FICUS REPENS FRUITING.—Thinking it may be of interest, I enclose a fruiting branch of Ficus repens, which has fruited here for four successive years. Previously the plant has produced its fruits at the top of the wall, where they were rarely seen, but this year the fruits are in a much more prominent position. *R. Staward, Panshanger Gardens, Hertford.* [We thank you for your interesting branch of Ficus repens. This arborescent form of F. repens is analogous to the larger leaves in the "Tree" Ivies. An ordinary creeping form and fruiting shoot of F. repens were illustrated in the *Gardeners' Chronicle*, March 12, 1904, figs. 71, 72.—EDS.]

RECORD STRAWBERRIES.—I read with interest in last week's issue of the *Gardeners' Chronicle* (see p. 395) Mr. Groves's remarks upon the Strawberry "Auguste Nicaise," and on looking through an old diary that I kept in 1894, when journeyman at Aston Clinton Gardens, I find it recorded that there was a splendid crop of Auguste Nicaise in pots, and that eight of the fruits turned the scale at 1 lb. I well remember that large quantities of this variety were grown as the principal variety for forcing, and at Aston Clinton it always did remarkably well. Of late years I have not seen or heard much about this old variety Undoubtedly Mr. Groves grows it well at Temple House Gardens, and I note that he speaks favourably of its good flavour. *J. B. Lowe, Green Hill Gardens, Warminster, Wilts.*

ARRANGEMENT OF FLOWERS AT EXHIBITIONS (see p. 372).—Mr. A. G. Gibbins is not correct in assuming that the Carnation to-day is crammed into a paper collar and shown on a board. A few of the old summer Carnations are sometimes exhibited in this manner, but for every one of these flowers thus presented at the Royal Horticultural Hall, thousands are shown all the year round on long stems in bunches, presenting natural growth in full beauty. Not only is the paper collar objectionable, but more so is the dressing which some of the flowers receive. The Council of the Royal Horticultural Society should make a hard-and-fast rule that any flowers bearing evidences of dressing or manipulation should be rigidly excluded from the hall, no matter what society might occupy it. It is a dying practice, and only needs a sharp kick to abolish both dressing and the paper collars. Cactus Dahlias admit of no dressing, but because of their weak stems it is essential at shows, to be properly seen, that they be set up in wire frames. Those who desire an effective garden display of Dahlias have a wide choice in the Pompon type, the plants flowering profusely on stout stems. The single Dahlias also are free bloomers, and have beautiful flowers, whilst those of the new collarette and the tall, looser-growing but free-flowering Pæony-flowered sections appear singularly charming in gardens. It should be the rule now to exhibit all these varieties in vases without wires, as each kind carries its flowers well. Probably with some flowers, as long as exhibiting continues, there must be some stiffness or formality in the method of exhibiting them. Take the case of Roses. There is no better method of enabling the judges to determine the respective merits of the individual blooms than displaying them in boxes. Still, the practice of exhibiting these flowers in bunches on long stems, showing habit of growth, is an increasing one, and generally, when thus displayed, the blooms are far more attractive than those in boxes. The chief defect of the bunched Roses is that the bunches are made too solid or massive. Roses could not be grown under trial in the same manner as Sweet Peas. A variety which might do admirably in the Wisley sand might be a failure on the Hertfordshire clay. The granting of a gold medal yearly by the National Rose Society to what seems to be the best Rose of the season is probably misleading. But it would serve to minimise disappointment on the part of purchasers were the Society to intimate that the Award is made to the flower as exhibited only, irrespective of the merits of the plant. *A. D.*

BORDER CARNATIONS IN POTS.—I enclose a photograph of five Carnation plants, four specimens of Lady Hermoine, and one of Cecilia, to show the value of these border varieties in pots, where Carnations are not a success when grown out-of-doors. These plants were grown from cuttings inserted 2½ years ago, and flowered last year, after which they were potted into 8-inch pots. The plants are carrying a crop of 200 blooms, the two best specimens of Lady Hermoine having 50 flowers each. Each stem is disbudded to one flower. I enclose a few of the blooms for your inspection. *J. H. Herdman, Under Fell Gardens, Burton, Westmorland.*

SOCIETIES.

ROYAL HORTICULTURAL.

JUNE 18.—There was a large attendance at the meeting of the Royal Horticultural Society on Tuesday last. The chief interest was centred in the splendid collections of border flowers; such stately subjects as Eremuruses and Delphiniums being much admired. Orchids were fewer in number than at recent meetings. The ORCHID COMMITTEE awarded three First-class Certificates and three Awards of Merit. The FLORAL COMMITTEE awarded one Gold and 33 other medals, and 17 Awards of Merit. The FRUIT AND VEGETABLE COMMITTEE awarded one Silver Medal and two Cards of Cultural Commendation. The first summer show of the National Gladiolus Society, which was held in conjunction with this fortnightly meeting, attracted but very few exhibits. The competitors were all from Guernsey, and the only non-competitive exhibit was that of Mr. K. VELTHUYS, from Holland.

At the three o'clock meeting of the Fellows of the R.H.S. the Rev. Prof. Geo. Henslow, M.A., V.M.H., delivered a lecture on "Professor J. S. Henslow as Ecologist."

Floral Committee.

Present: H. B. May, Esq. (in the Chair); Messrs. J Green, W. P. Thomson. Chas. Dixon, C. T. Druery, Chas. E. Shea, C. R. Fielder, F H. Chapman, Arthur Turner. Chas. E. Pearson, J. F. McLeod, R. C. Notcutt, R. W. Wallace, W. J. Bean, W. T. Ware, J. Jennings, George Gordon, W. Howe, C. Blick, W. B. Cranfield, E. H. Jenkins, J. Hudson, Wm. Cuthbertson, and R. Hooper Pearson.

Messrs. SUTTON & SONS, Reading, filled the entire end of the hall with a very comprehensive collection of Sweet Peas. Of the many varieties so well shown we noted Sutton's giant-flowered rose-pink, sky-blue, and delicate pink as being very desirable varieties. Other good sorts shown were Mrs. Hugh Dickson, Doris Usher, Elfrida Pearson, Lady Evelyn Eyre, and R. F. Felton. (Gold Medal.)

Messrs. JAS. VEITCH & SONS, Chelsea, London, made a very interesting display with Cannas, Carnations, &c., which filled one length of staging. The Cannas were exceedingly good, and included such desirable varieties as Niagara, Baron de Richer, J. B. van der Schoot, R. Wallace, and Terra Cotta. The Carnations were chiefly "Malmaison" varieties, and towards the end of this exhibit there was a good group of Begonia Lucerna—a fine decorative variety. On the opposite table Messrs. VEITCH set up a delightful collection of Spanish Irises in many distinct varieties. (Silver-gilt Flora Medal.)

Messrs. JAS. VEITCH also had a splendid collection of Eremurus against the side wall, chiefly of the dark strain of E. Wareii, the white-flowered Rhododendron Kirkii, Philadelphus Gordonianus, smothered with flowers, and Deutzia myriantha.

Messrs. H. B. MAY & SONS, Upper Edmonton, showed, in a selection of their well-known stove and greenhouse Ferns, Nephrolepis Rooseveltii, a variety of N. exaltata, with stout, undulate pinnæ. This promises to become a valuable variety for house decoration. (Silver Banksian Medal.)

Mr. VINCENT SLADE, Staplegrove Nursery, Taunton, showed many brightly-coloured trusses of zonal Pelargoniums, and Polypodium cambricum in small pots arranged in cork.

Mr. CHAS. BLICK, Hayes, Kent, showed a dozen or so of exceedingly good Carnations. The brilliant-coloured King Arthur and the flamed Bombardier were noteworthy.

Mr PHILIP LADDS, Swanley Junction, showed Fuchsias and zonal and fancy Pelargoniums.

Messrs. H. CANNELL & SONS, Swanley, staged, in Vicar of Shirley, Hector Giaconelli, and Blue Peter, trusses of three very good varieties of Ivy-leaved Pelargoniums. Next came sweet-smelling East Lothian Stocks, followed by hybrid Fuchsias, with pendulous corymbs of flowers, Diplacus aurantiaca, and tuberous Begonias, bearing large, double flowers. (Silver Banksian Medal.)

Messrs. W. TRESEDER, LTD., Cardiff, exhibited the fancy Pelargonium Lord Bute (see illustration in *Gardeners' Chronicle*, July 22, 1911, p. 44) in wicker baskets.

Mr. L. R. RUSSELL, Richmond, Surrey, showed Iresine Madame Bousillon, Salvia Pride of Zurich, Marguerite Mrs. F. Sander, and Coleus Cordelia. (Bronze Flora Medal.)

Mr. H. BURNETT, Guernsey, again showed a splendid collection of Carnations. (Silver Flora Medal.)

Messrs. B. R. CANT & SONS, the Old Rose Gardens, Colchester, had a splendid collection of Roses. This exhibit contained many stands of fresh cut blooms, and the plants of multiflora varieties along the back were profusely flowered. The varieties Mrs. Alfred Tate, Lady Ashtown, and Mrs. David McKee were exceptionally good. (Silver-gilt Flora Medal)

Messrs. FRANK CANT & Co., Colchester, had a magnificent collection of Roses. Many well-known varieties, such as Irish Elegance, Tea Rambler, Hugh Dickson, Mme. Melanie Soupert. and Mme. Ravary were massed in large stands, whilst the show-boards along the front contained numbers of fine blooms. (Silver-gilt Flora Medal.)

Messrs. WM. PAUL & SON, Waltham Cross, included their popular variety Juliet, and such other good sorts as The Warrior, Ophelia, and Mme. Segond Weber in their collection of Roses. (Silver Flora Medal.)

Messrs. HOBBIES, LTD., Dereham, exhibited a small but select assortment of Roses, two of which received Awards of Merit.

Messrs. STUART LOW & Co., Bush Hill Park, Middlesex, arranged some charming cut Roses in stands and bowls. The yellows were represented by those sterling varieties Rayon d'Or, Lady Hillingdon, and Duchess of Wellington. The dark, velvety-petalled Chateau de Clos Vougeot, Viscountess Folkestone, and the sweet-scented Juliet were exceedingly well shown. In another part of the hall this firm showed especially meritorious Carnations. (Silver Banksian Medal.)

Messrs. PAUL & SON, The Nurseries, Cheshunt, staged a few varieties of climbing Roses at the end of their fine display of Pæonies. The rambler Rose Sweet Lavender produces its lavender-edged flowers in abundance. The hybrid climbing Rose Butterfly is an exceedingly large single variety with pale rose-coloured flowers. (Silver Banksian Medal.)

Mr. JAMES BOX, Lindfield, Sussex, displayed a number of Sweet Pea blooms in varieties of distinct colours. Mr. BOX also effectively filled a corner of the Hall with a large collection of border flowers. (Silver-gilt Banksian Medal.)

Messrs. E. W. KING & Co., Coggeshall, Essex, staged a clean and fresh collection of Sweet Peas. (Bronze Banksian Medal.)

Messrs. BLACKMORE & LANGDON, Twerton Hill Nursery, Bath, showed many tall spikes of magnificent Delphiniums and three very fine Begonias, which received Awards. (Silver Flora Medal.)

Messrs. G. & A. CLARK, Dover, made an exceedingly effective display of hardy herbaceous flowers arranged in a square formation on the floor. (Silver Flora Medal.)

Messrs. BARR & SONS, Covent Garden, London, exhibited a great variety of seasonable border flowers. There were good selections of Delphiniums, Irises, and herbaceous Phlox. A few vases contained exceptionally bright flowers of Papaver nudicaule miniatum. (Silver Banksian Medal.)

Mr. AMOS PERRY, Enfield, Middlesex, showed flowers and foliage of many varieties of hardy Nymphæas floating in a shallow tank. The varieties Albida and Marliacea carnea were very large. The Nymphæa tank was flanked by masses of stately Delphiniums, and at the back there were tall spikes of Eremurus Tubergenii, branches of Bamboos, and moisture-loving Irises. (Silver Flora Medal.)

Messrs. KELWAY, Langport, Somerset, arranged exceedingly fine herbaceous Pæonies and Delphiniums on a low stand just inside the entrance. Amongst the Delphiniums we noted stout, well-flowered spikes of the variety Dusky Monarch, which received an Award of Merit at the previous meeting. Smoke of War is a good dark blue variety; Huish Beauty has very attractive, white-eyed flowers, but the foliage appears to be prone to mildew. (Silver Banksian Medal.)

Messrs. CARTER, PAGE & Co., 52, London Wall, London, showed numerous varieties of Viola in pans of wet sand. Besides very many self-coloured varieties, the purple-edged Jessie Baker and Princess Ida, with purple stripes, were attractive. Messrs. CARTER, PAGE also made a good show with Cactus and decorative varieties of Dahlias. (Silver Flora Medal.)

Messrs. WM. CUTBUSH & SON, Highgate, London, arranged bold masses of cut border flowers on the floor. A tall stand of Lilium Humboldtii magnificum was especially telling. The tall spikes of Eremurus robustus, E. Shelfordii, and the more delicate-looking E. Bungei were noteworthy, whilst the white Poppy-like flowers of Romneya Coulteri attracted a deal of attention. (Silver Flora Medal.)

Messrs. GUNN & SONS, Olton, Warwick, showed many fine herbaceous Phloxes. The baskets of Viola cornuta purpurea (the white form), and Moseley Perfection (a good yellow variety) were exceptionally good. (Silver Flora Medal.)

Messrs. GEO. JACKMAN & SON, Woking, showed many uncommon border flowers. Stokesia cyanea and Scabiosa caucasica are two valuable pale blue-flowered plants. (Silver Flora Medal.)

Messrs. WALLACE, Colchester, included such plants as Ornithogalum pyramidale, Allium albo-pilosum, and Calochortus venustus in their collection. (Silver Flora Medal.)

Messrs. R. H. BATH, LTD., Wisbech, exhibited Pæonies and Delphiniums. Amongst the Delphiniums we noticed Mrs. K. F. Caron, which has a tall spike of blue flowers. The individual flowers are more graceful than those of many other varieties. (Silver Banksian Medal.)

Mr. GREENING, Richmond, Surrey, arranged rockwork on a table in the annexe. (Silver Banksian Medal.)

Messrs. GEO. BUNYARD & Co., LTD., Maidstone, had an attractive arrangement of hardy cut flowers, which included many good varieties of Delphinium, Iris, Pæony, and such flowering shrubs as Spiræa callosa Fœbellii, S. Billardii, and varieties of Philadelphus. At the end there was an attractive vase of the yellow Allium Moly. (Silver Banksian Medal.)

Messrs. W. J. GODFREY & SON, Exmouth, Devon, showed huge plants of Canterbury Bells with very large flowers. (Silver Banksian Medal.)

Mr. REG. PRICHARD, West Moors, Wimborne, displayed an interesting collection of Alpine plants, which included Hypericum polyphyllum, Campanula alpina tomentosa, the blue Mertensia lanceolata, Prunella incisa rubra, and the dainty and white-flowered Wahlenbergia saxicola. (Silver Banksian Medal.)

Messrs. BAKERS, Wolverhampton, staged an attractive collection of hardy plants. (Bronze Flora Medal.)

Messrs. T. S. WARE, LTD., Feltham, arranged a neat little rockery at the end of their collection of hardy herbaceous flowers. There were some choice Alpines in the rockery. (Bronze Flora Medal.)

Mr. H. C. PULHAM, Elsenham, Essex, contributed a small collection of Pinks and other hardy flowers.

Messrs. WM. BULL & SONS, Chelsea, London, exhibited varieties of Spanish Iris.

Messrs. W. & J. BROWN, Peterborough, had a number of plants of Lilium Szovitzianum, with many flowers, in the middle of their collection of hardy flowers. (Bronze Banksian Medal.)

The Misses HOPKINS, Mere Gardens, Shepperton-on-Thames, arranged a tasteful little rockery, planted with suitable dwarf plants. (Bronze Banksian Medal.)

Messrs. J. CHEAL & SONS, Crawley, designed a low rockery, flanked and backed with flowering shrubs and border flowers.

Mr. MAURICE PRICHARD set up a dense collection of cut blooms of Erigeron varieties, Delphiniums, Pæonies, and other hardy subjects. (Silver Banksian Medal.)

Mr. G. REUTHE, Keston, Kent, staged uncommon plants, such as Mitraria coccinea, Lilium Martagon, and the vivid L. pomponium. (Bronze Banksian Medal.)

Messrs. A. A. WALTERS & SON, Bath, contributed some very good Delphiniums. (Bronze Banksian Medal.)

Mr. F. LILLEY, Guernsey, showed Irises and Gladioli.

AWARDS.

AWARDS OF MERIT.

Carnation Mrs. Husan Morris.—A large bloom of good form. The colour is deep pink overlying a lighter shade of the same colour. The crumpled petals give this variety a distinct appearance. (Shown by SYDNEY MORRIS, Esq., Wretham Hall, Thetford—gr. Mr. G. Henley.)

C. Cyclops.—A border variety with orange-coloured flowers, flaked with bright crimson.

C. C. Blick.—An especially fine "Malmaison" variety; a seedling from Nell Gwynne, than which the pure-white flowers are much larger. (Both these varieties were shown by Mr. C. BLICK.)

Begonia James Braid.—An immense, double-flowered tuberous Begonia. The bright-crimson flowers are of perfect shape.

B. F. W. Walker.—Also a very large-flowered, double Begonia. The colour of this variety is scarlet.

B. Golden Shower.—A very floriferous variety, with pendulous flowers. A splendid specimen was shown in a hanging basket. The flowers are deep yellow in colour, with a darker shade at the base of the petals. (The three varieties of Begonia were shown by Messrs. BLACKMORE & LANGDON.)

Delphinium Harry Smeathan.—The unusually round flowers of this stout variety are of a medium shade of blue, and have a purple line along the centre of the petals. (Shown by Messrs. BLACKMORE & LANGDON.)

D. Drake.—A large-flowered, pale-blue variety, with a white eye.

D. Tagalie.—The blue flowers of this variety open showing a white eye, which disappears when the flower is fully expanded.

D. Lovely.—A sturdy spike, well furnished with blue and purple flowers. (The three foregoing varieties were shown by Messrs. KELWAY & SON.)

D. Lavanda.—An uncommon and desirable variety. The large, round flowers are entirely coloured with a bright-mauve shade. (Shown by G. FERGUSON, Esq., Weybridge.)

Eremurus Lemon Queen.—A cross between E. Bungei and E. Warei. The spikes are from 4 feet to 5 feet high, and are well furnished with clear lemon-coloured flowers, which have bright-orange anthers. (Shown by Messrs. JAMES VEITCH & SONS.)

Philadelphus Bouquet Blanc.—A semi-double, white-flowered variety. The branchlets were wreathed with charming flowers.

P. Voie Lactée.—A single-flowered variety, bearing numbers of large, white flowers. (Both these varieties were raised from Chinese seeds by Messrs. JAMES VEITCH & SONS.)

Lavatera Olbia.—A shrubby Lavatera, which was introduced from Provence in 1570. The long stems are well furnished with large, pale-mauve flowers. The soft, woolly leaves are of a neutral greyish colour. (Shown by Mr. MAURICE PRICHARD.)

Rose Effective.—A very free-flowering climbing Rose, obtained from a cross between the varieties General McArthur and Carmine Pillar. The flowers are much larger than those of the latter variety; they have more petals and are darker in colour.

R. Pink Pearl.—A cross between Una and Irish Elegance. The single-flowers are suggestive of those of Rosa Sinica Anemone, but they are rather smaller, and have more petals. (Both varieties were shown by Messrs. DOBBIE, LTD.)

DELPHINIUM TRIAL AT WISLEY.

The Floral Committee confirmed the Awards of Merit given to the following varieties of Delphinium, after trial at Wisley:—Delphinium Darius, Cymbeline, Jessica, Lorenzo; these varieties were from Messrs. GEO. BUNYARD & Co., Maidstone. Mrs. James Kelway, Smoke of War, Dr. Lodwidge; these three varieties were from Messrs. KELWAY & SON, Langport. Royal Standard, Mme. E. Geny, J. S. Sargent, Colonel Crabbe, Dr. Bergman; the foregoing were from Messrs. FORBES, LTD., Hawick. Mr. J. S. Brunton, from Mr. B. RUYS, Dedemsvaart. Lizzie van Veen, from Mr. J. Box, Lindfield.

Orchid Committee.

Present: J. Gurney Fowler, Esq. (in the Chair); and Messrs. Jas. O'Brien (hon. sec.), de B. Crawshay, Gurney Wilson, R. A. Rolfe, J. Wilson Potter, Stuart Low, F. Sander, F. J. Hanbury, T. Armstrong, A. McBean, W. Cobb, J. Charlesworth, J. E. Shill, H. G. Alexander, W. P. Bound, Arthur Dye, W. H. White, Clive Cookson, W. Bolton, C. J. Lucas, J. S. Moss, and C. H. Curtis.

Messrs. SANDER & SONS, St. Albans, were awarded a Silver-gilt Flora Medal for a very fine group, at one end of which were good numbers of Cattleya Warscewiczii Sanderiana, very finely flowered, together with a showy lot of Lælio-Cattleyas, including Fascinator, Canhamiana alba and C. Rex; varieties of L.-C. Martinettii and the pretty L.-C. Kathleen Grey (L. tenebrosa × L.-C. Canhamiana). Various hybrid Odontoglossums and Odontiodas were also included, and the handsome new Odontonia St. Alban (see Awards). Then we noticed Dendrobium Dearei and other Dendrobiums; the singular Eulophia squalida and its white variety; a good example of Cœlogyne asperata alba, with pure-white flowers, and, moreover, a free flowerer; a selection of pretty Oncidiums; the singular Lycaste peruviana; and some good Miltonia vexillaria, the variety Sanderæ, heavily tinged with purple, being unique in colour.

E. H. DAVIDSON, Esq., Borlases, Twyford, was awarded a Silver Flora Medal for a bright group, principally of Cattleyas, Lælio-Cattleyas, and Odontoglossums. Lælio-Cattleya Aphrodite "Borlases variety" was a pretty silvery-white flower with deep violet-crimson front to the lip; varieties of Odontoglossum eximium and a specially fine O. hibernicum were well displayed.

R. G. THWAITES, Esq., Chessington, Streatham (gr. Mr. G. M. Black), was awarded a Silver Flora Medal for a bright group of hybrids raised at Chessington, and including a varied collection of Odontiodas, principally scarlet, with a plant of a very richly-coloured O. Thwaitesii, which still, in point of colour, is without an equal. Very interesting were several well-flowered plants of Cattleya Mossiæ Wageneri raised from seeds and true to the pure white of the parent.

Messrs. STUART LOW & Co., Bush Hill Park, staged an effective group, for which a Silver Flora Medal was awarded. At the back of the group were graceful Oncidiums, including a well-flowered O. macranthum, and in front two plants of an exceptionally fine form of Odontoglossum Williamsonianum, with various hybrid Odontoglossums, Odontiodas, Miltonia vexillaria and M. Bleuana, good scarlet Renanthera Imschootiana, and a grand form of Lælio-Cattleya Martinettii with bronzy-rose sepals and petals and finely-coloured labellum.

Messrs. CHARLESWORTH & Co., Haywards Heath, were awarded a Silver Banksian Medal for a selection of rare Orchids, of which their Odontioda Cooksoniæ "Fowler's variety," for which a First-class Certificate was awarded, was by far the best Odontioda yet shown (see Awards). Vanda Charlesworthii, Dendrobium Sanderæ, Cleisostoma crassifolia, two fine forms of Odontoglossum citrosmum, and other rare Orchids were also noted.

THE LIVERPOOL HORTICULTURAL COMPANY were awarded a Bronze Banksian Medal for a group of pretty Lælio-Cattleyas, chiefly with yellow sepals and petals and crimson labellums. Also good specimens of L.-C. Canhamiana, Cypripedium bellatulum, &c.

Mr. E. V. Low, Vale Bridge, Haywards Heath, staged a small group in which were Cœlogyne burfordiensis, with two spikes; Cattleya Mossiæ Reineckiana "Vale Bridge variety," a good white, with pink flush on the lip; C. M. King of Siam, with slate-blue veining on the lip; Cattleya Mendelii The Queen, white; Brasso-Cattleya Corona (B. Digbyana × C. Schilleriana); and other hybrids.

H. S. GOODSON, Esq., Fairlawn, Putney (gr. Mr. G. E. Day), sent Odontoglossum percultum Clarksonii, a fine flower, heavily blotched with chocolate-purple; O. crispo-Wiganianum, canary-yellow; two plants of O. Goodsoniæ; and O. Eleanor.

Mr. W. A. MANDA, St. Albans, sent Cattleya Warscewiczii Mandaiana, a curious light form.

Monsieur MERTENS, Ghent, showed two Odontiodas and Odontoglossums.

W. WATERS BUTLER, Esq., Southfields, Edgbaston (gr. Mr. Jones), showed Lælio-Cattleya Martinettii, "Southfields variety" (C. Mossiæ Arnoldiana × L. tenebrosa), a charming flower, with lemon-yellow sepals and petals, and light-coloured lip, with dark claret disc and veining; and L.-C. Ganymede (L. Latona × C. Schröderæ). (See Awards.)

AWARDS.

FIRST-CLASS CERTIFICATES.

Lælio-Cattleya Baroness Emma (L.-C. eximia × C. Hardyana), from Baron BRUNO SCHRÖDER, The Dell, Englefield Green (gr. Mr. J. E. Shill). A grand hybrid, of fine size and form, all the segments broad and well displayed. Sepals and petals silver white, tinged and veined with bright rose-pink, the broad front of the lip purplish crimson, the tube white and yellow, with dark lines from the base.

Odontioda Cooksoniæ "Fowler's variety" (see fig. 198) *(O. ardentissimum × C. Noezliana)*, from Messrs. CHARLESWORTH & Co. In effect, this noble hybrid resembles a deep blood-red Odontoglossum eximium, though the Cochlioda is evident in the colour and form. The sepals and petals are deep blood-red, with a slight purple shade, the tips and a very narrow margin being whitish. The labellum, which shows Odontoglossum Pescatorei, derived through O. ardentissimum, is white, with a large red blotch surrounding the yellow crest.

AWARDS OF MERIT.

Miltonia Bleuana Rising Sun, from Baron BRUNO SCHRÖDER (gr. Mr. J. E. Shill). A very large, clear-white flower, with brownish-orange, ray-like disc to the lip.

Odontonia St. Alban (Miltonia Warscewiczii × Odontoglossum Pescatorei), from Messrs. SANDER & SONS, St. Albans. A very pretty hybrid, with a branched spike of flowers resembling O. Pescatorei in shape. The flowers have a pure-white ground evenly spotted with dark claret-red.

Lælio-Cattleya × Ganymede "Southfields variety" (L. Latona × C. Schröderæ), from W. WATERS BUTLER, Esq., Southfields, Edgbaston (gr. Mr. Jones). A very bright flower, with chrome-yellow sepals and petals, and ruby-crimson to the undulated front of the lip.

Fruit and Vegetable Committee.

Present: Geo. Bunyard, Esq. (in the Chair); Messrs. J. Cheal, J. Willard, E. Beckett, Wm. Pope, A. W. Metcalfe, F. G. Treseder, A. Grubb, H. Markham, P. D. Tuckett, A. Bullock, W. H. Divers, Owen Thomas, W. Bates, W. Humphreys, J. Davis, and A. R. Allan.

Mr. COURSE, Bedford, was awarded a Silver Medal and a Card of Cultural Commendation for an exhibit of three large bundles of Asparagus. Although the shoots were unusually large they were free from grossness, the edible portion being exceptionally long.

Messrs. WHITELEGG & PAGE, Chislehurst, Kent, exhibited several exceedingly fine fruiting growths of the Newberry—the cross between the Raspberry and the Loganberry—the fruits were very large, of good flavour, and coreless. (Card of Cultural Commendation.)

NATIONAL GLADIOLUS.

JUNE 18.—The Silver Medal for the best 12 varieties of early-flowering Gladioli, six spikes of each, was awarded to Messrs. E. H. WHEADON & SONS, La Couture, Guernsey. With the exception of the variety Peach Blossom, the varieties were of their own raising, the best being Keepsake, Dauntless, and Acquisition. The Bronze Medal was awarded to Mr. C. B. BLANPIED, St. Martins, Guernsey.

In the class for six varieties, six spikes of each, Mr. FRANK LILLEY, Guernsey, received the Silver Medal. He showed the brightly-coloured variety King Edward VII in exceptionally good form. Mr. BLANPIED'S collection won the Bronze Medal.

There was no award made in the class for three spikes of any new variety either not in commerce or not distributed earlier than the autumn of 1910.

In the similar class, restricted to varieties not distributed earlier than 1911, Messrs. WHEADON received the Silver Medal for the variety E. H. Wheadon, a bright-crimson flower with purple flakes.

Mr. LILLEY was the only competitor to arrange a group of Gladioli in a space of 6 feet by 3 feet,

FIG. 198.—ODONTIODA COOKSONIÆ "FOWLER'S VARIETY."

and he deservedly received the Silver Medal. The varieties King Edward VII, King of Spain, and Queen Alexandra were especially fine.

AWARDS OF MERIT.

Gladiolus Innocence.—An exceedingly good, pure-white variety, raised by Mr. T. W. LE PAGE, Guernsey. The flowers are much larger than those of the well-known variety The Bride, and the purity of the colour is also a great advancement.

G. Cardinal.—The flower-buds of this fine variety are scarlet, and the fully-expanded flowers are bright-salmon in colour, with white flakes. Shown by Messrs. E. H. WHEADON.

NATIONAL HARDY PLANT.

JUNE 19.—The first exhibition of this society was held at the R.H.S. Hall on Wednesday last. In the absence of Mr. A. J. Macself, who has undergone an operation, the secretarial duties were performed by Mr. Richard Pinches. Some of the exhibitors at the previous day's R.H.S. Show re-arranged their collections, and these, with additional exhibits, gave the Hall a very attractive appearance. There were nearly 60 entries for the 19 classes. Many of the flowers shown were very meritorious, the Delphiniums, Sweet Williams, and Pinks being especially good. There were 21 medals awarded to non-competitive exhibits; one First-class Certificate and five Awards of Merit to novelties.

COMPETITIVE CLASSES.

The Gold Medal for the best exhibit in the show was awarded to Messrs. F. SMITH & Co., Woodbridge, Suffolk, whose collection included good seedling Delphiniums, Iris aurea, Lilium Hansonii and Polemonium Richardsonii alba.

Mr. F. BOUSKELL, Market Bosworth, Nuneaton, was awarded the premier medal for the collection of hardy herbaceous cut perennials arranged on a table space of 15 feet by 5 feet. Mr. BOUSKELL showed, in Papaver Lady Roscoe, very brightly-coloured flowers; his Delphiniums and Iris Lord Rosebery were also noteworthy. The Silver-gilt Medal in this class was awarded to Messrs. BEES, LTD., Liverpool.

Messrs. G. & A. CLARK, Dover, received the Gold Medal in the class intended to represent a hardy flower border. In this exhibit a bright strain of single Pyrethrum was the outstanding feature. The second award was given to Messrs. WHITELEGG & PAGE.

The collection of Iris which won the Silver Medal for Mr. BOUSKELL contained some good varieties. Messrs. BLACKMORE & LANGDON were the winners of the 1st prize for a collection of Delphiniums, and Messrs. R. H. BATH were a close 2nd.

The 12 vases of Pinks (Silver Medal) exhibited by Mr. R. MORTON formed a very interesting collection of these charming little flowers. Mr. NORMAN won the Silver Medal for the best collection of cut blooms of hardy herbaceous flowers; 2nd, Mr. BRODIE-HENDERSON; and Mr. MORTON also exhibited the best collection of Pæonies. Mr. J. BOSTOCK, who received the 1st prize, exhibited some good Violas, and was closely followed by Mr. A. M. SHARRATT. The 1st prize for six vases of Pinks was awarded to Mr. R. MORTON. The best four vases of herbaceous flowers were those shown by Mr. BRODIE-HENDERSON; 2nd, Mr. R. MORTON, and, in a similar class, Mr. BROTHERSTONE was 1st, and Mr. BRODIE-HENDERSON 2nd.

NON-COMPETITIVE AWARDS.

Gold Medals were awarded to Messrs. BLACKMORE and LANGDON for Delphiniums; Mr. M. PRICHARD, for hardy herbaceous flowers; Messrs. W. CUTBUSH & SONS, for flowers of Nymphæas and border plants; Messrs. BARR & SONS, for a collection of herbaceous perennials; Mr. AMOS PERRY, for Nymphæa blooms and border flowers; Messrs. PIPER & SONS, for a rockery.

Silver-gilt Medals were awarded to Messrs. H. B. MAY & SONS, for a collection of hardy Ferns; to Messrs. W. & J. BROWN, Messrs. T. S. WARE, and Mr. J. BOX, for herbaceous flowers; and to Mr. G. REUTHE, for a collection of hardy plants.

Silver Medals were awarded to Messrs. CARTER, PAGE & Co., for Violas; Mr. W. J. GODFREY, for Canterbury Bells; Mr. F. BOUSKELL, for a collection of Verbascum varieties; Messrs. KELWAY & SONS, for Pæonies and Delphiniums; Messrs. J. CHEAL & SONS, for a rockery; and to Messrs. GIBSON & Co., Messrs. GEO. BUNYARD & Co., Messrs. BAKER, LTD., Messrs. R. H. BATH, LTD., and Mr. V. SLADE, for collections of hardy border flowers.

FIRST-CLASS CERTIFICATE.

Wahlenbergia vincæflora.—A free-flowering, dwarf, herbaceous perennial. The sky-blue flowers are borne on slender stalks. Shown by Mr. REG. PRICHARD.

AWARDS OF MERIT.

Rodgersia tabularis.—A Chinese species which produces dense heads of sweetly-scented flowers. Shown by Mr. AMOS PERRY.

Delphinium Lavanda.—See R.H.S. Awards in present issue.

D. Dusky Monarch.—See R.H.S. Awards in *Gardeners' Chronicle*, June 8 last.

Lithospermum Fræbellii.—A dwarf, compact plant, with Rosemary-like leaves and deep-blue flowers on erect stems about 9 inches high. Shown by Mr. REG. PRICHARD.

Gladiolus Queen Mary.—An early-flowering Gladiolus; the salmon-pink flowers have white flakes and are larger than is usual in this class. Shown by Messrs. BARR & SONS.

CERTIFICATE OF MERIT.

Lavatera Olbia.—See R.H.S. Awards in present issue.

YORKSHIRE GALA.

JUNE 19, 20, 21.

THIS annual exhibition was held in the Bootham Park, York, and it will rank as one of the most successful of the series, which now includes 54. The weather was fine on the opening day, although rain threatened, and visitors were very numerous. The exhibits reached a high standard of quality, notably the groups of indoor foliage and flowering plants, Roses, Orchids, hardy herbaceous flowers, and rock-gardens, whilst non-competitive exhibits were contributed by some of the principal nursery firms in the country, who had no small share in making the show successful. The arrangements were, as usual, carried out without a hitch, under the supervision of the secretary, Mr. Fred. Arey.

GROUPS OF PLANTS.

The groups of fine foliage plants were, as usual, a fine feature of the show, being arranged along the centre of one of the largest tents. In the important class for a group of miscellaneous plants, in or out of bloom, occupying a space of 300 square feet, there were six competitors. The 1st prize was awarded to J. PICKERSGILL, Esq., Bardon Hill, Weetwood, Leeds (gr. Mr. J. Donoghue). The group was adjudged the best exhibit in the show, and received the special prize offered by the Archbishop of York. It was complete without overcrowding, producing a light effect of richly-coloured foliage and flowering plants. The ground was bright with Caladiums, small Codiæums, and Ferns, from which arose tall plants of Humea elegans, sprays of Odontoglossums and Oncidiums, with bright Codiæums as foils; a fine Kentia, grouped about with pillar Roses, dominating the whole; 2nd, Mr. W. A. HOLMES, West End Nurseries, Chesterfield, who made a very attractive exhibit of Codiæums, Dracænas, Caladiums, Ferns, Palms, Orchids, Carnations and Roses; 3rd, Mr. W. VAUSE, Leamington; 4th, Mr. F. H. WARD, Scarcroft Nursery, York.

Mr. PICKERSGILL also excelled in the smaller, similar class for a group of plants occupying a space of 200 square feet, in competition with three other exhibitors. He was followed closely by Mr. W. A. HOLMES, whilst Mr. VAUSE was a good 3rd.

SPECIMEN STOVE AND GREENHOUSE PLANTS.

Messrs. J. CYPHER & SONS, Cheltenham, excelled easily in the class for a collection of stove and greenhouse plants in bloom, arranged in a space of 20 feet by 10 feet. Their best examples were Statice profusa, Clerodendron Balfouri, Bougainvillea Cypheri, Erica ventricosa, Franciscea eximea, and Clerodendron Fallax; 2nd, Mr. W. VAUSE, with large, well-flowered specimens of Genetyllis fuchsioides, Pimelia Hendersonii, Erica Cavendishii, and Anthurium Scherzerianum.

Messrs. CYPHER & SONS were also placed 1st in the class for three stove or greenhouse plants in bloom, with Erica ventricosa magnifica, E. Cavendishiana and Clerodendron Balfouri, the first-named plant being almost a perfect specimen. The 2nd prize was awarded to Mr. W. VAUSE, for good plants of Erica Cavendishiana and Bougainvillea Sanderiana. These two were the only exhibitors.

The best single specimen stove plant in bloom was Ixora Williamsii, shown by Messrs. JAMES CYPHER & Co.; 2nd, Captain WALKER, Mill Mount House, York (gr. Mr. H. W. Clark), with Anthurium Scherzerianum; 3rd, Mr. W. VAUSE, with Bougainvillea glabra.

In the similar class for a specimen greenhouse plant, Messrs. CYPHER & SONS won the 1st prize with a very large plant of Erica ventricosa magnifica; 2nd, Mr. VAUSE, E. exquisita.

For six ornamental fine foliage or variegated plants, including two specimens of Codiæums (Crotons), Messrs. J. CYPHER & SONS led easily, having a magnificent plant of Latania borbonica, Kentia Fosteriana, K. australis, Codiæum Countess and C. Flambeau; 2nd, Mr. W. VAUSE; 3rd, Messrs. R. SIMPSON & SON, Selby, who showed the best three Codiæums in a class for those plants.

ORCHIDS.

The exhibits of Orchids, both competitive and non-competitive, well maintained the standard of the York shows. The principal class was for a table furnished with Orchids arranged for effect. The inclusion of cut blooms, as well as plants, was permitted, the object being to produce the best decorative effect. As usual, Messrs. J. CYPHER & Co. excelled easily, making a pleasing arrangement with such decorative subjects as Brassia verrucosa, showy Oncidiums, Odontoglossums, Lælio-Cattleya Canhamiana and other Lælio-Cattleyas, Miltonias, and other species.

The 2nd prize was awarded to Messrs. MANSELL & HATCHER, Rawdon, Leeds, for an effective display of Cattleyas, Miltonias, Oncidiums, Renanthera Imschootiana, and pale-flowered Odontoglossums; 3rd, Messrs. HASSELL & Co., Southgate.

Messrs. J. CYPHER & Co. also excelled in the class for 10 Orchids in bloom, distinct, with Vanda teres, Phalænopsis Rimestadiana, Cypripedium Curtisii, Lælio-Cattleya Aphrodite, Miltonia vexillaria, &c.; 2nd, W. P. BURKINSHAW, Esq., Hessle, Hull (gr. Mr. Barker), with Miltonia vexillaria, especially good, also fine specimens of Lælio-Cattleya Fascinator, L.-C. tenebrosa Walter Grange variety, and Cattleya gigas; 3rd, Messrs. HASSELL & Co.

There was a keen competition in the class for six Orchids in bloom, distinct, which resulted in Mr. BURKINSHAW (gr. Mr. Barker) being placed 1st. The plants included a specimen of Cattleya Mossiæ with 21 blooms, a choice example of C. gigas, fine Cypripedium Schilleriana, Miltonia vexillaria and Renanthera Imschootiana; 2nd, Messrs. JAMES CYPHER & SONS, whose best plants were Lælio-Cattleya Canhamiana, L.-C. Kranzlinii, Cattleya Whitei and Renanthera Imschootiana; 3rd, Messrs. HASSELL & Co.

The best specimen Orchid was shown by Mr. BURKINSHAW in Miltonia Bleuana Hessle var.; 2nd, Messrs. J. CYPHER & Co. for a fine type of Odontoglossum percultum. This firm won the 1st prize in the class for three Orchids in bloom, being followed by Mr. BURKINSHAW, who excelled for six Orchids in a class reserved for amateurs, and in a similar class for three Orchids.

ROSES.

The exhibits of Roses were equal to the finest we have seen at the York shows, the blooms being up to the best exhibition standard.

Two classes were provided for groups of plants in pots, the larger for a collection occupying 15 feet by 7 feet, the smaller for not fewer than 20 pots.

In the premier class the 1st prize was awarded to Mr. W. H. TODD, 19, Vyner Street, York. The centre of the group was furnished with weeping ramblers, the back having an archway trained with Dorothy Perkins, and the centre a standard of Hiawatha. At either corner in the front were standard plants of a white rambler, whilst the ground was comprised of good blooms of Hybrid Perpetuals and Hybrid Teas. 2nd, Mr. W. LANGSTAFFE, who showed many ramblers, including a freely-bloomed specimen of Dorothy Perkins.

In the class for 20 plants in pots, the best of four exhibits was staged by Mr. W. LANGSTAFFE, his rambler varieties being very well flowered, the variety Hiawatha especially. 2nd, Mr. W. H. TODD. 3rd, Mr. H. PYBUS, Monkton Moor.

CUT BLOOMS.—The most important class was for 72 blooms in not fewer than 36 varieties. There were three exhibits, all by well-known growers, and the 1st prize was awarded to Messrs. D. PRIOR & SONS, Colchester. A selection of the premier blooms includes Florence Pemberton, Mme. Jules Gravereaux, Joseph Hill, Lady Ashtown, Mrs. Arthur Coxhead, Bessie Brown, Mrs. W. J. Grant, Mrs. E. G. Hill, Mrs. Kershaw, Hugh Dickson, Yvonne Vacherot, Lohengrin, Marchioness of Londonderry, Countess of Caledon, and A. K. Williams. 2nd, Messrs. FRANK CANT & Co., Colchester, with Mme. Jules Gravereaux, Frau Karl Druschki, Dupuy Jamain, Mildred Grant (a magnificent specimen), Florence Pemberton, Mrs. John Laing, Hugh Dickson, Caroline Testout, and Ulster, especially good. 3rd, Messrs. JARMAN & Co., Chard.

Messrs. PRIOR & SON also excelled in the class for 48 blooms, distinct, in not fewer than 24 varieties, there being seven exhibits. A selection of the choice blooms in Messrs. PRIOR's collection includes Mme. Jules Gravereaux, Mildred Grant, Lohengrin, Mamie, La France '89, White Maman Cochet, Aimée Cochet, Dean Hole, William Shean, Juliet, Lyon Rose, Mrs. Theodore Roosevelt, and Countess of Caledon. 2nd, Mr. GEO. PRINCE, Longworth, Berkshire, who showed Mrs. Edward Mawley, Hugh Dickson, Mme. Jules Gravereaux, Mrs. W. J. Grant, Lady Ashtown, and William Shean with others. 3rd, Messrs. FRANK CANT & Co., Colchester.

Messrs. D. PRIOR & SON also carried off the 1st prize in the class for 36 blooms in not fewer than 18 varieties with similar varieties to those named. 2nd, Messrs. FRANK CANT & Co. 3rd, Mr. HENRY DREW.

For 24 distinct varieties of Roses there was a keen competition amongst five exhibitors, and Messrs. FRANK CANT & Co. were awarded the 1st prize with a very fine collection, notably Dr. O'Donel Browne, Boadicea, Yvonne Vacherot, Avon, Mrs. John Laing, Maman Cochet, Helene Guillot, J. B. Clark, and Gloire de Chedane Guinoisseau; 2nd, Messrs. D. PRIOR & SON with an exhibit but little inferior in quality.

For 18 distinct varieties the 1st prize was awarded to Mr. GEO. PRINCE, whose blooms of Lady Ursula, Bessie Brown, Mme. Jules Gravereaux, William Shean, Hugh Dickson, Ethel Malcolm, and Mrs. Hubert Taylor were specially good; 2nd, Messrs. D. PRIOR & SON, with Mrs. W. J. Grant, Richmond, Lyon, Mme. Jules Gravereaux, Lady Ashtown, Mildred Grant, William Shean, and others; 3rd, Mr. E. J. HICKS.

The best stand of 12 blooms of white and yellow Roses was shown by Messrs. D. PRIOR & SONS, who staged Frau Karl Druschki, Medea, Mme. Vermorel, Mme. Constance Soupert and Melanie Soupert; 2nd, Mr. GEO. PRINCE; 3rd, Messrs. F. CANT & Co.

MISCELLANEOUS GREENHOUSE PLANTS.

Three exhibits of Carnations were forthcoming in the class for a group of plants in bloom, arranged in a space of 12 feet by 6 feet. The contest was keen between the Duke of NEWCASTLE, Clumber, Worksop (gr. Mr. S. Barker), and Mr. PICKERSGILL (gr. Mr. J. Donoghue) for the premier place, and the judges decided in favour of the former exhibitor. His Souvenir de la Malmaison varieties were splendid plants, with a scarlet and Clove variety at the back and front respectively. Mr. PICKERSGILL showed "Malmaisons" almost exclusively, but included a few border varieties at the back and on either side; 3rd, Mr. W. LANGSTAFFE, York.

Classes were provided for Gloxinias, Begonias, and Calceolarias, and in each of these sections the exhibits were meritorious, the plants being well-flowered and pleasingly staged. The principal awards were as follow:—

For a group of Gloxinias—1st, Capt. WALKER, York; 2nd, JOSEPH ROWNTREE, Esq., York (gr. Mr. F. Dean).

Eight plants of Gloxinias—1st, Mr. THOMAS WINN, York.

For a group of tuberous-rooted Begonias, arranged for effect—1st, Mr. THOS. WINN; 2nd, Mrs. FERRIER, Fulford Croft, York (gr. Mr. S. Linfoot). For eight plants of tuberous-rooted Begonias—1st, Mr. ROWNTREE; 2nd, Mr. H. S. WATSON, York.

For a group of Calceolarias, arranged with foliage plants or Ferns for effect—1st, Mr. Jos. ROWNTREE; 2nd, Capt. WALKER.

HARDY PLANTS.

York may be said to have set the fashion in exhibiting pretentious groups of hardy plants with rockery and water-pool. In recent years these occasioned large excavations, and to discourage this the schedule stipulated that no digging would be permitted on this occasion. This appeared no great disadvantage, for the 1st prize exhibit, contributed by Messrs. J. BACKHOUSE & SON, LTD., York, was excellent in every respect. The old, weather-worn stones gave an air of reality to the design, which included a water-pool, planted with Nymphæas. The front was especially pleasing, whilst at the back, at one end, was a large escarpment planted with hardy Orchids and Primulas, and

at the other a grotto of Ferns, with pool. The rock plants included a good assortment of the best subjects in season, with appropriate shrubs at points of vantage; 2nd, Messrs. W. ARTINDALE & Co., Sheffield, who banked large masses of rock at the back, with a pathway at the foot, leading by a narrow stream. The front was gay with Alpine flowers, whilst bold trusses of Rhododendrons dominated the higher parts of the background; 3rd, Mr. S. PICKERING, 31, Rosslyn Street, Clifton, York, who exhibited a very meritorious design, marred somewhat by an obtrusive, rustic bridge.

COLLECTION OF HARDY HERBACEOUS PERENNIALS.—This important class attracted four exhibitors, who all showed well. The exhibits each occupied a space of 300 square feet, and the collective displays made an imposing feature in one of the largest tents.

The 1st prize was awarded to Messrs. J. BACKHOUSE & SON, who set out their plants in beds, with stone pathways having plants in the crannies. The plants included Pæonies, Liliums, Lupins, Irises, Anchusa, Pyrethrums, Campanulas, Gladioli, Lychnis, Aquilegias, and a wealth of other seasonable subjects; 2nd, Messrs. W. ARTINDALE & SON, who showed splendid spikes of Eremuri, Lupins, Verbascum panosum, Delphiniums, and Liliums grouped amongst Irises, Pæonies, Pyrethrums, Campanulas, and the like, all of excellent quality; 3rd, Messrs. G. GIBSON & Co., Bedale.

TWENTY ALPINE AND HERBACEOUS PLANTS IN POTS.—This class was staged out-of-doors, and the exhibits numbered three. Much the best display was made by Mr. WALTER PYBUS, Monkton Moor, Leeds. His best plants were Nepeta violacea, Mimulus Fillingii, Campanula turbinata, Saxifraga pyramidalis, and Achillea Ptarmica The Pearl; 2nd, Mr. S. PICKERING. Cerastium tomentosum, Phlox canadensis, Geranium pratense, and Funkias were noteworthy plants in this group; 3rd, Mr. G. W. PINKNEY.

FRUIT AND VEGETABLES.

The schedule included 17 classes for fruits, including Tomatos, and two for collections of vegetables. The most important class in the fruit section was for a decorated table of ripe fruit arranged on a space 10 feet by 4 feet 6 inches. Eight points were allowed each for black and white Grapes, Peaches, Nectarines, and Pineapples, all other fruits to be given a maximum of six points. The flowers and their arrangement carried 24 points as a maximum. There were three competitors, and each showed well, the 1st prize being won by the Duke of WESTMINSTER, Eaton Hall (gr. Mr. N. F. Barnes). The fruits in this exhibit, although not of large size, possessed high quality, and the decorations were very pretty, the pink Thalictrum giving grace and lightness to the display. There were Grapes Madresfield Court, Muscat of Alexandria; Nectarines Lord Napier and Pineapple; Peaches Royal George and Peregrine; Apples Eatonian and James Grieve; Plums Jefferson's and Kirk's; Pears Triomphe de Vienne and Dr. Jules Guyot; and Melons Hero of Lockinge and Eaton Seedling. The points awarded were: Grapes, 23; Nectarine, 13½; Peaches, 13; Apples, 10½; Plums, 9½; Pears, 10; Melons, 9; which, with 20½ points for decorations, made a total of 109 points. The 2nd prize was awarded to the Duke of ST. ALBANS, Bestwood Park, Arnold, Nottinghamshire (gr. Mr. J. Edmonds). This exhibitor obtained 95 points, his best fruits being Grapes Black Hamburgh, Strawberry Royal Sovereign, and Nectarine Lord Napier. The decorations were comprised mainly of Carnations. 3rd, Messrs. SIMPSON & SON, LTD., York.

The class for a collection of 10 kinds of fruits, in which £7 was offered as the 1st prize, brought four displays. Here the Duke of NEWCASTLE, Clumber, Worksop (gr. Mr. S. Barker), excelled with good bunches of Foster's Seedling and Black Hamburgh Grapes, Lady Sudeley Apples, Royal Sovereign Strawberries, Early Transparent Plums, Brown Turkey Figs, Royal George Peaches, Royal Jubilee Melon, and Lord Napier Nectarines; 2nd, The Duke of ST. ALBANS; 3rd, J. BRENNAND, Esq., Baldersby Park, Thirsk (gr. Mr. J. E. Hathaway).

In the class for six kinds of fruit, the premier exhibit was from the gardens of the Duke of ST. ALBANS; the Duke of NEWCASTLE following, with Mr. BRENNAND 3rd.

For four dishes of fruit, the 1st prize was won by W. D. CLIFF, Esq., Meanwood Towers, Leeds; 2nd, the Duke of ST. ALBANS; 3rd, Mr. BRENNAND (gr. Mr. Hathaway).

There were classes for two bunches of Black Hamburgh Grapes and two bunches of any white variety respectively. In the former class the winning bunches were shown by the Duke of ST. ALBANS, being shapely and finely coloured; 2nd, Lady HAWKE, Tadcaster (gr. Mr. H. Bray). In the class for white Grapes, the Duke of ST. ALBANS was again successful, showing well-grown Muscat of Alexandria; 2nd, Mr. W. D. CLIFF, Meanwood Towers, Leeds (gr. Mr. W. N. Hague); 3rd, Duke of WESTMINSTER.

The finest Peaches were shown by the Duke of WESTMINSTER, the variety being Royal George; 2nd, The Marquis of RIPON, Studley Royal (gr. Mr. Thomas), with Hale's Early.

The best Nectarines were of the variety Lord Napier, shown by Col. HARRISON-BROADLEY, M.P., Welton House, East Yorkshire (gr. Mr. C. Lawton); fruits of the same variety were also placed 2nd, shown by the Duke of ST. ALBANS.

Melons were shown numerously, and the awards were as follow:—(Green-fleshed) 1st, Duke of NEWCASTLE with Lord Derby; (scarlet-fleshed) 1st, A. S. LAWSON, Esq., Aldborough Manor, Boroughbridge (gr. Mr. A. Nicholson), with Emerald Gem; (white-fleshed) 1st, Lieut.-General PAKENHAM, Longford Lodge, Crumlin, Co. Antrim (gr. Mr. H. Dew), with a seedling variety.

The best Pine was shown by the Duke of ST. ALBANS, and the best Strawberries and Figs by the Marquis of NORTHAMPTON, Castle Ashby (gr. Mr. Searle).

In Messrs. Sutton & Sons' class for a collection of six distinct kinds of vegetables, the 1st prize was awarded to the Marquis of NORTHAMPTON (gr. Mr. Searle); 2nd, Mr. W. D. CLIFF (gr. Mr. W. N. Hague). The exhibitors also won in this order in Messrs. Ed. Webb & Sons' class for a similar collection.

NON-COMPETITIVE EXHIBITS.

Mr. GEO. PRINCE, Longworth, Berkshire, showed Roses against a dark cloth background. The beautiful Juliet variety was conspicuous in many good blooms, also Rayon d'Or, Lady Hillingdon, Lady Pirrie, and Le Progrès. (Large Silver Medal.)

Mr. ELISHA J. HICKS, Hurst, Berkshire, made one of the finest displays with Roses, the blooms being remarkably fresh and well displayed. In tall epergnes were arranged choice blooms of Mme. Mélanie Soupert, Richmond, Lady Hillingdon, Mme. Abel Chatenay, and Pharisaer. Canarien Vogel, a dwarf Polyantha variety, canary-yellow, tipped with orange, is remarkably pretty. (Large Gold Medal.)

Messrs. W. & J. BROWN, Peterborough, staged beautiful Roses in the tent containing the groups of plants, for which a Silver-gilt Medal was awarded.

Mr. HENRY DREW, Longworth, Berkshire, showed garden Roses, the fine Wallflower (pillar) being specially good, with Irish Elegans in front. (Silver Medal.)

Mr. A. F. DUTTON, Iver, Buckinghamshire, displayed a large number of Carnations of the perpetual-blooming type, having good bloom of the more popular varieties. (Silver-gilt Medal.)

Mr. C. F. WATERS, Balcombe, Sussex, contributed vases of Carnations. (Silver-gilt Medal.)

Messrs. YOUNG & Co., Cheltenham, exhibited Carnations in large sheaves, the yellow Cecilia, Mikado, May Day, Duchess of Devonshire (crimson), Mrs. Greswold Williams (heliotrope, shaded with rose), Supèrieure (rich rose), Edith Waterer (rose), and Scarlet Glow, were all good. (Gold Medal.)

Messrs. DOBBIE & Co., Edinburgh, had a magnificent exhibit of Sweet Peas, the quality of the flowers being superb. The grouping was done with much taste, just sufficient greenery being employed to produce the best effect. The varieties included Dobbie's Scarlet, Elfrida Pearson (soft pink), True Lavender, Mrs. Cuthbertson (rose and white), Edrom Beauty (rose, with orange standard), Thos. Stevenson (a magnificent vase of this beautiful orange-red variety), Lavender G. Herbert, Melba, and May Campbell (rose marbling on cream). (Large Gold Medal.)

Mr. C. W. BREADMORE, Winchester, showed 100 vases of Sweet Peas, representing about 40 varieties. Notable varieties were Marjorie Linzee, Freda (white), Dazzler (orange-scarlet), Elsie Herbert (white, with a pink edge), Mrs. Hallam (pink, on a cream ground), Frilled Cream, Melba, Lord Curzon (magenta), and Audrey Crier. (Silver-gilt Medal.)

Mr. W. J. UNWIN, Heston, showed a small but choice exhibit of Sweet Peas. (Silver Medal.)

Messrs. E. W. KING & Co., Coggeshall, Essex, showed Sweet Peas most attractively, having specially good vases of such fine sorts as Mrs. Hardcastle Sykes, Stirling Stent, Thomas Stevenson, Constance Oliver, Nora Unwin, Mrs. Cuthbertson, Mrs. W. J. Unwin, and Helen Lewis. (Large Gold Medal.)

Miss HEMUS, Upton-on-Severn, exhibited Sweet Peas and Iceland Poppies, the Sweet Peas including the varieties Evelyn Hemus, Primrose Paradise, Helio, Holdfast Belle, and Midnight. (Silver Medal).

Messrs. CHARLESWORTH & Co., Haywards Heath, arranged a collection of choice Orchids in the special tent for these flowers. Notable plants were Lælio-Cattleya Canhamiana alba, Cattleya-Mossiæ Wageneri, Odontoglossum Aireworth, and Cattleya-Mossiæ Reineckiana. (Large Silver-gilt Medal.)

Messrs. SANDER & SONS, St. Albans, also contributed a fine group of Orchids, for which a Gold Medal was awarded. Lælio-Cattleya Fascinator, Cattleya gigas Sanderiana, and Miltonia vexillaria Lambeauiana were outstanding plants.

Messrs. MANSELL & HATCHER, Rawdon, Leeds, showed choice Orchids, including well-flowered plants of Cypripedium Smithii, Lælio-Cattleya Martinettii, L.-C. Eudora, and Cypripedium Curtisii. (Silver-gilt Medal.)

Mr. J. E. SADLER, Newbury, Berkshire, showed Odontoglossums and Odontiodas in a setting of Ferns and hardy flowers, including a good white-flowered Delphinium, named Moerheimii (Silver Medal.)

Messrs. S BROADHEAD & SON, Huddersfield, showed a rock-garden, planted with suitable subjects.

Messrs. EDWARD WEBB & SONS, Wordsley, Stourbridge, made a very attractive exhibit with flowers and vegetables. Against a background of Hydrangeas, Lilies, and Sweet Peas were arranged Melons, Tomatos, Carrots, Beet, Peas, Onions, and other produce from this firm's seeds. A central batch of Gloxinias and tall epergnes of Sweet Peas at either end provided a pleasing setting to the collection. (Large Gold Medal.)

Messrs. SUTTON & SONS, Reading had a pretty exhibit of flowers and vegetables, the quality of the produce and the method of staging meriting every praise. Melons, Tomatos, Peas, Beans, Marrows, Carrots, Potatos, also other kitchen garden produce were represented in high quality vegetables. (Large Gold Medal.)

ROBERT SYDENHAM LIMITED, Birmingham, filled rustic metal flower-holders with varieties of Sweet Peas, relieved with Gypsophila, an admirable method of displaying these pretty flowers.

Messrs. W. CUTBUSH & SON, Highgate, showed Carnations and greenhouse plants. The latter included small plants of Hydrangea hortensis carrying large inflorescences, the variety Mme. E. Mouillère being the finest white, and General de Vibraye the best of the pink sorts; Coleus Cordelia, Marguerite Mrs. F. Sander, Codiæums, and Polyantha Roses. The Carnations included the new scarlet Mrs. L. Mackinnon and Lord Rothschild (clove). (Special Gold Medal.)

Mr. CLARENCE ELLIOTT, Stevenage, built a rockery with his usual skill, employing old grey sandstone, down which hung masses of Thymus serpyllum, Dianthus deltoidea albus, Nepeta Massinii, Viola gracilis, and Campanula Miss Willmott, with Oxalis enneaphylla, Nierembergia rivularis, Coronilla cappadocica, and other plants in "pockets." (Silver-gilt Medal.)

Messrs. HOGG & ROBERTSON, Dublin, showed bunches of Ixias and Spanish Irises; the former included William the Conqueror (lemon, streaked with red), Village Maid (rose with white interior), Smiling Mary (bright rose), and Wonder (a double rose variety). (Large Silver-gilt Medal.)

Messrs. GODFREY & SONS, Exmouth, displayed Oriental Poppies, Sweet Scabious, Campanula medium (Canterbury Bells), and varieties of fancy Pelargoniums. (Silver Medal.)

Messrs. R. H. BATH, LTD., Wisbech, had an imposing exhibit of Pæonies, Delphiniums, Spanish Irises, and miscellaneous border flowers. (Silver-gilt Medal.)

Messrs. JARMAN & Co., Chard, exhibited Centaureas (Sweet Sultan), also Pelargoniums, Carnations, and Sweet Peas. (Silver Medal.)

A remarkably fine exhibit of border flowers was shown by Messrs. DICKSONS, Chester. (Large Silver-gilt Medal.)

Messrs. KELWAY & SON, Langport, Somerset, also contributed a splendid assortment of border flowers. Their Pæonies, Delphiniums, and Gaillardias were of outstanding merit. (Silver-gilt Medal.)

Messrs. GEO. MASSEY & SONS, Spalding, exhibited fine Pæonies and other border flowers. (Silver Medal.)

Messrs. S. BIDE & SONS, Farnham, Surrey, exhibited a collection of Sweet Peas.

Mr. W. A. MANDA, St. Albans, Hertfordshire, showed choice Ferns and greenhouse foliage plants. The handsome Polypodium Mandaianum, Furcræa Watsonii, and Anthericum Mandaianum are deserving of mention.

Mr. CHARLES WARNER, Abbey Nurseries, Leicester, filled a large table with hardy Fuchsias, with a border of rambler Roses. (Silver Medal.)

Mr. H. N. ELLISON, West Bromwich, had a comprehensive collection of Cactaceous plants and a collection of Ferns. The Cacti were exhibited on behalf of Mr. F. A. HAAGE, JUN., Erfurt, and were awarded a Silver Medal.

Messrs. H. B. MAY & SONS, Edmonton, exhibited a large assortment of Ferns, all the plants being of splendid quality, and displayed with skill. (Silver-gilt Medal.)

Messrs. E. J. BATCHELOR & SONS, Harrogate, exhibited Ferns, including a large batch of a very plumose variety of Nephrolepis exaltata, named Batchelori. (Large Silver Medal.)

Messrs. SEAGRAVE & Co., Sheffield, showed Violas and Pelargoniums. (Silver Medal.)

Mr. G. W. MILLER, Wisbech, staged border flowers and choice bunches of Viola purpurea.

Messrs. ALDERSEY & MARSDEN JONES, Silston, Malpas, Cheshire, showed border flowers and Sweet Peas. (Silver Medal.)

Mr. YELD, 2, Burton Lane, York, was awarded a Large Silver-gilt Medal for hybrid Irises and Hemerocallis.

BIRMINGHAM BOTANICAL AND HORTICULTURAL.

JUNE 12.—Notwithstanding the fact that rain fell during the greater part of the forenoon on the above date, the annual show of Orchids and early-summer flowers, held at the Botanical Gardens, Edgbaston, was well supported. The outstanding features of the show were the Orchids from W. WATERS BUTLER, Esq., and Sweet Peas from Messrs. DOBBIE & Co.

A Gold Medal was awarded to W. WATERS BUTLER, Esq., Southfields, Edgbaston (gr. Mr. R. H. Jones), for an extensive and beautifully-arranged group of Orchids, which contained some finely-flowered specimens of Miltonia vexillaria Empress Victoria Augusta, M. v. alba, M. v. gigantea, and M. Bleuana. Choice varieties of Cattleya Mendelii, C. Mossiæ and Lælio-Cattleyas were well shown. Of the Lælio-Cattleyas, the under-mentioned varieties were particularly good: Canhamiana Iolanthe, C. Rex, Hyeana, Mrs. R. F. Gould superba, Major-general Baden Powell, Dora magnifica, and L. G. Kobbling. Large, profusely-flowered plants of Cymbidium and Vanda suavis occupied the centre of the group, and near by Phalænopsis Rimestadiana, with large, substantial flowers, was conspicuous. Odontoglossum eximium E. C. Rogerson, O. ardentissimum concinnum superbum, O. alatum. Pescatorei Grand Duchess and several forms of O. crispum were noteworthy.

Mr. E. V. Low, Vale Bridge, Haywards Heath, showed a collection of Orchids, in which we noted Cattleya Skinneri alba Vale Bridge var., C. Fascinator, C. Mossiæ alba Leonora, Peristeria elata, Cœlogyne pandurata, and two well-flowered specimens of Lælia purpurata Lowiæ; also Lælio-Cattleya Macfarlanei (with very deep-coloured lip), Dendrobium Phalænopsis, Renanthera Imschootiana, Cypripedium callosum Sanderæ, C. Euryades splendens, C. Lawrenceanum Hyeanum, and C. Godfroyæ leucochilum. (Silver Medal.)

Messrs. JAMES & A. A. MCBEAN, Cooksbridge, Sussex, also contributed a splendid group of Orchids, in which were many fine varieties of Miltonia vexillaria, Cattleya Mendelii, C. Mossiæ, Lælio-Cattleyas and Oncidiums; also Cœlogyne pandurata, Renanthera Imschootiana, beautifully-flowered plants of Odontioda Charlesworthii, and many forms of Odontoglossum crispum, with unusually long, stout spikes of large shapely flowers. (Silver-gilt Medal.)

From Mr. G. W. MILLER, Wisbech, came a collection of hardy flowers, in which specimens of the new large, double-flowered pink Pyrethrum Queen Mary were displayed in bold masses. Delphiniums, Ornithogalum lacteum, single and double Pæonies and Viola cornuta purpurea were shown in fresh condition. (Bronze Medal.)

Mrs. PEYTON, Augustus Road, Edgbaston (gr. Mr. W. Young), showed a very fine strain of large-flowered, richly-coloured Calceolarias. The plants were of compact habit and profusely flowered. Hydrangeas, Thunias, Caladiums, and Coleus were also included in this exhibit. (Bronze Medal.)

Messrs. DOBBIE & Co., Edinburgh, occupied the whole of the staging in front of the orchestra at the west end of the hall with a comprehensive collection of Sweet Peas. The flowers, borne four and five on very long stout stems, were of great size and substance, and beautifully arranged.

Mr. C. H. HERBERT, Hazelwood Road, Acock's Green, had a collection of hardy cut flowers and Alpine flowers. Included in this group were Delphiniums, Oriental Poppies, Heucheras, Pinks, Carnations, Spanish Irises, Sempervivums, Arenaria cæspitosa aurea, Veronica spicata cœrulea, Aster alpinus, and Hutchinsia alpina. (Bronze Medal.)

From Mr. GEORGE PRINCE, Longworth, Berks., came an extensive collection of beautifully-fresh Roses arranged in vases, stands of various shapes and sizes, and the orthodox show boxes. Flowers of the undermentioned varieties were well shown:—Juliet, Souvenir de S. A. Prince, Ethel Malcolm, Lady Pirrie, Viscountess Folkestone, Captain Hayward, Mrs. John Laing, Irish Elegance and the double Persian Yellow. (Silver-gilt Medal.)

ROBERT SYDENHAM LIMITED, Birmingham, exhibited 20 varieties of Sweet Peas. The best varieties were Lady Evelyn Eyre, Maud Holmes, Princess Mary, Clara Curtis, Etta Dyke, Edith Taylor, Elfrida Pearson, Countess Spencer and C. W. Breadmore. (Silver Medal.)

Mr. H. N. ELLISON, West Bromwich, sent Cacti, Ferns and Selaginellas. (Bronze Medal.)

Mr. J. BASTOCK, Springfield Road, Moseley, had a nicely-arranged collection of Violas, in which Moseley Perfection, George Dunn, Mrs. H. Hamilton, and Agnes Ray were meritorious. (Bronze Medal.)

Mr. JOHN E. KNIGHT, Wolverhampton, sent early-flowering Chrysanthemums in pots. (Vote of Thanks.)

Mr. H. MASTERS, Handsworth, exhibited Violas in sprays on a black cloth-covered groundwork. (Vote of Thanks.)

AWARDS.

FIRST-CLASS CERTIFICATE.

Lælio-Cattleya Martinettii "*Southfield variety.*"—This form is much superior to the type, the sepals and petals are very rich yellow, and the large purple lip is beautifully frilled. (Shown by W. WATERS BUTLER, Esq., Edgbaston—gr. Mr. R. H. Jones.)

AWARDS OF MERIT.

Miltonia radiola.—Flowers large, white, shaded purple, and heavily blotched with purple and yellow. (Shown by Messrs. JAS. & A. A. MCBEAN, Cooksbridge.)

M. Hypatia.—Large, white flowers suffused with pale purple, the upper petals shaded deep purple. (Shown by Messrs. JAS. & A. A. MCBEAN.)

Cypripedium Gowerii magnificum "*Schofield's variety.*"—This differs from the ordinary variety by reason of its larger and deeper-coloured flowers. (Shown by Mr. E. V. Low, Haywards Heath.)

Sweet Pea Brunette.—This variety has mahogany-coloured flowers borne on long, stout stems.

Sweet Pea Decorator.—A very handsome, bright, rose-coloured flower of great substance.

Sweet Pea Dobbie's Scarlet.—Large, bright, scarlet flowers suffused with cerise.

Sweet Pea Thomas Stevenson.—See *Gard. Chron.*, June 8, 1912, p. 380.

Sweet Pea Lavender George Herbert.—See *Gard. Chron.*, June 8, 1912, p. 380. (The above five varieties of Sweet Peas were exhibited by Messrs. DOBBIE & Co.)

There was good competition in classes provided for Violas. The most successful exhibitors were:—Mr. H. ANDERSON, Shirley; Mr. JNO. S. BOLTON, Harborne; Mr. R. BRUCE WAITE, Harborne; Mr. F. REILY, King's Heath; and Mr. C. H. PICKARD, Bearwood.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

JUNE 17.—The monthly committee meeting of this society was held at the Royal Horticultural Hall, Westminster, S.W., on the above date. Mr. C. H. Curtis presided.

Thirteen new members were elected and four others nominated. Several members who were over 60 years of age withdrew the interest on their accounts. The amount of sick pay for the month was £36 19s.

A special general meeting of members followed the committee meeting and was well attended. A resolution was passed, enabling the society to make application to the Commissioners for approval under the National Insurance Act, and empowering the Committee of Management to take all necessary steps to secure the same.

SCHEDULES RECEIVED.

Tunbridge Wells and South Eastern Counties Agricultural Society.—The annual show of this society will be held on Wednesday and Thursday, July 24 and 25. Secretary, Mr. T. D. Collins, 78, High Street, Tunbridge Wells.

Hereford and West of England Rose Society.—The forty-sixth annual exhibition of Roses will be held in the Shire Hall, Hereford, on Wednesday, July 10. Secretary, Mr. F. A. Speer, Street Court, Kingsland, Herefordshire.

The Edgware and Little Stanmore Horticultural Society.—The fourteenth annual exhibition will be held on Saturday, July 13. Secretary, Mr. J. P. Howard, 2, Mann's Road, Edgware.

Tooting, Balham, Merton and Mitcham Horticultural Society.—The summer exhibition of this society will be held on Wednesday, July 17, at London House Meadow, London Road, Mitcham. The autumn exhibition will be held in the New Hall, Church Lane, Tooting Graveney, on Wednesday and Thursday, November 6 and 7. Secretary, Mr. C. Stratton, Mayfair, Graham Road, Mitcham.

Sussex County Agricultural Show.—The horticultural exhibition of this society will take place at Hove on Wednesday and Thursday, July 17 and 18. Secretary, Mr. J. B. Fleuret, Shoreham House, 51, Pembroke Crescent, Hove.

DEBATING SOCIETY.

CLEVEDON AND DISTRICT HORTICULTURAL.—The monthly meeting was held on June 10. The Rev. Sandford occupied the chair. A paper was read by Mr. Ettle, the county instructor. Mr. Ettle's paper dealt with parasites which attack all kinds of plants, flowers, fruits and vegetables. He described pests, and the best means of destroying them. The lecturer insisted on the necessity for greater attention being paid to cleanliness amongst plants.

GARDENING APPOINTMENTS.

[*Correspondents are requested to write the names of persons and places as legibly as possible. No charge is made for these announcements, but if a small contribution is sent, to be placed in our collecting Box for the Gardeners' Orphan Fund, it will be thankfully received, and an acknowledgment made in these columns.*]

Mr. CHARLES HURLSTON, until recently Foreman at Haseley Manor, Warwick, as Gardener to Colonel WATERHOUSE, Penn Hall, Wolverhampton.

Mr. C. H. ADAMS, for the past 2 years Gardener to A. T. WEBSTER, Esq., at Longcroft, Banstead, Surrey, as Gardener to the same gentleman at Prestwick House, Witley, Surrey. (Thanks for 1s. for the R.G.O.F. box.—EDS.)

Mr. H. TURNER, until recently General Foreman with Mr. FYFE at Lockinge Park, Wantage, for 5½ years, as Gardener to Viscount and Viscountess GALWAY, at Sealby Hall, Bawtry, Yorks. (Thanks for 2s. received for R.G.O.F. box.—EDS.)

CATALOGUES RECEIVED.

FOREIGN.

V. LEMOINE & SON, Nancy, France—New double-yellow Tree-Pæony "La Lorraine" (Pæonia arborea La Lorraine).

Answers to Correspondents

ASTERS: *G. S.* The Asters were killed by the fungus Thielavia basicola. Next season water the soil about three weeks before planting with a solution of formalin, using one pint in two gallons of water.

BLUE HYDRANGEAS: *B. M. W.* There are several methods of inducing plants of Hydrangea hortensis to produce blue flowers. In Möller's *Deutsche Gärtner-Zeitung* (No. 23, 1911), Mr. W. Titze recorded that he obtained blue Hydrangeas by watering the plants twice weekly with a solution of ammonia alum (½ ounce to 1 gallon of water). It is desirable to water with this solution in the autumn until the plants pass into their resting stage. During their flowering period the plants should not be grown in the full sun, or the blue colour will become blotchy. Other cultivators have obtained similar results by the use of such substances as alum, iron, and slate chippings mixed with the soil. One grower records that he has obtained blue Hydrangeas by laying the mowings from lawns around the plants. In some gardens Hydrangea hortensis will produce blue flowers one year and flowers of the normal pink colour the next; or flowers of both colours will appear on the same plant. This often happens in the open when the plants have been top-dressed with leaf-mould.

BOOK: *Arboretum. Pictorial Practical Tree and Shrub Culture*, by Walter P. Wright and W. Dallimore, price 1s. 2½d., free by post, from our Publishing Department.

CUCUMBER LEAVES: *M. M.* The Cucumber plants are affected with the Melon-spot mould or blotch (Cercospora melonis). At an early stage, spraying with Bordeaux mixture may do some good, but it is not generally very effective. Any diseased leaves detected should be burnt. A mixture of carbolic acid and water in saucers placed in Cucumber houses has been stated to check the spread of the disease (see *Gardeners' Chronicle*, April 15, 1905, page 235, and June 23, 1906, page 411).

CURLED ROSE LEAVES: *P. S., Derby.* See reply to *Subscriber* in the last issue, p. 402.

DISEASED PEARS: *W. C.* Diplosis pyrivora (the Pear midge) is the name of the pest which has caused the injury to the young Pears. It is very difficult to check the ravages of this insect. The only practical means of keeping the pest under control is to collect and burn all infested fruit before the imprisoned grubs escape.

GARDENING IN INDIA: *J. G., Ltd.* The article you refer to was published in *Gardeners' Chronicle*, February 10 last, page 82.

GRAPES: *T. J. H.* The brown marks on the berries are caused by rubbing; probably when thinning the berries.—*H. W.* The berries show a slight trace of spot disease, and the bunches should be sprayed with liver of sulphur, at the strength of ½ ounce in 2 gallons of water. The rusty appearance of some of the berries is caused by rubbing during thinning. Liver of sulphur will cause white paint to turn a black colour, and care should be taken to prevent the specific wetting the woodwork of the vinery.—*Reader.* Spray the berries every other day with liver of sulphur, using 1 ounce in 3 gallons of water.

INSECTS AFFECTING SILVER FIR: *A. M.* The pest infesting the bark of the Silver Fir is Chermes piceæ, one of the aphides peculiar to Conifers. If you desire to use the insecticide referred to in your communication, or any other preparation at this season, we would advise you to apply it with a stiff brush to the trunks and main branches. Spraying would cause injury to the tender growths.

IRIS DISEASED: *J. F., Albury.* The unhealthy appearance of the Iris plants is caused by a bacterial disease. Dress the soil with superphosphate of lime. Ordinary lime favours the disease.

LIME FOLIAGE WITH REDDISH OUTGROWTHS: *A. K. T.* The outgrowths are galls, caused by Eriophyes tiliæ. The galls occur only on the upper surface of the leaves, and vary in colour. They are known as "Nail-galls," from their appearance resembling a number of tacks appearing through the upper surface of the leaf.

NAMES OF PLANTS: *Weeds.* 1, Spergula arvensis; 2, Polygonum sp.; 3, Geranium Robertianum; 4, Ranunculus asiaticus var. flore pleno.—*G. A., Cornwall.* Ornithogalum arabicum.—*Puzzled.* Carnation Cecilia.—*Dublin.* 1, Abutilon vitifolium; 2, Cistus laurifolius; 3, Phlomis fruticosa; 4, Scilla peruviana; 5, Polygonum Baldschuanicum; 6, Veronica austriaca var. prenja.—*C. E. T.* Phacelia tanacetifolia.—*W. J. D.* 1, Spiræa, probably S. Thunbergii; 2, Olearia Haastii; 3, Spiræa japonica; 4, cannot name without flowers; 5, Cerastium Biebersteinii; 6, Nepeta Mussinii; 7, not found; 8, not recognised; 9, Rose Ard's Pillar.—*Alpine, Herts.* 1, Draba grandiflora; 2, Acanthopanax vicinifolia; 3, Vaccinium corymbosum; 4, Dianthus plumarius var.; 5, Erodium macrodenum; 6. Dianthus arenarius; 7, D. monspessulanus; 8, Saxifraga Hostii.—*G. K.* Phacelia campanularia.—*R. T.* 1, Ornithocephalus grandiflorus; 2, Cirrhopetalum picturatum; 3, Stelis ophioglossoides; 4, Odontoglossum blandum.—*T. T.* 1, Pteris hastata; 2, Adiantum caudatum; 3, Cheilanthes lendifera.—*Foreman.* 1, Promenæa stapelioides; 2, P. xanthina; 3, Oncidium pubes; 4, Maxillaria tenuifolia; 5, Catasetum maculatum; 6, Cochlioda vulcanica.—*H. L. W.* It is impossible to name such a poor and completely shattered flower. Send better specimens, together with a little growth.

PEACH LEAVES: *A. S. R.* and *H. A. T.* The Peach trees are attacked by the Shot-hole fungus (Cercospora circumscissa). Spray with the ammoniacal solution of copper carbonate, just as the leaves are expanding, and repeat the operation at intervals. A correspondent, writing in our pages for October 14, 1905, p. 282, stated that he had used Campbell's sulphur vaporiser with good results.

PELARGONIUM: *L. L.* The plants are not diseased. The change of colour in the leaves is due to some check. Excessive moisture at the roots followed by a period of dryness will cause them to change colour. Generally the plants grow out of condition when bedded out, and usually flower freely in consequence, although the blooms are not so fine.

PROPAGATING CARNATIONS: *Carnation Cutting.* The propagation of tree Carnations is best carried out between the months of December and March, when cuttings strike readily on a very mild hot-bed, or in any house which has a temperature of between 50° and 60° and not too dry an atmosphere. The rooting material should be of a very porous nature, such as a mixture of loam, sand, and finely-broken crocks. Where large numbers are to be rooted the cuttings may be dibbled into shallow boxes, or into a specially-prepared bed in a house such as described above. The best cuttings are the young wiry shoots that push out from the axils of the leaves during the winter months. Strong flowering stems might produce roots if cut below a joint, but this is a slow method, and the resultant plants are often unsatisfactory.

PUDDLING PONDS: *A. U. C.* It is not generally necessary to mix straw with the clay used for puddling. If it is impossible to keep the pond staunch with clay puddling, it will be necessary to use a layer of concrete. This is the more expensive method, but it lasts a very long time. The clay for puddling should be well worked before being used, so as to make it adhesive. After the clay has been thoroughly beaten against the bottom and sides of the pond, it should not be exposed to the drying influence of the air longer than can be helped.

RHODODENDRONS: *H. H. R.* The violet-coloured blooms are from shoots of the stock, and these must be removed. Pull the sucker growths sideways with a sharp jerk, when most of them will break clean off at the base. If this is not effective, they should be cut off underground with a knife or a sharp spade, cutting them as close to the stem as possible.

ROSE GROWTHS: *A. C.* We are inclined to the opinion that your Rose shoots have been eaten by rabbits, but this is one of the instances where it is only the man on the spot who can speak with any degree of certainty. We notice that your Rosary is enclosed by wire-netting, but we have often seen rabbits climb netting 3 feet in height, and also a rigid wire fence 2 feet 6 inches high.

ROSE RUST OR ORANGE FUNGUS: *Banker.* The plants are infested with the rust fungus (Phragmidium subcorticatum). All fallen leaves should be collected carefully and burnt, and the plants should be sprayed with copper sulphate in the winter. If the patches of orange fungus appear on parts that can be readily removed, they should be cut off and burnt. Where this is impracticable the part diseased should be rubbed over with a tuft of cotton-wool dipped in methylated spirit.

SCALE ON APPLE: *H. W. S.* The insect is one of the soft, brown scales, Lecanium genevense. It attacks a number of different kinds of trees, but is usually most abundant and destructive to the Hawthorn. It is a single-brooded insect and passes the winter in the larval stage, when it is minute and difficult to detect. We would advise you to spray the trees in winter with the "Woburn wash," made up as follows:—Copper sulphate 1½ lb., lime ½ lb., paraffin 5 pints, caustic soda 2 lbs., and water 10 gallons.

TOMATOS: *B. P.* The plants have received too much water at the roots. For a time use a little potash manure in place of the liquid.

TOMATOS DISEASED: *G. H.* The plants are attacked by the Tomato leaf-mould (Cladosporium fulvum). If fruits are not present, spray the plants with the Bordeaux Mixture, and repeat the spraying at short intervals. Where the fruits are present, employ liver of sulphur instead. See reply to *P. I.* in the last issue, p. 402.

TWIN ROSES: *A. A. P.* Your specimen of two Roses on the same stalk is interesting but not uncommon. It results from an abnormal development of the apical bud.

UNFRUITFUL CANADIAN APPLE TREES: *A. B., Bedford.* As your trees of the variety Northern Spy, which were imported from Canada six years ago, and which are making satisfactory growth, have not yet shown signs of flowering, it is more probable that they are worked on the crab stock. If this surmise is correct, you may expect to see fruit-buds within the next two or three years. Apples which are grafted on the Crab stock are much slower in coming into bearing than those on the Paradise stock, but they are longer lived. If you will send specimens of your Raspberry canes which are dying we will endeavour to assist you.

VINE LEAVES: *E. S., Dorset.* There is no disease present on the portion of vine received, but the foliage is scorched. Ventilate the house early, and keep the atmosphere rather dry.

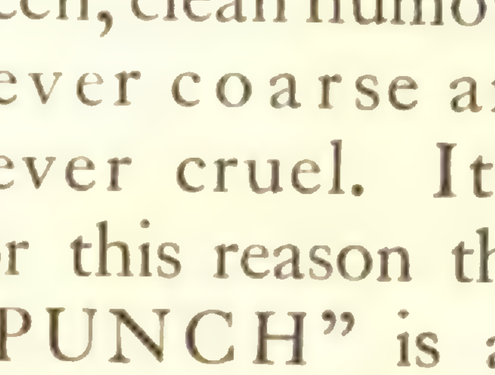
VINES: *H. H.* The sap-warts on the under-sides of the leaves are the result of extreme conditions in the atmosphere of the house, such as a want of proper balance between the temperature and the amount of atmospheric moisture in it, or of unusually stimulating influences which have caused the epidermis of the leaves to become ruptured. Pay special attention to ventilation, and keep the house drier.

VIOLAS DISEASED: *C. H. P.* The plants have been destroyed by eelworm, which is a very difficult pest to eradicate, insecticides being of little avail. Burn all affected plants, remove the soil in which they have been grown, and either sterilise it by baking, or bury it in some out-of-the-way part of the garden.

WATER SUPPLY: *Aquaticus.* If the bottom of the pond is rendered perfectly water-tight by puddling it with clay the supply of water you indicate would be sufficient to counterbalance the loss by evaporation and to gently circulate the water.

Communications Received —T. M.—E. W.—Library—M. M., Rothesay—L. T. P.—Mushroom—Dublin—W. P.—M. A. J.—A. B. H.—H. S. E.—D. & W. C.—R. E. W.—Subor—J. E.—A. C.—H. A.—Foliage—J. V. & Sons—H. B.—C. E. W.—E. G. H.—R. P. B.—A. H. B.—Arboretum—A. V. C.—T. B.—S. & Sons—C. R.—H. R. D.—A. T. B.—A. P.—O. J. L.—J. G. W.—W. B.—J. H. M.—F. W. J.

THE REPUTATION
of
"PUNCH"
has been made by keen, clean humour, never coarse and never cruel. It is for this reason that "PUNCH" is acknowledged to be "The Foremost Humorous Journal of the World."



The Cream of English Humour is always to be found in "PUNCH."

¶ *Order it from your Newsagent to-day.*

71

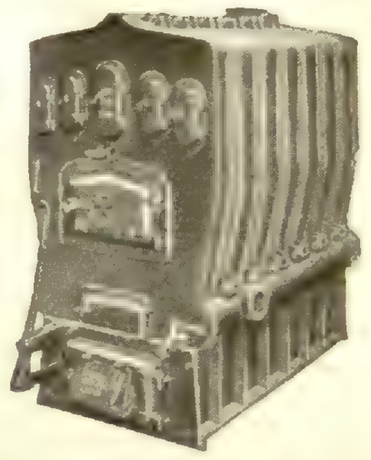
Kinnell's Boilers.

THREE LEADING TYPES:—

The **"ANGLIAN,"** **Sectional,** heats 800 to 8,000 ft. 4 in. pipe.
The **"ROCHFORD,"** **Tubular,** heats 600 to 8,000 ft. 4 in. pipe.
The **"HORSE-SHOE,"** for the small Greenhouse.

Saddle Boilers, Trentham Boilers, and all classes of Pipes, Fittings, etc., ready for immediate despatch.

Write for List No. 79, post free.



CHAS. P. KINNELL & CO., Ltd., 65 & 65a, Southwark St., London, S.E.

NATIONAL INSURANCE ACT, 1911.

ALL GARDENERS whether employed in Nursery, Public, Private or Market Gardens or Seed Warehouses, and who will become "Insured Persons" under the National Insurance Act, on July 15th, 1912, **Must Join an "Approved Society" to Obtain the Full Benefits of the Act.**

THE BEST SOCIETY FOR A GARDENER TO JOIN IS

The United Horticultural Benefit & Provident Society

(The Gardeners' Own Friendly Society), Registered No. 208, London.

Registered Office & Meeting Place: **Royal Horticultural Hall, Vincent Sq., Westminster, S.W.** Established in 1865.

Managed Entirely by Gardeners, and Certified Actuarily Sound and Solvent, with over £40,000 Invested.

There is no Society in the Kingdom that can give better Benefits under the National Insurance Act to the Gardener, and if additional Benefits are desired, no other Society offers Gardeners such an opportunity of obtaining the same for a small additional contribution.

At the General Meeting held on June 17th, 81 out of a total of 84 members present were in favour of the Society becoming Approved

Application Forms for membership can be obtained from the Secretary: **W. COLLINS, 9, Martindale Rd., Balham, S.W.**

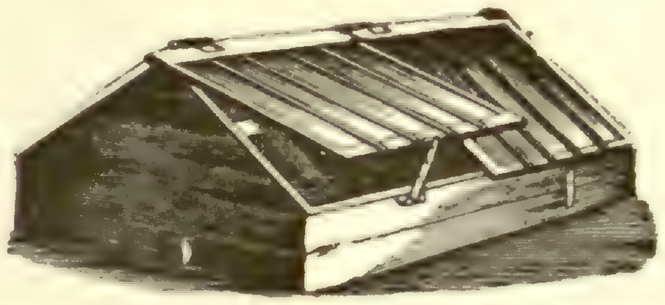
SAVE HALF THE COST. **GARSIDE'S** BEDFORDSHIRE **SILVER SAND** (COARSE OR FINE)

Is admitted by the leading Nurserymen to be **the Best Quality** obtainable in the Trade. Consumers should **Buy Direct** from the Owner of these Celebrated and Extensive Pits, which contain a practically inexhaustible supply of Splendid Sand, and thus *save half the ordinary cost.* **Apply Direct to the Proprietor for Samples and Prices** free on Rail or Canal. *All orders executed with the utmost promptness and under personal supervision.* Special Railway Rates in force to all parts. All kinds of **PEAT** supplied at lowest possible prices. Sample Bag sent on application to—

GEORGE GARSIDE, F.R.H.S., Leighton Buzzard, Beds.

PORTABLE PLANT FRAMES.

OUR WELL-KNOWN MAKE.



These Frames are made of the Best Materials, and can be put together and taken apart in a few minutes by anyone.

Sizes and Prices, Glazed and Painted.				£	s.	d.
6 feet long,	3 feet	wide	CASH PRICES, CARRIAGE PAID.	2	0	0
6 feet ,,	4 feet	,,		2	5	0
6 feet ,,	5 feet	,,		2	15	0
12 feet ,,	4 feet	,,		4	0	0
12 feet ,,	5 feet	,,		4	15	0
12 feet ,,	6 feet	,,		5	12	6

Larger Sizes at Proportionate Prices.

R. HALLIDAY & CO.,

ROYAL HORTICULTURAL WORKS,

Middleton, Manchester.

GARDEN & TENNIS NETS

(Best Tanned only, Small Mesh).

50×8 yds., **17/-**; 25×8 yds., 50×4 yds., 100×2 yds., **8/-** each; 100×1 yd., 50×2 yds., 25×4 yds., **4/-** each. Any size to order.

TENNIS NETTING (Corded), 25 × 2 yds., **6/6**; 25×3 yds., **7/6**; 25×4 yds., **8/6** each.

Prompt Delivery. Write for Price List and Testimonials.

L. WREN & SON,
Net Merchants, 139, High Street, Lowestoft.

MILDEW. MILDEW. MILDEW.

Effectually destroyed by Meredith Bros.'

Special Concentrated Mildew Destroyer.

One gallon will make 60 gallons for use.

Non-poisonous—**6/-** per gallon; **3/9** ½-gallon; **2/6** quart.

Manufactured by—

MEREDITH BROS 141, Richmond Terrace, DERBY.

CHESTER & ELAM

(Late with BLACKBURN & HOMER),

Rope, Line & Twine Manufacturers,

AND

Gardeners' Sundriesmen,

IMPORTERS OF

Paper, Raffia, Archangel, and St. Petersburg Mats, Tarpaulins, Sacks, Pea and Potato Bags made to order.

33, GREAT QUEEN ST., LONDON, W.C.

Special Quotations to Large Buyers.

ROCK AND ALPINE GARDENING.

A Practical and up-to-date Guide to the making of Rock, Alpine, Wall, Water and Bog Gardens. Well illustrated. Second Edition by H. HEMSLEY. price 1/2 post free from

THE PUBLISHER,
"Gardeners' Chronicle" Offices, 41, Wellington St., Covent Garden, London, W.C

MALDEN'S PATENT INFUSER
Simplest, quickest and best method of obtaining
LIQUID MANURE
Price 11/6
See Testimonials. Order Horticultural Sundriesmen now from Ironmongers or the Patentee:—
A·H·MALDEN POOLE·DORSET.

TURF LOAM.

Very Fibrous Yellow Turf Loam.

SPECIALLY SUITABLE FOR VINE BORDERS

Carnations, Roses, Fruits under Glass, etc., etc.

7/6 per yard. Bag, **2/-** Samples Free.

Quotations Carriage Paid to any Station.

A. B. JOHNSTON, New Park, Cranleigh, Guildford.

MARKETS.

COVENT GARDEN, June 19.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—EDS.]

Cut Flowers, &c.: Average Wholesale Prices.

	s.d.	s.d.
Arums (Richardias)	2 0	—
Bouvardia, per dz. bunches ...	6 0	7 0
Carnations, p. doz. blooms, best American var.	1 3	1 6
— smaller, per doz. bunches	10 0	15 0
— Carola, crimson, extra large	2 6	3 0
— Malmaisons, p. doz. blooms:		
— — pink ...	3 0	6 0
— — blush ...	3 0	4 0
— — red	3 0	4 0
Coreopsis, per doz. bunches ...	1 6	2 0
Cornflower, p. doz. bunches, pink	1 0	1 6
— white	1 0	1 6
— blue	0 9	1 0
Eucharis, per doz.	2 0	2 6
Gaillardia, per doz. bunches ...	1 6	2 0
Gardenias, per box of 15 and 18 blooms... ...	2 6	3 0
Gladiolus, per doz. bchs., Akerman	8 0	9 0
— Blushing Bride	4 0	6 0
— Bride, white ...	4 0	6 0
— Ne Plus Ultra	6 0	8 0
— Peach Blossom	4 0	6 0
Gypsophila, p. dz. bunches:		
— white	3 0	5 0
— pink	3 0	—
Iceland Poppies, p. dz. bunches	1 0	1 6
Iris (Spanish), per doz. bunches:		
— white, mauve, yellow & blue	6 0	9 0
Lapagerias, white, per dozen ...	1 6	2 0
Lilium auratum per bunch ...	4 0	5 0
— longiflorum, per doz., long	1 0	1 6
— — short ...	1 0	—
— lancifolium alba, long ...	2 0	2 6
— — short ...	1 6	2 0
— speciosum rubrum, per doz., long	1 9	2 0
— — short ...	0 9	1 0
Lily of the Valley, pr. dz. bnchs.:		
— extra special ...	15 0	18 0
— special... ...	10 0	12 0
— ordinary ...	3 0	—
Marguerite, per doz. bunches:		
— white	3 0	4 0
— yellow	1 6	2 0
Mignonette, per doz. bunches...	4 0	5 0
Myosotis (Forget-me-not), p. dz. bunches ...	3 0	4 0
Orchids, Cattleya, per doz. ...	9 0	10 0
— Odontoglossum crispum ...	1 6	2 0
Pæonies, per doz. bunches, six blooms in a bunch:		
— red	8 0	10 0
— pink	8 0	10 0
— white	8 0	10 0
Pelargoniums, p. doz. bunches	5 0	6 0
— Double Scarlet	4 0	6 0
Pinks, white, per doz. bunches...	1 6	2 0
Pyrethrums, double, pr. dz. bunches:		
— white	2 6	3 0
— coloured ...	2 0	3 0
— single, mixed colours ...	2 0	2 6
Roses, 12 blooms,		
— Bridesmaid,	0 9	1 0
— C. Mermet ...	0 9	1 0
— Frau Karl Druschki ...	1 6	2 6
— General Jacqueminot ...	0 9	1 0
— Liberty ...	1 0	1 6
— Madame A. Chateney ...	1 0	2 6
— Niphetos ...	1 0	1 6
— Richmond ...	1 0	2 6
— Sunrise ...	1 0	1 6
— President Carnot	1 6	2 6
— Lady Roberts	1 0	1 6
— Lady Hillingdon	1 0	1 6
— Franz Deegan	1 0	1 6
— Kaiserine ...	1 0	2 0
Scabious caucasica, per doz. bnchs.	3 0	4 0
Spiræa (Astilbe) japonica, per dz. bunches ...	5 0	6 0
Statice, mauve, per doz. bunches...	3 0	4 0
Stephanotis (72 pips)	1 6	2 0
Stock, per dozen bunches:		
— white	3 0	4 0
Sweet Peas, pr. dz. bunches:		
— coloured ...	3 0	5 0
Violas, small blue, p. doz. bunches	0 9	1 0

Cut Foliage, &c.: Average Wholesale Prices.

	s.d.	s.d.
Adiantum Fern (Maidenhair), best, dz. bnchs.	4 0	5 0
Agrostis (Fairy Grass), per dz. bunches ...	2 0	4 0
Asparagus plumosus, long trails, pr. ½ doz.	1 6	2 0
— medium, doz. bunches ...	12 0	18 0
— Sprengeri ...	10 0	12 0
Carnation foliage, doz. bunches...	4 0	—
Croton foliage, various, per dozen bunches ...	12 0	15 0
Cycas leaves, artificial, per doz.	3 0	12 0
Eulalia japonica, per bunch ...	1 0	1 6
Moss, per gross ...	6 0	—
Myrtle, dz. bchs. (English), small-leaved...	6 0	—
— French ...	1 0	—
Smilax, per bunch of 6 trails ...	0 9	1 0

Plants in Pots, &c.: Average Wholesale Prices.

	s.d.	s.d.
Aralia Sieboldii, p. dozen	6 0	7 0
Araucaria excelsa, per dozen ...	18 0	21 0
Asparagus plumosus nanus, p.dz.	10 0	12 0
— Sprengeri ...	8 0	9 0
Aspidistra, p. dz., green	21 0	30 0
— variegated ...	30 0	60 0
Cocos Weddeliana, per dozen:		
— 60's	6 0	12 0
— larger, each ...	2 6	10 6
Coleus, per doz. ...	4 0	5 0
Crassula, various (in 48 pots) per dozen	9 0	12 0
Croton, per dozen	18 0	30 0
Cyperus alternifolius, per doz.	5 0	6 0
— laxus, per doz.	4 0	5 0
Dracæna, green, per dozen ...	10 0	12 0
Ericas, per dozen:		
— Willmorei, 48's	15 0	18 0
Ferns, in thumbs, per 100... ...	8 0	12 0
— in small and large 60's ...	12 0	20 0
— in 48's, doz. ...	6 0	—
— choicer, sorts per doz. ...	8 0	12 0
— in 32's, per dozen	10 0	18 0
Ficus elastica, per dozen	9 0	12 0
Fuchsias, per dozen	8 0	9 0
Geonoma gracilis, 60's, per dozen	6 0	8 0
— larger, each ...	2 6	7 6
Heliotropes ...	6 0	8 0

Plants in Pots, &c.: Average Wholesale Prices (*Contd.*).

	s.d.	s.d.
Hydrangeas white, 48's, per dozen	18 0	21 0
— pink	8 0	12 0
— blue, each ...	2 0	5 0
— paniculata, per dozen	18 0	24 0
Kentia Belmoreana, per dozen	5 0	42 0
— Fosteriana, 60's, per dozen	4 0	6 0
— — larger, per dozen	18 0	63 0
Latania borbonica, per dozen ...	12 0	30 0
Lilium lancifolium rubrum in pts., per dozen ...	15 0	18 0
— lancifolium alba	15 0	18 0
— longiflorum, per dozen ...	12 0	15 0
Lily of the Valley	21 0	24 0
Marguerites, in 48's, per doz., white	8 0	10 0
— yellow ...	10 0	12 0
Mignonette, 48's, per dozen ...	6 0	8 0
Pandanus Veitchii, per dozen ...	36 0	48 0
Pelargoniums, per dozen	9 0	12 0
— Ivy-leaved ...	7 0	9 0
Phœnix rupicola, each	2 6	21 0
Rhodanthi, per dz. pots	5 0	6 0
Saxifraga (pyramidalis) 48's, per dozen	15 0	18 0
Spiræa japonica, per dozen pots	10 0	12 0
— pink	10 0	12 0
Stocks, white, pink and red ...	6 0	8 0
Verbenas, pink ...	6 0	8 0
— scarlet... ...	8 0	9 0
— white	8 0	9 0
— blue	8 0	9 0

Fruit: Average Wholesale Prices.

	s.d.	s.d.
Apples:		
— Tasmanian per case ...	7 0	10 0
— Australian per case	8 0	10 0
Apricots, French per box ...	2 0	3 6
— half sieves ...	9 6	10 0
Bananas, bunch:		
— Doubles ...	10 0	12 0
— No. 1	8 0	10 0
— Extra	10 0	12 0
— Giant	14 0	18 0
— Loose, p. doz.	0 6	1 0
— Red coloured...	5 6	6 6
— Jamaica Giants, per ton ...	£10	£12
— Jamaica Ordinary, per box (9 doz.) ...	4 0	5 0
Cherries, French, ½ sieve... ...	3 0	8 0
— per box ...	1 0	2 3
— English, ½ bshl.	7 6	9 6
— pecks	3 6	5 6
Currants (French), Red, p. handle	1 9	2 0
— (English), Black, pecks	4 0	—
Figs (Guernsey), per dozen ...	2 0	6 0
— English ...	3 0	8 0
Gooseberries, per ½ bushel ...	2 6	3 6
Grape Fruit, case:		
— 96's	20 0	25 0
— 80's		
— 64's		
— 54's		
Grapes, Australian, per case ...	22 0	—
— English (new) per lb.... ...	1 3	5 6
— Canon Hall ...	1 6	5 0
— Muscats ...	1 0	5 0
Lemons:		
— Messina, p.case	15 6	20 0
Limes, per case ...	4 0	—
Melons (Guernsey)	1 0	1 6
— (English) ...	1 0	2 6
— Canteloupe ...	3 0	6 6
Nectarines, per dozen:		
— selected ...	6 0	10 0
— best	4 6	6 0
— seconds ...	1 6	2 0
Nuts, Almonds, per bag	52 6	—
— Spanish, per sack	40 0	42 0
— Barcelona, bag	35 6	36 6
— Chestnuts, per bag	3 6	19 0
— Cocoanuts, 100	18 0	23 0
— English Cobs per lb.... ...	0 3	—
— Walnuts (Naples), kiln dried, cwt. cases — ...	54 0	—
Oranges:		
— Navels... ...	14 0	16 0
— Denia, case ...	30 0	40 0
— Mercia... ...	15 0	18 0
Peaches (Belgian), per dozen ...	3 0	6 0
— English, dozen:		
— selected ...	6 0	10 0
— best	4 0	6 0
— seconds ...	1 0	2 0
Pears (Australian), per case ...	15 6	20 0
Pineapples, St. Michael ...	3 6	5 6
Raspberries ...	1 0	—
Strawberries:		
— Southamptons, baskets ...	1 0	2 0
punnets (outdoor), per doz.	7 0	10 0
— Kent, per peck	3 6	5 0

Vegetables: Average Wholesale Prices.

	s.d.	s.d.
Artichokes (Globe), per dozen ...	2 6	3 0
Asparagus—		
— (English) bndl.	1 0	2 6
— Cambridge ...	1 0	5 0
— Worcester ...	4 0	10 6
— Giant	2 6	3 0
Aubergines, per dz.	0 8	1 0
Beans, Guernsey Dwarf, per lb.	0 8	1 0
— (English) p. lb.	0 4	0 6
— French, per packet, lb. ...	2 0	2 6
Beetroot, p. bshl.:	3 0	3 6
— Long	3 6	3 6
Cabbages, Evesham, pots ...	2 6	3 6
Carrots (English), pr. doz. bun....	2 6	3 6
— (French) per dozen bunches	6 0	9 0
Cauliflowers, per dozen	2 6	—
— Dutch, dozen	2 6	—
Celery (washed), p. doz. bndls. ...	18 0	24 0
Chicory, per lb. ..	0 4	—
Cucumbers, per dozen	1 6	2 0
Endive, per dozen	2 6	3 0
Greens (Spring), p. bag	3 0	4 6
Herbs (sweet), pkts., p. gross	7 0	—
Horseradish, 12 bundles ...	10.0	12 0
Leeks, per doz. ...	3 0	4 0
Lettuce (French), per doz. ...	1 6	2 0
Lettuce (English), Cos, per tally...	2 0	4 0
— Cabbage, per dozen	1 0	—
Marrows, pr. dz. ...	3 0	4 0
Mint, per dozen bunches ...	1 6	2 6
Mushrooms, cultivated, p. lb. ...	0 6	0 8
— outdoors ...	0 3	0 5
Mustard and Cress, p. doz. punnets	1 0	—
Onions (Egyptian)	6 6	7 6
— (Spring), per doz. bunches	6 0	8 0
Parsley, ½ sieve ...	1 6	2 0
— per doz. bun.	2 0	3 6
Peas (French) per pad	3 6	4 0
— (English), per ½ bushel ...	2 0	—
— bushel	4 0	6 0
— shelled, p. qt.	1 3	2 0
Radishes (English), per dozen ...	0 9	1 0
— (French) p. dz.	1 6	—
— (Jersey) long...	1 0	—
Rhubarb, outdoor, per doz. ...	2 6	—
Spinach, pr. bshl.	1 6	2 0
Tomatos, per doz. lbs.:		
— (Guernsey), ...	3 0	3 6
— (English), ...	3 6	—
— seconds ...	1 6	2 0
Turnips (English), per dz. bunches	2 0	3 0
Watercress, p. dz. bunches ...	0 4	0 6

REMARKS.—The last four boats, containing about 104,000 cases of Tasmanian Apples, arrived this week, the bulk consisting of the varieties Sturmer Pippin, Nonpareil and French Crab. Black Grapes from all sources are very plentiful, meeting with a poor demand. Selected bunches of Canon Hall Muscat and Muscat of Alexandria are in request. The market is over supplied with Peaches and Nectarines, and the fruits can only be cleared at low rates; in fact, for the past week, this has been the case, although best fruits realised as much as 18s. per dozen a week earlier. Both Figs and Melons are very heavy supplies from all sources, the latter being considerably in excess of the demand. Strawberries have proved a heavier supply than was anticipated, the prices ranging from £28 to £30 per ton; higher prices are obtainable for selected fruit packed in chips and punnets. Cherries from Continental sources remain a heavy supply. The market is well supplied with Continental and home-grown Red and Black Currants. Raspberries are arriving daily. Tomatos constitute a very heavy supply, and prices rule low. Forced Marrows are an increasing supply, with a consequent fall in value. Forced and most outdoor vegetables are abundant, but prices have been fairly well maintained. *E. H. R., Covent Garden, June 19, 1912.*

Potatos.

	per cwt. s.d.	s.d.
Lincolns—		
Up-to-Date ...	3 0	3 6
King Edward ...	3 0	3 6
Maincrops ...	3 0	3 9
Lincolns—		
Northern Star ...	2 0	2 6
Dunbars—		
Up-to-Date ...	4 0	4 3
Maincrop ...	4 0	4 6

New Potatos.

Bedfords ...	8 6	9 0	Jerseys 10 6 11 0
Kents ...	10 0	10 6	St. Malos 9 0 9 6
Teneriffe ...	7 0	8 0	Cherbourgs ... 8 0 9 0

REMARKS.—The stock of old Potatos in London is now very low, but there is a fair demand for good tubers. New Potatos from Jersey are almost finished, and their prices are maintained. Those from St. Malo have a good sale, and prices have advanced this week. The consignments of Bedfords and Kents are small, but the tubers sell freely at the above prices. *Edward J. Newborn, Covent Garden and St. Pancras, June 19, 1912.*

THE WEATHER.

THE FOLLOWING SUMMARY RECORD of the weather throughout the British Islands, for the week ending June 15, is furnished from the Meteorological Office:—

GENERAL OBSERVATIONS.

The *weather* remained in an extremely changeable condition, with frequent falls of rain in all districts. Thunderstorms occurred over a large portion of the United Kingdom on Sunday and Monday, at many northern stations on Tuesday and Wednesday, and over the eastern parts of Great Britain on Thursday. In many scattered localities the storms were accompanied by exceedingly heavy falls of rain or hail.

The *temperature* was below the average in all districts excepting England E., the greatest deficiency (1·5° or more) occurring in Scotland N. and E. and Ireland S. The highest readings, which were recorded mainly between the 11th and 13th, ranged from 73° in England S.W. (at Cullompton) and 71° in England S.E. (at Southampton) to 68° in Scotland N. and W. and to 64° in Scotland E. In the London district the thermometer rose to 71° at Greenwich and to 73° at Camden Square. The lowest readings were registered in the earlier half of the week and ranged from 37° in England S.W. (at Llangammarch Wells) and 39° in England S.E. and Ireland N. and S. to 42° in England N.E. and to 49° in the English Channel. At a depth of 1 foot the temperature of the soil was mostly below the average, but at a depth of 4 feet the difference from the normal was generally slight.

The *rainfall* was largely in excess of the average in most districts, but in England E. and Ireland S. the excess was slight. Amounts exceeding an inch in 24 hours were recorded at Colmonell and at Over Court, near Bristol, on the 10th, at Ventnor on the 12th, and at Arlington on the 15th; at the last-mentioned station the fall was as large as 1·6 inch.

The *bright sunshine* was very deficient in North Britain and especially in Scotland E., where the mean daily duration, 1·3 hour, was equal to only 7 per cent. of the possible amount. In most other parts of the Kingdom the duration was in fair accordance with the normal, but in England E. it was considerably in excess, the mean daily duration, 8·2 hours, being equal to 50 per cent. of the posible.

THE WEATHER IN WEST HERTS.

Week ending June 19.

Another wet week, and the third in succession.—The last two days of the week proved very warm, but previous to that the temperatures, both during the daytime and at night were about seasonable. On the warmest day the highest reading in the thermometer screen was 78°, making this the highest temperature as yet of the present year. The ground has become warm again, and is now about 1° warmer at 2 feet deep, and 2° warmer at 1 foot deep, than is seasonable. Rain fell on five days, and to the total depth of three-quarters of an inch. On one day (the 13th) the rain was falling for five minutes at the average rate of nearly 1¼ inch an hour, and on one other day (the 16th) there was at about mid-day, a sharp fall of hail. Since the month began 2½ inches of rain has fallen, which is rather more than the average for the whole month, and equivalent to 11 gallons on each square yard of surface in my garden. On the 17th, for the first time since the last week in March or for 12 weeks, a measurable quantity of rain water came through the soil gauge on which short grass is growing. On the other hand since the present month began 4¾ gallons has come through the bare soil gauge. The sun shone on an average for six hours a day, which is a quarter of an hour a day short of the mean duration of bright sunshine for the middle of June. The first day of the week proved very calm, but since then the wind has been at times moderately high. In no hour, however, did the mean velocity exceed 13 miles—direction west. The average amount of moisture in the air at 3 p.m. fell short of a seasonable quantity for that hour by three per cent. *E. M., Berkhamsted, June 19, 1912.*

The Gardeners' Chronicle

SCALE OF CHARGES FOR ADVERTISEMENTS.

Advertisements intended for insertion in the next issue MUST reach THE PUBLISHER not later than

WEDNESDAY, 5 p.m.

	£ s. d.
Ordinary Positions ... ... per page	10 10 0
Facing matter and Back page ... ,, ,,	12 12 0

Half and quarter pages, column and half column spaces, pro rata.

	£ s. d.
4 line space, about 20 words, single column ...	3 0
Per inch, single column	7 0
Per inch, across 2 columns	14 0
Per inch, across 3 columns	1 1 0

SERIES DISCOUNTS.

For three insertions, 5%; thirteen, 10%; twenty-six, 15%; fifty-two, 20%

Front page (no display allowed) **1/-** per line space.

SITUATIONS WANTED.

26 words, **1s. 6d.**, and **6d.** for every additional **8** words or fewer.

These Advertisements must be prepaid, **AND APPLY ONLY TO GARDENERS, &c., OUT OF EMPLOYMENT.**

Advertisers may have replies to their advertisements addressed to the "GARDENERS' CHRONICLE" Office. A Box Office fee of 6d. is charged for each advertisement, and replies are forwarded post free at the end of each day.

The boxes for answers to advertisements are provided for the use of advertisers only, and no matter will be forwarded which is not, in the opinion of the Publisher, a bona-fide or specific answer to an advertisement. The boxes are not to be used for the distribution of printed or written announcements, or for the benefit of competing businesses. All advertisements and replies are accepted subject to the above conditions.

SUBSCRIPTIONS:—

THE UNITED KINGDOM ... ... **15/-** per annum.
ABROAD ... ... **17/6** ,,

Cheques and P.O.'s to be made payable to "GARDENERS' CHRONICLE, LTD."

41, WELLINGTON STREET, COVENT GARDEN, LONDON, W.C.

Telegrams "GARDCHRON, LONDON."
Telephone: GERRARD 1543.

SITUATIONS VACANT.

Four Lines 3s. (Head-line counted as Two), 6d. for each succeeding line.

PRIVATE.

East Suffolk County Education Committee.

ASSISTANT HORTICULTURAL INSTRUCTOR.

THE above-named Committee invite applications for the post of Assistant Horticultural Instructor. The person appointed will be required to periodically visit schools, and instruct the scholars in the principles and practice of Flower, Fruit, and Vegetable Culture; to give lectures and demonstrations, and to act generally under the direction of the Secretary and Agricultural Organiser. Preference would be given to a person who is also qualified to give instruction in Bee-keeping.

Applicants must be practical men, under 35 years of age, strong and healthy, and good cyclists. Salary will be at the rate of £80 per annum, rising, subject to the Committee's rule, by annual increments of £4 to £100 per annum, with third-class rail fare in the county, rail fare of cycle, and an allowance of £10 per annum to cover the cost of providing and maintaining a bicycle.

The determination of the engagement will be subject to three months' notice on either side. Applications on foolscap paper, accompanied by copies of not more than three testimonials of recent date, must be received by the undersigned not later than **Monday, 1st July, 1912.**

W. E. WATKINS,
Secretary.

Education Office,
County Hall, Ipswich,
June 18th, 1912.

THE WARWICKSHIRE EDUCATION COMMITTEE invite applications for the post of ASSISTANT to their Horticultural Adviser; duties: under the supervision of the Horticultural Adviser to assist in the general Horticultural work of the county, and to carry out inspections under the Destructive Insects and Pests Acts Orders of the Board of Agriculture; salary £100 per annum with expenses on the Committee's scale. Applications must be made on forms to be obtained from me, and must be returned not later than July 6th, 1912.—BOLTON KING, Director of Education, Warwick.

WANTED.—Can any Gardener recommend strong, experienced MAN for Pleasure Grounds? Used to Hand Mowers; capable of taking duty once a month; 17s. and Bothy.—Apply, BARRELL, Chalfont Park Gardens, Chalfont St. Peter, Bucks.

WANTED, smart MAN (INSIDE); must be good Plantsman; wages 20s., no Bothy; state age, particulars, and reference.—J. STANDEN, Lyne Gardens, Capel, Surrey.

WANTED, MAN, about 30, for Hardy Fruit Garden; one who thoroughly understands Pruning, &c.; married preferred; wages £1 per week and cottage; must be well recommended for such.—Apply, "S.," Box 8, 41, Wellington Street, Covent Garden, W.C

WANTED in July, active, outdoor GARDENER, used to taking charge of men; married man with small family; must know Hardy Shrubs and Plants and Fruit Culture; abstainer; state fully training and situations held.—H. S., care of Preston & Forster, Craigs Court House, Charing Cross, London, S.W.

WANTED, good GARDENER (SECOND); experienced in Inside and Outside work; 14 kept; must be a total abstainer, clean, and hard-working; a married man preferred of between 25 and 35 years of age.—Apply, with references, to AGENT, Ponsbourne Park, near Hertford, Herts.

WANTED, GARDENER for sole charge of Glasshouses and Frames; knowledge of Seed Raising, Forcing Flowers and Vegetables required; single man preferred.—Apply, JOHNSTONE, Trewithen, Grampound Road, Cornwall.

WANTED, GARDENER; experienced Outside; permanent situation; wages £1.—WORDLEY, Thornwell Tea Gardens, Wilmington, Sussex.

WANTED, GARDENER (SINGLE-HANDED, with occasional help); thorough knowledge of Vegetables; hard-working, responsible man, with first-rate references; willing to do odd jobs and look after place; man with Wife able to keep chickens preferred; cottage in garden.—Apply by letter only, stating age, wages asked and full particulars, CLAY, West Heath, Limpsfield, Surrey.

WANTED, GARDENER (SECOND); married; to live in lodge; wife to attend gate; wages £1 per week.—Apply, with copies of testimonials, to McFARLANE, Mount Mascal, Bexley.

WANTED, GARDENER, strong (SINGLE-HANDED, boy help given); age 28 to 35; must have thorough practical knowledge cultivation Fruit, Flowers, Vegetables, and manage garden and succession crops; two small greenhouses; poultry, without supervision; wages 27s., no cottage.—Write, stating age and prior experience, to SAVERNAKE, Carlton Road, Sidcup, Kent.

WANTED, FOREMAN (INSIDE); must be thoroughly experienced and used to Carnation growing; wages 21s. per week and Bothy; age not under 25.—Apply, J. KIRKWOOD, Grass Park House, Finchley, N.

WANTED, FOREMAN (INSIDE); married, no family preferred; well up in Carnations, Chrysanthemums, and Fruit; age about 27 years; wages commence 21s. per week and cottage; good reference.—Apply, J. ROBERTS, The Gardens, Broomhill, Tunbridge Wells.

WANTED, JOURNEYMAN for the Hardy Herbaceous Department, Shrubs, &c.; state age, experience and wages required.—CURATOR, Botanical Gardens, Birmingham.

WANTED, JOURNEYMAN for Pleasure Grounds and Flower Garden; not under 23; wages 18s. and Bothy.—ELLICOTT, Haldon, Exeter.

WANTED, at the end of July, for Vicarage, 20 miles from London, a young GARDENER (married), churchman and abstainer, who would clean motor and make himself generally useful; offered moderate wages and an excellent five-roomed cottage.—Apply, THE VICAR, Higham, near Rochester.

WANTED, smart, active YOUNG FELLOW, capable of taking charge, under Foreman; wages 14s. per week, Bothy, &c.—Apply, W. MESSENGER, Woolverstone Gardens, Ipswich.

WANTED, YOUNG MAN to assist Foreman in 10 Houses; no Bothy; wages 18s. per week; Sunday duty alternately.—Apply, GARDENER, Worpledon Place, Guildford.

WANTED, energetic YOUNG MAN (age 22); principally Pleasure Ground; knowledge of Plain and Fancy Clipping; assist with duty; wages 15s., Bothy, &c.—A. FITT, Apethorpe, Wansford, Northants.

WANTED, YOUNG MAN for Rock-Garden and Herbaceous Borders; one with a thorough knowledge of this branch; to take duty alternate weeks; wages 18s. and Bothy; Sunday duty paid.—Apply, stating age, &c., R. W. NORMAN, The Gardens, "Heligan," St. Austell.

WANTED, strong, active MAN, not under 20, for Pleasure Grounds; wages 14s. and Bothy, &c.; state height.—H. S. FINCHER, Caldecote Gardens, Nuneaton.

WANTED, single MAN, age about 25, for Pleasure Grounds; wages 15s., Bothy and vegetables; Roman Catholic.—Apply to T. ADCOCK, The Gardens, Ditcham Park, near Petersfield, Hants.

WANTED, an active YOUNG MAN for Pleasure Grounds and Flower Garden; wages 16s. a week, Bothy, milk and vegetables.—G. H. CLACK, Wexham Park, Slough.

WANTED, a strong, active YOUNG MAN, with good, sound reference, to take LEAD in Kitchen Garden; one who understands good cultivation of vegetables and rotation; wages £1 a week; Bothy, milk and vegetables.—Apply, W. H. BAILEY, Burwood, Cobham, Surrey.

WANTED, YOUNG MAN, with fair knowledge of Inside work; 16s. per week, Bothy, milk and vegetables.—Apply to F. LAILEY, Fairthorne Manor Gardens, Botley, Hants.

WANTED, GARDEN LABOURER; an active, strong, willing Young Man for Kitchen Garden and Pleasure Grounds; age not under 22.—State if married with full particulars to F. ROBERTS, The Gardens, Stoke Edith Park, Hereford.

WANTED, an ELECTRIC PLANT ATTENDANT, with some knowledge of carpentring; wages 25s. with rooms.—Miss RUSSELL, Normanswood, Farnham, Surrey.

TRADE.

WANTED, an active MAN for Jobbing Gardening and fill up time on Nursery; regular work for reliable man.—State particulars to H. R. F., Box 26, 41, Wellington Street, Covent Garden, W.C.

WANTED at once, two capable MEN for Grape Thinning; wages £1 and overtime.—W. ASHBY, Osborne Nursery, Potters Bar.

WANTED, FOREMAN (GENERAL); must be energetic; have good knowledge of Propagation and Culture of Herbaceous Plants, Alpines, Soft and Hard-wooded Plants; thoroughly used to Landscape Gardening and supervision of men, both in and out of Nursery.—Apply, giving age, previous experience and wage asked.—U. A., Box 3, 41, Wellington Street, Covent Garden, W.C.

WANTED, FOREMAN (INDOOR); well up in Grapes, Tomatos, Chrysanthemums, Bedding Stuff, and general Market produce; must be energetic, reliable, and progressive; state wages expected and other particulars.—GEO. UNDERWOOD, Saffron Hill Nurseries, Leicester.

WANTED, near Manchester, FOREMAN (WORKING) for Market Garden; must thoroughly understand Forcing Valley and Tulips; state age, experience, and wages required, with references.—N. G., Box 8, 41, Wellington Street, Covent Garden, W.C.

WANTED, GRAPE THINNER; also permanent HAND for Vines.—State age, height, experience, Mr. BULLEN, Hangleton Nurseries, Goring, near Worthing.

WANTED, YOUNG MAN for Rose Department; successful Budder.—Wages and all particulars to DICKSONS, Nurseries, Chester.

WANTED, YOUNG MAN for Ferns, Palms, &c.—THOS. FEWSTER, Ragworth Nurseries, Norton-on-Tees.

WANTED, YOUNG MAN (SINGLE-HANDED) for Herbaceous and Rock Plants; quantity of Hardy Cut Stuff wanted for shop sale.—Apply, stating wages, and experience in this branch, to ACOCK, Florist, Malvern.

WANTED, one or two YOUNG MEN for Rose Budding; permanent situation if suitable.—State experience and wages required to GEO. COOLING & SONS, The Nurseries, Bath.

WANTED, YOUNG MAN; good experience in growing Cucumbers, Tomatos, Ferns, Bedding Stuff; age, wage, and references.—ALLEN, Nursery, Blaby, Leicester.

WANTED, YOUNG MAN for Jobbing, occasionally fill up time in Nursery; permanent situation to suitable man.—Particulars, copies of reference, J. BURRELL & CO., Howe House Nurseries, Cambridge.

THOMPSON & SON have a Vacancy for a Young Man to learn the Nursery Business; small premium required; salary given.—NURSERYMEN, Poulton-le-Fylde, Lancs.

WANTED, two capable YOUNG MEN for Budding and Growing Roses; permanent situations for good men; state experience and wages required.—GROWER, Box 7, 41, Wellington Street, Covent Garden. W.C.

WANTED, at once, IMPROVER in Herbaceous Plants.—State age, wages required and references, to BROADHEAD'S Wooldale Nurseries, Thongsbridge, Huddersfield.

WANTED, intelligent YOUNG MAN; used to Plants, Watering and Furnishing, and to make himself generally useful.—7, Wellington Street, Strand, W.C.

WANTED, TRAVELLER.—Wholesale Seed House requires at once really first-rate Salesman with requisite knowledge of Seeds to call on Seedsmen and Nurserymen (Seeds only) in United Kingdom; must be well educated, untiring, and reliable.—"PROGRESS," Box 2, 41, Wellington Street, Covent Garden, W.C.

WANTED, capable ASSISTANT to Manage (under principal) Garden and Flower Seed Department; must be conversant with horticulture and able to attend to customers; only those whose character will bear strict investigation need apply.—L., Box 13, 41, Wellington Street, Covent Garden, W.C.

SEED TRADE.—Wanted, ASSISTANT; must be smart, active and willing, and have been used to a quick counter trade.—Write, stating age, experience and wages required, S. F., Box 10, 41, Wellington Street, Covent Garden, W.C.

WANTED, SEEDSMEN.—One or two Young Men with a thorough counter training in Vegetable and Flower Seeds and Bulbs; must be of good address, habits, and character, and be prepared to go abroad; state age and all particulars as to experience, salary, &c.—"ATLANTIC," Box 2, 41, Wellington Street, Covent Garden, W.C.

WANTED, WAREHOUSEMAN for abroad, a Young Man with a good all-round knowledge of Garden and Farm Seeds, especially Grasses, Peas, and Beans, and how to clean them; must be strictly temperate and of good character.—Apply, stating age, salary, &c., "AGROSTIS," Box 2, 41, Wellington Street, Covent Garden, W.C.

WANTED, OFFICE CLERK to go abroad, a Young Man who has had good office experience in a Seed Establishment; must be reliable, competent, temperate, of good character and habits, and a good penman.—Apply, stating age, salary, experience, &c., "HORTUS," Box 2, 41, Wellington Street, Covent Garden, W.C.

WANTED, HANDYMAN for Greenhouse Painting, Pipe Caulking, rough Carpentring, &c.; abstainer.—State experience, wages, &c., MARKETS, Box 15, 41, Wellington Street, Covent Garden, W.C.

WANTED, MAN for Greenhouse Painting (rafters); season's work if speedy; state age and wages.—GRANT, 54, Newland Road, Worthing, Sussex.

SITUATIONS WANTED.

Twenty-six words for 1/6, & 6d. for each succeeding Eight words or less.

Gardeners desiring their Advertisements repeated *must give full particulars, otherwise no notice will be taken of their communications. Name and address alone are insufficient.*

Gardeners writing to Advertisers of Vacant Situations are recommended to send them **copies** *of testimonials only, retaining the originals. On no account should they enter into communication with unknown correspondents who require a fee beforehand.*

Advertisers are cautioned against having Letters addressed to Initials at Post-offices, as all Letters so addressed are opened by the Postal authorities and returned to the Sender.

PRIVATE.

Gardeners, Farm Bailiffs, Foresters, &c.

DICKSONS, Royal Nurseries, Chester, are always in a position to RECOMMEND MEN of the highest respectability and thoroughly practical at their business. All particulars on application.

CLIBRANS, Nurserymen to H.M. the King, Altrincham, can recommend thoroughly practical, well experienced Men, of high character, as GARDENERS (Head or Under), FORESTERS, &c. Correspondence invited.

GARDENER and BAILIFF, age 36, married, seeks Situation; experienced in all branches of the Garden and Farm; good manager of men; 4½ years in present place; good references.—URQUHART, Fairy Hill, Reynoldston, Glamorganshire.

GARDENER (HEAD of two or more), age 34, married, one in family, seeks Situation; life experience Inside and Out, or could manage small Nursery and also manage an electric plant.—A. H., Box 1, 41, Wellington Street, Covent Garden, W.C.

GARDENER (HEAD).—E. MARKHAM, Bishopsgate, Englefield Green, Surrey, for 5 years as above to Lady Marcus Beresford, seeks Situation where a thoroughly experienced man in all branches of gardening is required; excellent credentials; age 34.

GARDENER (HEAD) seeks Re-engagement with nobleman, lady, or gentleman requiring a first-class Gardener; life experience in all branches, Grapes, Peaches, Melons, Cucumbers, Stove and Greenhouse Plants, Vegetables, Landscape Work, &c.; has won over 40 cultural certificates for Flowers, Fruit, &c.; highest testimonials; 10 years present place; abstainer.—H. LAMPARD, care of E. Lampard, 5, Hermitage Villas, Child's Hill.

GARDENER (HEAD). — HARRIS, Gardener, Bigsweir House, St. Briavels, Glos., 2 years, wishes Re-engagement; thoroughly practical in all branches, Inside and Out; methodical; disengaged July 4; excellent credentials.

GARDENER (HEAD).—FRANK BIBLE, for the past 13 years head gardener to the late Prince Hatzfeldt, requires Re-engagement; 30 years' experience in first-class gardens; thoroughly qualified in all branches pertaining to Horticulture; also capable of Estate Management; excellent personal character; age 46; married, no family.—BIBLE, Draycot Gardens, Chippenham, Wilts.

GARDENER (HEAD).—S. WOODS, for the past 11 years at Blackmore Park, is open for Re-engagement with any lady or gentleman requiring a practical man; thoroughly experienced in all departments; left through breaking-up of establishment.—Apply, S. WOODS, Hanley Swan, Worcester.

GARDENER, age 27, seeks Situation as HEAD, where about two more kept; experienced in Vines, Peaches, Melons, Cucumbers, Tomatos, Stove and Greenhouse Plants, Kitchen Garden, Flower Garden, and Pleasure Grounds; 10 years' experience.—FERGUS ATKINSON, Montreal Gardens, Riverhead, Sevenoaks, Kent.

GARDENER (HEAD or good SINGLE-HANDED); life experience; married; age 40; well recommended as good all-round man; 2 years Head present place, 11 years previous.—LAKER, Cricket View, Horley.

GARDENER (HEAD or good SINGLE-HANDED); life experience; steady and trustworthy; 12 and 9 years previous; age 38; married.—ANDREWS, 38, Southwood Lane, Highgate.

GARDENER (HEAD or good SINGLE-HANDED); life experience in all branches; Stove, Vine, Orchids, Carnations, Alpines, Chrysanthemums, Fruit, Vegetables; good references; age 36; married; near London.—W. J. CONNEMARRA, Montgomery Road, Edgware, Middlesex.

GARDENER (HEAD WORKING, where three or more are kept); married, no family; age 49; experienced, Inside and Out; good references.—W. SCOTT, Six Mile Bottom, Newmarket.

GARDENER (HEAD WORKING, where three or four are kept); thoroughly experienced in Orchids, Stove Vines, Peaches, Melons, Cucumbers, Flower and Kitchen Garden; highly recommended; married, no family; disengaged.—ELLIS, 63, Liverpool Road, Reading.

GARDENER (HEAD WORKING); thoroughly practical experience in all branches, Inside and Out; good knowledge of French Gardening; age 35; no family; highest references.—GETSOM, Epsom Road, Leatherhead.

GARDENER (HEAD WORKING, where several are kept); 17 years' practical experience all branches; five years Head last place; age 34; married, one child (age 4); excellent references.—A. SPRINGHAM, Lawrence Weston, Henbury, Bristol.

GARDENER (HEAD WORKING); life experience; age 38; well recommended as good all-round man; 12½ years Head in present place; leaving through death; well experienced Orchids, Herbaceous, and Alpines.—WARREN, Highfield Gardens, Gainsborough.

GARDENER (HEAD WORKING, where two or more are kept); life experience Inside and Out, Fruit, Flowers, Orchids, Vines, Vegetables; married, no family.—BLAGBURN, Sherwood Farm, Mitcham.

GARDENER (HEAD WORKING).—Mr. LEONARD POWELL, J.P., will recommend his GARDENER (Head Working); age 37; married; life experience; 22 years' reference.—SUTTON, Camden Grove, Chislehurst, Kent.

GARDENER (HEAD WORKING, where three or four are kept); life experience, Orchids, Stove, Vine, Cucumbers, Flower and Kitchen Garden, Land and Stock; leaving through place being let; age 40; married, no family.—DOWNHAM, Southfield Cottage, Queensmere Road, Wimbledon Park.

GARDENER (HEAD WORKING).—Mr. H. G. BULL, Breakspears, highly recommends C. HARBERT as above; well versed in Cultivation of Flowers, Fruit, and Vegetables; practical experience; age 30.—Breakspears Gardens, Uxbridge, Middlesex.

GARDENER (HEAD WORKING, where more are kept); age 35; married, no family; life experience in all branches; good references.—F. CHURCHMAN, Roche Court, Fareham, Hants.

G. RANDALL HIGGINS, J.P., highly recommends his late GARDENER (Head Working) to any Lady or Gentleman; nine years in last situation; life experience; age 43; married, two children, ages 14, 11.—A. PAGE, 8, Railway Terrace, Stoke Road, Slough, Bucks.

GARDENER (HEAD WORKING, where more are kept); 25 years' practical experience in all branches Inside and Out; Orchids, Vines, Peaches, Cucumbers, Melons, Stove and Greenhouse Plants, and Herbaceous Borders; highly recommended; age 36; married, no family; abstainer.—F. BUSH, 56, Buxton Villa, Rusthall, Tunbridge Wells.

GARDENER (HEAD WORKING, with one or two under); age 38; life experience Inside and Out; good references.—Address, GARDENER, Hareby House, Spilsby, Lincs.

GARDENER (HEAD WORKING, where two or three are kept); life experience in all branches; good references; married; age 40.—TATNALL, Hastehill, Haslemere.

GARDENER (HEAD WORKING, where several are kept); life experience in all branches, Land and Stock if required; disengaged; 12 years' good character; age 42.—F. COLES, 108, Third Cross Road, Twickenham.

GARDENER (HEAD WORKING, where three or more are kept).—R. BEGG would be pleased to meet lady or gentleman in want of a good all-round man as above; life experience in all branches, including Orchids; highly recommended; married, no family.—The Gardens, Redenham Park, Andover, Hants.

GARDENER (HEAD WORKING, where more are kept); 25 years' practical experience in all branches, Inside and Out; Vines, Peaches, Cucumbers, Melons, Orchids, Stove and Greenhouse Plants, and Herbaceous Borders; thoroughly reliable and highly recommended; married, without encumbrance.—F. WOODHOUSE, Blackboys, Uckfield, Sussex.

GARDENER (HEAD WORKING, where more are kept); thorough practical first-class man; experienced in all branches; excellent testimonials.—G. BARTLE, 43, Wigston Lane, Aylestone, Leicester.

GARDENER (HEAD WORKING); experienced in all branches under Glass and Outside, Landscape and Estate Work, Land and Stock if required.—HEATON, South Lodge, Cressingham Park, Reading.

GARDENER or GARDENER and ESTATE MANAGEMENT if required; 25 years' practical experience in all branches Inside and Out; early and late Forcing; thoroughly reliable; highly recommended; married, without encumbrance.—F. WOODHOUSE, Blackboys, Uckfield, Sussex.

LEADING HAND (OUTSIDE, on large place, or small SINGLE-HANDED).—Mr. W. BARRELL can with confidence recommend E. DRURY as above; age 26 years; single; excellent references; leaving when suited.—GARDENS, Coombe Cottage, Kingston Hill, Surrey.

GARDENER (INSIDE and OUTSIDE); age 22; five years' experience.—E. H., Box 4, 41, Wellington Street, Covent Garden, W.C.

GARDENER (32) desires Situation; 18 years' practical experience Inside and Out; 13 years last situation; married, one child; good cricketer.—C. BUTTLE, Thorp Arch, Yorkshire.

GARDENER; life experience Inside and Out; look after and clean motor if required; good references; abstainer; age 30; single; please state wages.—GREY, 41, Grafton Road, Worthing.

ENERGETIC, reliable GARDENER (HEAD of others); confident giving every satisfaction; Glass, Rock, Herbaceous and all branches; also for Market; age 35; wife good needlewoman.—C. R., Box 17, 41, Wellington Street, Covent Garden, W.C.

GARDENER, age 30, desires Situation; life experience Inside and Out; seven years in present situation.—E. COX, Bilton Hill, Rugby.

GENTLEMAN wishes to recommend his GARDENER to any Lady or Gentleman requiring a thoroughly hard-working, good all-round man; married; no encumbrance; wife domesticated; 6½ years' good character.—WOOD, Wildecroft, Betchworth.

GARDENER (SINGLE-HANDED or with help); middle aged; life experience; 10 years present situation; no children.—SPURGEON, 31, St. Marys, Merton Park, Surrey.

GARDENER, 25 (SINGLE-HANDED); well experienced in Flowers, Vegetables, and Plants under Glass; excellent references.—W. THORN, 15, Reginald Road, Northwood, Middlesex.

GARDENER (SINGLE-HANDED or with help); experienced in all branches; age 30; married, no family; good references; disengaged.—GARDENER, 2, Wharf Road, Brentwood, Essex.

GARDENER (SINGLE-HANDED or with help); experienced in Vines, Fruit, Flowers, Kitchen Garden, Plant Houses, Tennis Lawns; married, no family; wife as Caretaker; good character; disengaged 12th July.—E. LUKER, Burntwood Lodge, Wandsworth Common, S.W.

GARDENER (either SINGLE-HANDED or SECOND of three) seeks Situation; long reference; good Nursery not objected to; Hampstead preferred.—W. MARCHANT, Bow Police Station, Bow Road, E.

SUPPLEMENT.—RANUNCULUS LYALLII.

THE GARDENERS' CHRONICLE

ESTABLISHED 1841

No. 3731

No. 1,331.—VOL. LI. {THIRD SERIES.} SATURDAY, JUNE 29, 1912. {Registered as a Newspaper. WITH SUPPLEMENT.} {PRICE 3d. POST-FREE, 3½d.

SUBSCRIPTION—Inland, 15/-; Foreign, 17/6 [22fr. 10c.] [$4 26c.] per annum. Entered at the New York Post Office as second-class matter.

Postal Address—41, Wellington Street, Covent Garden, W.C. Telegraphic Address—"Gardchron, London." Telephone—Gerrard, 1543.

☞ For CONTENTS see page 423.

In consequence of the increase in the circulation, and also of the earlier despatch of the morning trains from London, the hour of going to press has been again advanced, and in future Advertisements received after 5 p.m. on WEDNESDAY will be held over till the following week. On no consideration whatever will any exception be made to this rule.

WEBBS' CHOICE FLOWER SEEDS.—Latest Award: LARGE GOLD MEDAL at the Royal International Horticultural Exhibition for excellence of Flowers raised from Seed.

WEBBS' CHOICE FLOWER SEEDS.—Illustrated Price List of Flower Seeds for present sowing, sent gratis and post free on application.—WEBB & SONS, The King's Seedsmen, Wordsley, Stourbridge.

THE Popularity of "XL ALL" Specialities increases every year. All gardeners proclaim that nothing equals these celebrated preparations. "XL ALL" NICOTINE VAPORISING COMPOUND, the gardeners' favourite Fumigant, both Liquid and Cake. "XL ALL" NICOTINE INSECTICIDE WASH for Syringing, Dipping and Dressing Fruit Trees and Plants; Mealy Bug, Scale, etc., cannot exist where this is used. "XL ALL" INSECTICIDE WASH B (*sine* Nicotine), best non-poisonous Wash on the Market. No licence required to sell this. Other preparations of great renown are:—"XL ALL" WEED KILLER, "XL ALL" FERTILISER, "XL ALL" ROSE MANURE. Richards' GREEN SUNSHADE, finest powder shading on the market, 1s. packet, does 100 feet of glass. Don't forget to ask your Nurseryman or Seedsman for my small pink list.—G. H. RICHARDS, Manufacturer, 234, Borough High Street, London, S.E.

ALPINES & HERBACEOUS PLANTS, —Himalayan and other rare Rhododendrons, rare Shrubs, Construction of Rockeries. Catalogues ready. G. REUTHE, Keston, Kent.

GISHURST COMPOUND is harmless in use; its soluble Sulphur, &c., has for 40 years cured Blights and Fungus on Plants, and is good for washing unhealthy dogs. Gishurstine keeps boots dry in all weathers; they will polish. Good for Harness.
Wholesale from—
PRICE'S PATENT CANDLE CO. LTD., London.

OSMUNDA for Orchids.—Consignments arrive fortnightly. 2s. 6d. per bushel; per bag, 8s. 6d.
SANDER & SONS, St. Albans.

CHOICEST WALLFLOWERS.—Dicksons selected Dark Blood Red, Dicksons Golden Beauty, Primrose Dame, Eastern Queen, Ruby Gem, Golden Monarch, Vulcan, and Harbinger—all distinct and beautiful varieties, per packet 6d. and 1s., post free.
DICKSONS, Royal Seed Warehouses, Chester.

HARDY BORDER CHRYSANTHEMUMS FOR PRESENT PLANTING.—Special offer of surplus stock; large-flowered Japanese, Pompon, and Single to name, 25s. per 100; 3s. 6d. per dozen.—BARR & SONS, King Street, Covent Garden, London.

New Phloxes.

GUNN & SONS were Awarded a Silver Cup at the Great Show at Olympia. New Lists now ready. Address: Olton, Warwickshire.

SUTTON'S SWEET WILLIAMS.
Produce enormous heads of beautifully coloured flowers.
SUTTON'S PINK BEAUTY, per packet, 1s. and 1s. 6d.
SUTTON'S SCARLET, per packet, 1s. and 1s. 6d.
"Mrs. Brace must say how splendidly Sutton's Pink Beauty Sweet William is blooming. Crowds of people come to see it in her garden."
Post free.

SUTTON & SONS, The King's Seedsmen, READING.

LAXTON'S STRAWBERRIES.—Order early. Fine early pot plants for forcing, of Royal Sovereign and other varieties, 16s. 100. For new varieties, see our Catalogue, gratis on application.
LAXTON BROTHERS, Bedford.

Kent, the Garden of England.

GEORGE BUNYARD & CO., LTD., invite inspection of their extensive Nurseries at MAIDSTONE. Herbaceous, Alpines, Climbers, Fruit Trees and Shrubs, 10,000 varieties. Roses are extra fine. Nurseries, 200 acres.

HUTS FOR THE GARDEN.—Fruit Rooms, Potting Sheds, Workshops, Cycle Houses, Boot Rooms, Servants' Mess Rooms, Children's Playrooms, &c. Send for Illustrated Catalogue, free.
BOULTON & PAUL, Ltd., Norwich.

GARDEN PESTS.—Cross's "Clubicide" is the Gardeners' Insurance against damage by Eelworm, Wireworm, Slugs, Maggot, and all Disease Germs and Insect Pests. Kills all harmful Bacteria, reinvigorates the soil, stimulates plant life. In 1s. flasks and ½-gall. and 1 gall. drums. From all Seedsmen.
Sole Manufrs.: A. CROSS & SONS, Ltd., Glasgow.

AUTO SHREDS FUMIGANT kills Leaf-mining maggot, insects in greenhouses, frames. For 1,000 cubic feet, 6d.; 10,000, 3s. 6d. No apparatus.
WM. DARLINGTON & SONS, Patentees, Hackney, N.E.

WM. DUNCAN TUCKER & SONS, Ltd., 27, Cannon Street, London, E.C.; Works, Tottenham. Conservatories, Winter Gardens, Vineries, Peach-houses, Portable Buildings, etc. Catalogue gratis.

Roses and Herbaceous Plants.

GUNN & SONS were awarded the 25 Guinea Challenge Cup in each collection at the Leamington Show. Up-to-date List for each now ready. Address: Olton, Warwickshire.

RIVERS' FRUIT-TREES, ROSES, VINES, FIGS, ORANGES, & ORCHARD-HOUSE TREES. A large and select stock always on view. Illustrated and descriptive Catalogue, post free, 3d.—THOMAS RIVERS AND SON, Sawbridgeworth, Herts. Station: Harlow, G.E.R.

GREENHOUSE PAINTING & GLAZING "Vitrolite," superior to White Lead Paint, 9/- per gall. "Plastine" supersedes Putty, 16/- per cwt. Full particulars from W. CARSON & SONS, Grove Works, Battersea. Agents throughout the country.

MACKENZIE AND MONCUR, Limited, Hothouse Builders and Heating Engineers, London, Edinburgh, and Glasgow. By Special Appointment to H.M. The King.
London Office: 8, CAMDEN ROAD, N.W.

For Advertisement Charges see page iv.

KELWAY COLOUR BORDERS.—Now is the time to plan these for Autumn planting. Full particulars and estimates for Hardy Borders of any dimension, and to suit any taste, packed ready for planting on arrival, on application. Send information as to measurements, position and soil to KELWAY & SON, The Royal Horticulturists, Langport, Somerset. Mr. ——, Castle Gardens, Rosneath, Dumbartonshire. (H.R.H. Princess ——.) I take the liberty to write you and to let you know that the herbaceous plants you sent have done exceedingly well—Gladioli, Hollyhocks, Delphiniums especially good. I have not lost a dozen of the plants. The Princess was also very pleased with them when here, and all that saw them said they never saw any better." (Planted April, 1911.)

HARRISON'S "RELIABLE" WEED KILLER.—Best and cheapest. See p. v. this issue.

FRUITING VINES IN POTS.—Muscat of Alexandria, and leading Market varieties. We make Vines a speciality.
G. COLEMAN, The Vineries, Burgess Hill, Sussex.

RUSTIC SUMMER HOUSES, Trellis-work, Fencing, Pergolas, Arches, Seats, Bridges, Log Cabins, Loggias, etc. Send for Catalogue, post free.
BOULTON & PAUL, Ltd., Norwich.

WALTERS & CO., Morland Rd., Croydon, Makers of Lath Roller Greenhouse Blinds; Pinoleums, Scrim, Tiffany; also Garden Trellis, Arches, Rose Trainers, of best designs. New Catalogue 1912, free.

SELECT YOUR ALPINES IN FLOWER.—A large collection, in pots, also Aquatics for present planting. Visitors cordially welcomed.—THE GUILDFORD HARDY PLANT NURSERY, Guildford.

BEGONIA GLOIRE DE LORRAINE, old variety, also Rothschild var. and Turnford Hall, well-rooted young plants, 2s. 6d. doz., 50 for 6s., 10s. 6d. per 100; The King, 3s. 6d. doz., 50 for 12s.; carriage paid for cash.—H. DUDDERIDGE, The Dorset Nurseries, Blandford.

ASPARAGUS.—Now is the time to make an Asparagus bed; strong two year roots, 5s. per 100, packed and carriage paid.—BIRD & VALLANCE, Nurserymen, Downham, Norfolk.

ORCHIDS.—To be Sold cheap; overstocked; all healthy plants, including Cypripediums, Dendrobiums, Lælia purpurata, Cattleyas Cristata, Odontoglossum grande, &c.—Apply, HEAD GARDENER, Elstree, Redhill.

CACTI. Silver Cup, International Exhibition, 1912. Catalogue of Cacti and Carnivorous Plants, 47 pages, 159 illustrations, post free 6d., which is allowed off first order. Fern List free. Five Gold Medals, 1911.—ELLISON, 45, West Bromwich.

FERNS! FERNS!! FERNS!!! 100,000 Tree Ferns, Climbing Ferns, Basket Ferns, Stove and Greenhouse Ferns; catalogues free.—J. E. SMITH, London Fern Nurseries, Loughboro' Junction, London, S.W.

KEYNES' DAHLIAS, sturdy, healthy, plants of all best kinds. No one interested in Dahlias should be without a catalogue, gratis to all applicants.—KEYNES, WILLIAMS & CO., Salisbury.

SALES BY AUCTION.

THURSDAY NEXT, July 4th WITHOUT RESERVE. THURSDAY NEXT, July 4th.

A MAGNIFICENT COLLECTION, IN SPLENDID HEALTH, OF

Rare and Very Old Dwarf Japanese Trees

consisting of some of

THE MOST REMARKABLE AND UNIQUE PIGMY SPECIMENS EVER OFFERED,

of **Thuja obtusa, Larix leptolepsis, Oaks, Maples, Pines,** &c., cultivated with the greatest care, and most artistically trained; also **Miniature Rock Gardens.** Many of the trees are of great age, and have been grown in this Country two months, all are in perfect health, growing freely in a most interesting assortment of beautiful porcelain pots and pans. The sale will also include a collection of **Japanese Fancy Garden Hats, Japanese Garden Brooms, and Japanese Screen Designs, &c.**

MESSRS. PROTHEROE & MORRIS

will sell the above by Auction at their CENTRAL SALE ROOMS, 67 & 68, CHEAPSIDE, E.C., on THURSDAY NEXT July 4th, at 2 p.m. On view Tuesday and Wednesday prior to and morning of sale. Catalogues on application.

HOLLAND HOUSE SHOW WEEK.

WEDNESDAY, JULY 3rd, at 1 o'Clock (Second Day of Show.)

By Order of Messrs. Sander & Sons, St. Albans.

250 magnificent ORCHIDS, also a few choice Orchids, by request of R. le Doux, Esq.

THURSDAY, JULY 4th, at 1 o'Clock (Last Day of Show)

300 lots of choice, selected Orchids from well-known growers, including Cypripediums, Lælio-Cattleyas, and Cattleya hybrids, Sophro-Cattleyas, and many others, several importations received direct, tricolor, Saccolabiums Harrisonianum and Blumei, Spathoglottis plicata variety alba, Coelogyne asperata, Grammatophyllums, choice and rare Dendrobiums, &c., Orchids in flower and bud.

MESSRS. PROTHEROE & MORRIS will SELL the above by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, E.C. On view mornings of Sale and Catalogues had.

BUSINESSES FOR SALE, &c.

MESSRS. PROTHEROE & MORRIS, Horticultural Auctioneers, 67 and 68, Cheapside, London, E.C., will be pleased to forward particulars of either of the following properties:—

COMPACT NURSERY in good district for Sale as going concern; nine greenhouses and useful buildings; capital opportunity for all-round man to do sound local business; price for everything, £350.

MUST BE SOLD. — FREEHOLD NURSERY on main G.E.R.; 12 miles from Southend; 550 ft. run of glass in capital condition and three acres of land; water supply from mains; price £500.

IN a popular residential town in Berkshire, old-established NURSERY and FLORIST'S BUSINESS; 12 greenhouses, total area 7¼ acres; commodious shop on main road and eight-roomed dwelling-house; good trade done; moderate rent; price £1,150.

TO be SOLD, near Bristol, compact FREEHOLD NURSERY, area three acres, with 12 glasshouses, outbuildings; good dwelling-house; capital trade done; price £1,600; half on mortgage if desired.

NURSERY; one acre; near large town; 300 ft. modern glass, well stocked; excellent house.—R. C., Box 20, 41, Wellington Street, Covent Garden, W.C.

FOR SALE, a FREEHOLD MARKET NURSERY, in full working order, comprising nearly 4½ acres, with nine houses (four 20 by 70 and five 20 by 65); seven small pits and two large, and numerous frames.—Apply, H. DENNING, Heathfield Nursery, Hampton, Middlesex.

TO NURSERYMEN, MARKET GARDENERS, &c.—To be SOLD by Valuation, on basis of going concern, the Stock, Fixtures and effects of a MARKET GARDENER'S BUSINESS, in the gardens attached to Tidworth House, in the heart of the Salisbury Military District, and doing a high-class trade; probable capital required, £200-£250.—Apply, THE OFFICIAL RECEIVER, Salisbury.

TO BE LET or SOLD, the BUSINESS part of Swallow Tree Gardens, Saundersfoot, South Wales; 750 ft. run of glass, partly heated, comprising Vinery and Peach houses (well stocked), four Tomato houses, 100 ft. long, with two acres of garden; the Vines, Peaches, and Nectarines are in full bearing and renowned for their quality.—Write, PROPRIETOR, Box 5, 41, Wellington Street, Covent Garden, W.C.

FREEHOLD NURSERY and FLORIST BUSINESS FOR SALE or TO LET; near Exeter; ¾ acre; chiefly glasshouses; well-built and heated; town water supply; immediate possession.—T., Avenue House, Crediton.

FREEHOLD NURSERY for SALE; 2½ acres; greenhouses in excellent condition and well heated; good situation; within easy reach of Manchester market; five minutes walk from Altrincham station.—Apply, STEVENSON, Kingsway, Altrincham.

W. A. GARAWAY, Deceased.

FOR SALE,

the old-established BUSINESS of

JAMES GARAWAY & CO.

NURSERY 35 acres at Keynsham;

SEED, BULB & FLOWER BUSINESS at Clifton, Bristol.

Immediate possession at valuation.

Apply, F. J. TARR & SONS, Solicitors, Bristol; or JAMES GARAWAY & CO., Nurserymen, Bristol.

BUSINESSES TO LET.

NURSERY to LET; splendid position; five minutes from rail and trams; 350 ft. glass; 1¼ acres Fruit; good house; rent £40.—Further particulars from MILES, Royal Hotel, Sheerness.

BUSINESSES WANTED.

WANTED to RENT, a small NURSERY within 60 miles of London; long lease.—State full particulars to MISS E. LANGRIDGE, 36, Nottingham Place, London, W.

BUSINESS CARDS.

IF you want a ROCKERY built for a rational price, or any kind of rockery stone or plants, write for quotation to J. WOOD, Nurseries, Boston Spa, Yorks. Awarded Irish Cup and Gold Medal at the International Exhibition.

TRADE NOTICE.

WE wish to inform all interested in Orchids that the whole of the Orchid Department of Mr. H. Whateley, Spring Gardens, Kenilworth, comprising upwards of

50,000 ODONTOGLOSSUM CRISPUM.

also large quantities of Cattleyas, Oncidiums, Cypripediums, &c., has been taken over by

Mr. H. C. WHATELEY and J. NEWTON in Partnership.

The fine vigour of the Crispum here, also the grand type of flower, is well known.

All orders shall have the same careful attention as formerly.

All business communications should be addressed WHATELEY & NEWTON, The Orchid Nurseries, Kenilworth.

NOTICES.

THE RHODODENDRONS planted in Rotten Row, Hyde Park, are supplied by ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey. Kindly note Christian name and address.

PUBLISHERS' NOTICES.

Present-Day Gardening.

Edited by R. HOOPER PEARSON, Managing Editor of the GARDENERS' CHRONICLE. Now Ready. Post free, **1/9** each.

Numerous Beautifully Coloured Plates are contained in Each Volume.

1—**SWEET PEAS.** By HORACE J. WRIGHT, late Secretary and Chairman of the National Sweet Pea Society. With Chapter on "Sweet Peas for Exhibition," by THOS. STEVENSON.

2.—**PANSIES, VIOLAS, AND VIOLETS.** By WILLIAM CUTHBERTSON, J.P., and R. HOOPER PEARSON.

3.—**DAFFODILS.** By the Rev. J. JACOB.

4.—**ORCHIDS.** By JAMES O'BRIEN, V.M.H., Secretary of the Orchid Committee of the Royal Horticultural Society.

5.—**ROOT & STEM VEGETABLES.** By ALEXANDER DEAN, V.M.H., Chairman of the National Vegetable Society.

6.—**CARNATIONS & PINKS.** By T. H. COOK, Head Gardener at Sandringham; JAMES DOUGLAS, V.M.H., and J. F. MCLEOD, Head Gardener to Mr. Pierpont Morgan. Contains 8 full-page coloured plates.

7.—**RHODODENDRONS & AZALEAS.** By W. WATSON, with preface by Sir F. W. MOORE, M.A. (the first popular volume published on this subject). Contains 8 full-page coloured plates.

8.—**LILIES.** By A. GROVE, F.L.S., with preface by H. J. ELWES, F.R.S. Contains 8 coloured plates.

9.—**APPLES & PEARS.** By GEORGE BUNYARD, V.M.H. Contains 8 coloured plates.

10.—**ROSES.** By H. R. DARLINGTON, with 8 full-page coloured plates. A double volume, price **2/10**, post free. Special presentation edition, with beautiful cover design, in cloth gilt, gilt top, price **3/10**, post free.

11.—**IRISES.** By W. R. DYKES, M.A., with preface by PROF. BAYLEY BALFOUR. 8 full-page coloured plates.

12.—**ANNUALS, HARDY AND HALF-HARDY.** By C. H. CURTIS, with 8 coloured plates. **1/9.**

THE PUBLISHER,

"Gardeners' Chronicle" Offices, 41, Wellington St., Covent Garden, London, W.C.

EXHIBITIONS.

HANLEY PARK, STAFFORDSHIRE

JULY 3rd & 4th, 1912.

SIXTEENTH GREAT

Annual Floral Fete

£500 IN PRIZES.

SILVER CUPS, GOLD AND SILVER MEDALS.

SILVER CHALLENGE CUP, VALUE £10 10s

offered for "Trade Exhibit" (for particulars, see page 7 in Schedule).

Valuable Special Prizes offered by the principal firms in England.

Schedules post free on application to WM. POULSON, Secretary, Town Hall, Hanley.

NATIONAL SWEET PEA SOCIETY.

GREAT EXHIBITION AT ROYAL HORTICULTURAL HALL, WESTMINSTER, JULY 9th and 10th.

Entries close July 3rd. Minimum Annual subscription, 5s. Schedules on application. "Sweet Pea Annual" free to members; 2s., post free, to non-members. List of Sweet Pea names free to new members.

CHARLES H. CURTIS, Hon. Sec., Adelaide Road, Brentford, Middlesex.

LEICESTER.—ABBEY PARK FLOWER SHOW, 6th and 7th August next.—Open Class, Group of Plants, £20, £15, £10, £6; liberal prizes for Collections of Fruit, Displays of Roses; Silver Cup, Gold and Silver Medals for non-competitive exhibits.—Schedules from JOSEPH BURTON, Supt.

THE
Gardeners' Chronicle

No. 1,331.—SATURDAY, June 29, 1912.

CONTENTS.

Alexandra Day	429	Obituary—	
Aloe dichotoma and A. Bainesii	425	Fyfe, William... ...	434
Benevolent Institution, Gardeners' Royal 429,	432	Haycraft, John ...	433
Birds in fruit nets ...	430	Hillier, W. H. ...	433
Board of Agriculture, Horticultural Branch of the	428	Wood, Elijah A. ...	433
Broome Botanical Garden, Bath	424	Orchid notes and gleanings—	
Calceolaria Clibranii ...	425	Dendrobium spurium	423
Conifers excluded from America	429	Paulownia imperialis...	431
Ewing, Mr. James ...	429	Publications received ...	429
Institute of gardeners, a national, and horticultural education ...	430	Ranunculus Lyallii ...	428
Insurance Act, the ...	430	Rhaphiolepis japonica and Polygonum Baldschuanicum	431
International Horticultural Exhibition and the R.H.S.	431	Roses, some early ...	423
Law note	433	Societies—	
Market prices for Peaches...	430	Horticultural Club ...	432
Nesting-place, a curious	431	Richmond Hort. ...	432
		Royal Meteorological	429
		Stirling Hort.... ...	433
		Strawberries, record ...	430
		Tomato, a giant... ...	431
		Week's work, the ...426–7	
		Williams, Mr. Richard	429
		York Show, herbaceous flowers at the	429

ILLUSTRATIONS.

Aloe Bainesii in the Cape Town Botanic Gardens ... 425
Aloe dichotoma in the Cape Town Botanic Gardens ... 424
Fyfe, William, portrait of the late 434
Paulownia imperialis flowering in the Cambridge Botanic Gardens, 430; inflorescence of 431
Ranunculus Lyallii (Supplementary Illustration)

SOME EARLY ROSES.

THE early part of June, nowadays, generally brings us some beautiful and interesting flowers, a gift we owe chiefly to the introduction of the Hybrid Teas. The early flowers of the Hybrid Perpetuals are seldom of much value, usually coming malformed or small and flat, while the early buds of the Teas often suffer from the effects of late frosts or other inclemency of the weather; but these difficulties the Hybrid Tea Roses seem at least in many cases able to surmount, and for the past four weeks I have been able to pick some flowers of interest for the house and dinner table.

Perhaps at no time of the year do we get a deeper or finer colouring than is exhibited by some of these early Roses, and this is particularly the case with certain of the yellow and orange flowers. Many of these are naturally early in flowering, and the mild spring and cool, moist weather of early June have proved very favourable to their development. Seldom do I remember to have seen such deep and brilliant orange in the flowers of Billard et Barre, nor to have had them so well shaped as we have found them this year. I have always been fond of this Rose, and now that we have discovered its requirements—south aspect with overhead protection—it has become a very useful garden Rose, for it is very fairly free flowering, and it continues to produce new growth and fresh flowers the summer through. In hot weather, however, the flowers open rather quickly and are apt to be thin and flat-centred, while the colour of the summer blossoms, though generally a fine yellow, lacks the deep rich and glowing orange of the flowers we have recently been gathering.

Mme. Ravary is another Rose that has greatly benefited by the cool and moist weather of the past three weeks. On a large standard which gets but little pruning, the first crop of flowers is already over, but the dwarf plants in the beds, which are cut right down in the spring, are just coming into flower (I am writing on June 16), and their dark foliage is looking very healthy and promising. For general garden purposes, as a bedding Rose or a standard, Mme. Ravary is hard to beat, and we have as yet no yellow Rose likely to supersede it. As a Rose for cutting for the house it is also very useful, but it has one drawback for this purpose, and that is that the flowers are carried on rather short stalks, and so are not suitable for use in tall vases.

Mme. Mélanie Soupert has given us some splendid large flowers already, particularly from standards, of very fine colour, with that slight tinge of pink which often comes in its early flowers, but the pink tinge has not been nearly so noticeable in Mme. Mélanie Soupert this year as it was in the early summer of 1911. I think that to get the colour of this lovely Rose at its best the flowers ought to be picked as the buds are opening and allowed to develop indoors in a cool position shaded from direct sunlight. If allowed to open fully on the plant a sudden burst of sunshine is apt to bring them on too quickly before the colour has fully developed.

Gustave Regis is now nearly at its best with us. We always get this Rose rather early as we find it does best when treated rather like a Noisette, that is, by pruning out some of the old wood but leaving the young shoots of the previous year nearly their full length.

Down to the present time Lena has not given us the best of its brilliant orange-yellow flowers, most of them having come rather washed out and uninteresting. This little Rose proved so very useful in the hot summer of last year that I am inclined to think that, unlike most of the yellows, it may be best in really hot weather.

The charming little yellow China Arethusa has already produced a few of its perfectly-shaped little flowers, but its full period of flowering is only just beginning.

Turning to the pinks, I think some of my earliest finely-shaped Roses came from a little batch of Mrs. Fred Straker. This little Rose makes an attractive button-hole Rose, and possesses a very pleasant Tea scent. The colour is a pale salmon pink with a full pink centre and a yellow base to the petals, of which the outer have a creamy appearance and are reflexed somewhat after the style of Mme. Antoine Marie. Altogether it seems a delightful little Rose, and may perhaps prove useful for decorative work. Standards of Lady Ashtown and Mme. Abel Chateney have already given some good flowers, but the dwarfs in my garden will be another fortnight before they are fully out.

Of Lady Pirrie I have had two or three flowers of a lovely colour, decidedly deeper in tint than those we have seen at the shows from plants grown under glass during the past spring. Last year this Rose was somewhat disappointing, and I was at times inclined to think we should have to regard it as a greenhouse plant. But the fine colour of its buds and flowers this June makes me think that I was mistaken and that it is really to be regarded as a cool-weather Rose. Its lovely and striking colour ought to make it a useful decorative Rose, but its crinkled petals and confused centre, as well as the small size of the flower, will prevent its being of much use in the exhibition box, though no doubt, like Betty, a flower may occasionally find its way there. Lina Schmidt Michel is a Rose that is not yet much grown, but is well worth consideration by those on the look out for perpetual-flowering pillar Roses. It seems to have the useful habit of adapting itself readily to a pillar 8 to 10 feet high, and does not, like climbing Mrs. W. J. Grant and so many of the autumnal pillar Roses, become leggy and flower only at the top unless many precautions are taken to check this habit. Its flowers are only semi-double, but are of a beautiful colour, the petals being a soft pink with a deep pink reverse. Curiously enough, it is said to be a seedling from Mme. Abel Chateney and Kleiner Alfred. In its double colouring it no doubt resembles the former, but whether its extreme vigour is derived from the same source is hard to say. The flowers are carried on long stems and so should be delightful for decoration.

On pegged-down plants J. B. Clark and Hugh Dickson have produced masses of flowers, looking bright in the distance, but the blossoms are all very rough and will not stand close inspection.

The best red Roses I have had have come from Avoca on plants grown as pillars or pegged down. Good in form and delightful in perfume, this is undoubtedly a useful Rose, and it would be more so if the autumnal flowering was only more free than it is.

Perhaps I may be allowed to refer again to the great advantage of growing Roses in as many different ways as possible in order to prolong their season. Frau Karl Druschki, for instance, and Caroline Testout, grown as pillar Roses and hardly pruned, have been giving me flowers for a fortnight or more, while the plants grown in beds as cut-backs will not be out for another fortnight, and so the season will be greatly prolonged. *White Rose.*

ORCHID NOTES AND GLEANINGS.

DENDROBIUM SPURIUM J. J. SMITH.

A SPECIMEN of a very interesting Dendrobium received from Borneo is sent by the Hon. N. Charles Rothschild, Ashton Wold, Oundle (gr. Mr. C. Wright). It is illustrated and described in *Orchideen von Java*, vol. i., 343, fig. 260, as Dendrobium spurium. The author, for the specific name, goes back to the first reference as Dendrocolla spuria, *Bl. Bydragen*, vol. i. Lindley, in *The Genera and Species of Orchidaceous Plants*, recorded it as Aërides spurium, and later Rchb. f., in "Orchideæ," in *Walper's Annales*, vi., 500, as Sarcochilus spurius. Lindley, however, in the *Journal* of the Linnean Society. III. p. 7, recognised it as a Dendrobium, and recorded it as D. euphlebium, a name which Rchb. f. follows when describing it in *Xenia Orchidacea*, where it is also figured under that name. H. N. Ridley, in his clever and useful *Materials for a Flora of the Malayan Peninsula*, also

enumerates it as Dendrobium euphlebium, recording its distribution as Singapore in Mangrove swamps, Borneo, and Java.

The stems are slender at the base, thickened above, 9 inches or a foot in height, and bear two or three terminal leaves. The flowers are solitary, on a slender pedicel, developed from one of the internodes below the leaves. The flower, which is about three-quarters of an inch across, has white sepals and petals. The lip has a narrow, stalked base, with broad, orbicular front; the sides are incurved, or cupped, of a yellowish colour, with pink veins and streaks. It is a very singular species, with remarkably distinct features. *J. O'B.*

THE BROOME BOTANICAL GARDEN.

AT the Weston end of the Royal Victoria Park, Bath, a piece of ground has been enclosed and laid out as a botanical garden. It is surrounded by, and contains, some fine timber; indeed, the whole of the park is remarkable in this respect, being especially rich in Chestnut and Beech. The garden takes its name from C. Broome, whose collection of herbaceous plants and shrubs was presented by his executors to the Park Committee in 1887. This collection has been added to by various donors from time to time, and the garden is cleverly laid out to accommodate a large variety of plants. The general effect has never been lost sight of, however, and the paths wind through lawns studded with rare trees and shrubs, rocky banks and shaded borders. The good condition of the plants is obvious to the most casual observer.

Near the entrance to the garden is a specimen of Cæsalpinia japonica, its horizontal branches supported on a low frame-work of boughs some 12 feet square; I have not seen a larger specimen of this species. Opposite is an elegant Ash from North China (Fraxinus Mariesii), which was recently covered with erect creamy-white panicles of flowers.

The path dips between rocky banks, behind which a large Potato tree (Solanum crispum) produces its abundant mauve flowers. On the left, little terraces covered with encrusted Rockfoils and Houseleeks alternate with the courses of stone. They are very well cared for by a lavish top-dressing of grey limestone chips. Some steps with a conspicuous Juniper at the bottom lead up across the terraces, and at the top a plant of Beschorneria yuccoides, not only survives but, on the occasion of my visit, was bearing a tall flower-spike, as a result of last summer's heat. The stem and bracts are of a striking coral-red colour; the flowers, which were hardly open when I saw the specimen, are apparently rather inconspicuous.

A brilliant patch of vermilion attracted my attention, and was found to be due to a Dianthus labelled D. neglectus; true neglectus it certainly was not, being much larger and of a deeper red with no buff on the backs of the petals. Possibly it is a neglectus × alpinus hybrid, but certainly a showy plant of fine colour. Close by was a Draba I do not know—with fine tufts of spiny leaves—labelled D. rupicola.

Mertensia primuloides, Dryas (both the British white species, D. octopetala, and the North American yellow, D. Drummondii) and Erodium chrysanthum are flourishing. The latter is a delightful Storksbill, with attractive, silvery leaves and lemon-yellow flowers. Inasmuch as it was introduced from Greece some 15 years ago, it is surprising that it is not more frequently seen. On an "island" rockery that divides the path there is a clump of Oxalis enneaphylla a foot or more across. This also contains a good plant of Haberlea rhodopensis; this plant is not common in gardens, but those who know the splendid colony at Kew will not get very enthusiastic over one plant.

Jeffersonia binata enjoying considerable shade bore an abundance of its circular leaves, so deeply and curiously cleft into two lobes. It comes from Tennessee, bears large white flowers, and is named after President Jefferson, of the U.S.A.

Gentiana lutea has grown to a height of 2 feet, with handsome leaves all up the stem. Anemone sylvestris runs riot; Helxine Solierolii has wintered well, and already forms a green carpet. Eomecon chionantha (Eastern Poppy), that distinctive and delightful plant with a genus all to itself may be seen. There is a grand specimen of Rodgersia podophylla, with a noble array of leaves and one spike of flower. This plant is also given as monotypic in Nicholson's *Dictionary of Gardening*, but English gardens have since been enriched by the addition of several fine species. R. pinnata appears elsewhere in this garden. R. æsculifolia (the name describes the plant excellently) and R. tabularis, with bright, green leaves borne horizontally on central stems, are great acquisitions. It is usual to plant them in moist, peaty soil, and certainly these conditions procure the best foliage; but I have heard it stated that they flower more freely planted high on a bank. I do not think they would thrive in such a situation, however, without shade.

A good plant of Fabiana imbricata projects over the path; a clump of Blood Root (Sanguinaria canadensis) is 2 feet across; Beech Fern abounds; a large flat rock is draped beautifully with Artemisia rupestris, and in the cave beneath, the roots of Tropæolum polyphyllum are sheltered and producing trailers of 3 or 4 feet in length.

A little low wall-like part is covered with Coronilla varia, Antirrhinum glutinosum, and a shrub of Rubus australis, with all its leaves reduced to prickles. A Cytisus, with quite large showy yellow flowers—Cytisus capitatus—is in flower, and the new Geranium Traversii is already happy.

Passing through the rockery the path leads to a bed of Ferulas beside a lawn. Amongst the Ferulas, Podophyllum Emodii bears its curiously-blotched leaves. There are three Podophyllums known—four if a tall variety of the above (P. Emodii majus) of garden origin be reckoned. P. Emodii comes from India, and has conspicuous red edible fruit. P. peltatum (American Ufandrake or May Apple) is North American; it also bears red edible fruit, but the leaves and root of this plant are poisonous. The other species inhabits the island of Formosa, but has not yet been introduced to England.

Whoever is responsible for the excellence of the labelling of the plants deserves to be complimented, and, indeed, one has only to watch the numerous visitors to the garden to see that they take full advantage of this facility. *Caltha.*

FIG. 199.—ALOE DICHOTOMA IN THE CAPE TOWN BOTANIC GARDENS; HEIGHT 20 FEET.

ALOE DICHOTOMA AND A. BAINESII.

AMONG the many noteworthy plants in the Cape Town Municipal Botanical Gardens several aborescent Aloes claim attention by their size, and by their beauty, when in flower.

Aloe dichotoma, Linn. f. (see fig. 199), and A. Bainesii, Dyer (see fig. 200), are represented by several handsome specimens. The former species occurs wild, either as solitary specimens or in dense groves, in the dry water-courses or stony slopes of Little Namaqualand in the western region of Cape Colony, extending northwards into Damaraland, and especially abundant in the neighbourhood of Pella. There, according to Marloth, one of the most striking features is the paucity of seedling plants, despite the floriferousness and fertility of the mature specimens, which has led the author to predict a comparative early extinction of the species. It occurs also in scattered groves on the ancient and extinct porphyritic volcano of Gubib, north of Bersaba. In habit A. dichotoma is not unlike the Dragon-tree of Teneriffe, averaging 35 feet in height, although Scully records some exceedingly old specimens 60 feet high with a trunk girth of 20 feet.

FIG. 200.—ALOE BAINESII IN THE BOTANIC GARDENS, CAPE TOWN; HEIGHT 35 FEET.

The bark is irregularly and longitudinally fissured, of a greyish colour, and resembles that of Celtis occidentalis to a remarkable degree, the branches being terete, smooth and yellowish, and by their repeated dichotomy forming a dense ovoid or globose crown, the ultimate branchlets terminated by a tuft of succulent glaucous leaves about 6-12 inches long, smooth or slightly warted above, convex below, with small, white deltoid marginal spines. The flowers, which are of a vivid lemon colour, are disposed in dense racemes 3-6 inches long. The specimen illustrated is approximately 20 feet high, and flowered for the first time in 1878, since when it has borne flowers and fruit annually.

In about the same latitude, but in the eastern provinces of the Cape Colony, the aborescent Aloe element is represented by A. Bainesii (see fig. 200), of which Sim records specimens attaining to a height of 60 feet, and with a trunk diameter of 2-3 feet in Griqualand East and Natal. The extension of the sugar and coffee industries and consequent land monopoly, however, threatens the extinction of many of these handsome specimens.

The trunk of A. Bainesii has smoother bark and a more spreading open crown than A. dichotoma; and its further characteristics—longer, more-recurved, greenish-red, ensiform, deeply-grooved leaves, and brick-red, more tubular flowers, which are invariably disposed in panicles—render the species easy of identification.

Several fine specimens occur in the various botanical gardens throughout the colony, but the finest is probably that at the Cape Town Municipal Gardens, of which the illustration conveys a tolerably good idea. This plant is about 35 feet high with a trunk circumference of 10 feet, exceedingly fertile, flowering and fruiting abundantly each year. *R. Dümmer.*

PLANT NOTE.

CALCEOLARIA CLIBRANII.

OF all the types of Calceolaria, none gives a better display than does C. Clibranii. Its extraordinary floriferousness is an outstanding feature, and, when added to the brilliance of colour and splendid lasting qualities, it must indeed be classed as one of the most meritorious of greenhouse plants. It is equally effective as a subject for the adornment of the mansion or flowering-house, and is specially pleasing if tastefully arranged with a groundwork of Ferns. The culture is of the simplest nature, for cool treatment suits it best. At no time must it be subjected to a close atmosphere, and no artificial heat is necessary except on very cold nights, when just sufficient to keep out the frost is all that is required.

As the plants pass the flowering period the old flower-spikes should be removed, the plants themselves should be placed in a cold frame, shaded from bright sunshine, and syringed occasionally to encourage them to produce growths suitable for cuttings. The latter should be taken off when about 3 inches long, inserted in a sandy compost and placed in a close frame. They should be shaded from all sun, and syringed each evening until root formation has commenced. After this stage, a little air should be given, gradually increasing it until full air is admitted on all possible occasions. As soon as the young plants are well rooted, they should be potted off singly into 3-inch pots, using a compost of two parts loam and one part leaf-soil, with sufficient sand to make the whole porous, and again kept close until they have recovered from the check caused by the transference, when the same process must be adopted as was practised with the rooted cuttings. The pots will be large enough until about the end of January, when the plants should be shifted into 6-inch pots to flower, using a similar compost as before, but of a much coarser nature, and with an addition of a 6-inch potful of a good chemical manure to each barrowful of the mixture. The old plants, after having produced cuttings, should not be discarded, as it is from these the best results will be obtained, and in them the extraordinary floriferousness and value of the variety become apparent. Remove all damaged foliage, prune back below the point from which the cuttings were taken, and keep the roots somewhat on the dry side until young growths appear, when the supply of water may be increased as growth advances. As soon as growth is again active, repot the plants into 7½-inch pots, using similar compost to that advised for the flowering pots, but omitting the concentrated manure. In January, repot them into 9-inch pots, using fertiliser as before. Great care must be exercised after each potting to avoid over-watering.

C. Clibranii is a gross feeder, and the plants require assistance either in the form of liquid manure or top-dressings of a good fertiliser. I prefer the latter method, using finely-sifted soil and fertiliser in equal proportions, and applied every 8 or 10 days, watering each application in immediately. Give the maximum amount of air whenever possible, and shade from bright sunshine. Stake each spike separately and neatly; the naturally branching habit of the flower-spike will prevent any appearance of stiffness or formality. *D. Wilmshurst, Eastwell Park Gardens, Kent.*

The Week's Work.

THE HARDY FRUIT GARDEN.

By F. JORDAN, Gardener to Lady NUNBURNHOLME, Warter Priory, Yorkshire.

SUMMER PRUNING.—Continue this operation at short intervals, pinching some shoots and tying in others to extend the trees and replace worn-out branches. On no account should superfluous shoots be retained to the detriment of those intended to bear fruit next season. Some shoots almost invariably take an undue share of the sap, but by timely pinching with the finger and thumb the proper balance may be maintained. Do not prune the shoots on those trees which have become defoliated by caterpillars, so numerous this season, but encourage them to make as much new growth as possible, so as to compensate for the loss of foliage. Any barren trees that are making rank growth should be noted, with a view to root-pruning them in the autumn. While pruning is in progress, keep a sharp look-out for caterpillars of the small ermine moth. These caterpillars will be found in webs, and, if removed and destroyed, they are prevented from doing injury next season. All trees, as they are tied or nailed in, should be well washed with a spray from the hose or garden engine, not once or twice, but repeatedly until they are free of insects.

THINNING FRUITS.—According to reports, Apples and Plums will not require much thinning in many districts this season. Pears appear to be a more general crop. However, when the pruning and stopping are completed, an eye must be kept on the crop of fruit, thinning the crop in all cases where this is necessary. Not only may it be necessary to thin the fruits in order to obtain fruits of good size and quality, but thinning is necessary for annual cropping, as, generally speaking, when trees are overcropped they require at least one season to recuperate. If an Apple or a Pear tree is overcropped the fruit is generally small, flavourless and deficient in colour.

SMALL FRUITS.—Gooseberries and Currants are making a quantity of rather strong growth, and the fruits will be greatly improved if some of the shoots which crowd the centres are shortened, but this must be done in a manner that will not cause sudden exposure of the fruit. Allow the outside shoots, especially upon young trees, to extend, unless space is limited; the principal outside shoots should always be allowed to extend so long as the flow of sap is fairly distributed over every part of the tree. Black Currants are badly attacked with aphis this season, and, notwithstanding the recent heavy rains, the crop still appears to be failing. Raspberries look well and promise a bountiful crop, a fair proof that the canes were perfectly matured last season. The young canes are abundant and strong, and will require a good deal of thinning. Attention should be paid to the need for protecting these and other small fruits from birds.

FRUITS UNDER GLASS.

By E. HARRISS, Fruit Foreman, The Royal Gardens, Windsor.

FIGS.—When all the fruits have been gathered from the early trees growing in borders, the foliage should be thoroughly cleansed by treating the trees with two or three applications of an approved insecticide; such application should be given at intervals of two or three days. These trees may be permitted to yield a second crop of fruits, provided they are clean and healthy. The fruits, which are usually very numerous on the young growths, must be severely thinned, or the crop will be disappointing. About one-third of the total number should be allowed to ripen. The manure which was placed on the border as a top-dressing being now exhausted, may be removed so far as this can be done without damaging the roots, replacing it with well-decomposed cow or horse manure. The trees will require plenty of water at the roots, and stimulants may be applied liberally to any that are well established. Syringe the foliage thoroughly twice a day with rain-water, and during hot weather damp the paths and other surfaces of the house at frequent intervals. Plenty of air must be admitted in the early part of the day, closing the house about 4 p.m. Later trees on which the fruits have commenced to ripen must not be syringed, neither must much water be thrown about the house. Ventilate the house freely at all times, opening both top and bottom ventilators. Do not let the roots suffer for want of moisture, but when water is necessary choose a dry, fine morning for applying it, and see that the ventilators are wide open, so that moisture cannot condense on the fruits. If the fruits have to be packed and forwarded by rail or post, they must not be left on the trees till they are quite ripe, as they are very easily damaged.

FIG TREES IN POTS.—Any young trees which require a shift into larger pots should be attended to before they become pot-bound. In most cases a pot or tub two sizes larger than those in which they are growing will be a suitable shift. For a rooting medium the Fig enjoys good, fibrous loam, with a liberal mixture of old brick rubble, wood ashes and crushed bones, at the rate of an 8-inch potfull to a barrow load of soil. A little soot will also be beneficial. Some of the roots must be carefully "teased" out with a pointed stick. and, when ramming in the soil, see that the whole of the space between the ball and the side of the pot is filled solidly with soil. Keep the trees in a moist atmosphere till the roots have taken a firm hold of the new soil, and shade the trees from bright sunshine till they have got over the check. Do not let them become overcrowded with growth, but stop the shoots at the fourth or fifth leaf. The trees should be gradually hardened off, and eventually placed outdoors in a sunny position, to become thoroughly ripened before the end of the autumn.

MELONS.—At this time of year Melons require a great deal of attention. The plants which are swelling their fruits will require liberal supplies of water at the roots, also plenty of stimulants. Liquid cow manure is one of the best manures for Melons, and may be given at full strength towards the final stages of growth. Keep all lateral shoots regularly removed, and pay timely attention to tying and regulating the young growths. Plants in frames must be carefully attended to when they are in flower, to ensure a good set of fruits, and at this stage the atmosphere must be kept dry. The frames must be carefully ventilated, so that air may freely circulate about the plants, but cold draughts must be prevented.

THE FLOWER GARDEN.

By J. G. WESTON, Gardener to Lady NORTHCOTE, Eastwell Park, Kent.

PRUNING FLOWERING SHRUBS.—That the proper pruning of shrubs is not always perfectly understood is proved by the indiscriminate lopping and shearing often practised in suburban and other gardens. No one should attempt to prune shrubs who does not possess a knowledge of their habit of growth, time of flowering, and mode of flowering—whether, for example, they flower on the old or young wood. It is also necessary for the operator to bear in mind whether the trees are planted for the purposes of a screen or to form a collection of individual specimens, each to show their full beauty to the best advantage at the different seasons of the year. The earlier-flowering shrubs, such as Chimonanthus fragans, the Forsythias, Ribes sanguinea, and others of that class, should be pruned immediately after the blossoms have fallen. These plants flower on the growths made in the previous season, and the wood which has already flowered should be severely pruned. The shoots which are produced afterwards, having the full benefit of exposure to sunshine and air, will flower freely in the following season. Deutzias, Weigelas, the stronger-growing sorts of Philadelphus, Prunus triloba, and all the varieties of Peach and Almond are further examples of this class, flowering best on the young shoots of the previous year. There need be no hesitation in using the knife freely on them at this season, more especially in cutting out the old wood. Some of the newer hybrid Philadelphuses do not make such strong growths as others, and the pruning should be less severe. In the case of recently-transplanted shrubs that have not flowered well owing to the check caused by removal, it is often best to cut them down almost to the ground. That beautiful Ceanothus "Gloire de Versailles," which flowers on the growth of the current year, should be cut hard back to firm wood after the winter and the resulting shoots thinned. Though often cultivated against a wall, this Ceanothus is seen at its best when grown as a group on the lawn or in the shrubbery, and it responds quickly to liberal treatment. Hydrangea paniculata should be pruned in exactly the same manner, whilst Hydrangeas of the hortensis type should have only the weak shoots taken out, for these flower on well-ripened shoots of the previous year. The thinning should be done late in the autumn. Lilacs should be pruned as soon as they have flowered, and some amount of thinning is often necessary. Many shrubs are grown principally for the foliage, and in the case of the ornamental-leaved Elders, these give the best results if cut to the ground level every winter; they do not then become the straggly specimens sometimes to be seen in gardens. In the case of some species the pruning should consist merely of keeping the plant in the desired shape, and in its allotted space, bearing in mind that an over-pruned shrub of this nature will not compare favourably with one that is allowed proper space for development. The golden-leaved Privet usually colours much better if a certain amount of thinning is given it before growth commences in the spring. Many of the shrubby Spiræas require hard pruning in winter, but Spiræas of the type of "Anthony Waterer" require only the removal of the weakest shoots. Buddleia variabilis should be pruned hard in the early spring before growth commences. It will then grow away strongly, and, if given sufficient room, will make a charming specimen. It requires very liberal treatment and plenty of water during the drought. The Tamarisks should be pruned back to the hard wood in winter. That beautiful shrub Rhus Cotinus and its varieties require careful thinning of the weaker shoots before growth commences, while the Olearias require little beyond the removal of over-strong shoots. The Broom family should be kept within reasonable limits by cutting young bushes back after flowering. Caryopteris Mastacanthus requires fairly hard pruning while dormant. Kerrias will also stand cutting hard, for they flower well on young growths.

PLANTS UNDER GLASS.

By THOMAS STEVENSON, Gardener to E. MOCATTA, Esq., Woburn Place, Addlestone, Surrey.

STOVE PLANTS.—The plants in the stoves are now in very active growth. Some of the younger plants that were potted a few weeks ago into 48's will now be ready for a further shift, that is, if good-sized plants are required, and it is not advisable to wait till these young plants receive a check by becoming pot-bound before they are given this shift. Codiæums (Crotons), Cordylines (Dracænas), Acalyphas, Ixoras, and other free-growing occupants of the stove should be potted on as soon as possible into pots of the most suitable sizes for use, so that they may have time to get well rooted before the autumn, and this is especially desirable with ornamental foliage plants. Plants that are well rooted in the proper sized pots must be regularly fed, giving a little artificial manure every week, or alternating this with a good watering of liquid cow or sheep manure, and, in the case of half specimen plants, I have found it a great advantage to stand them in a pail of liquid manure for a short time, the soil absorbing a great deal more manure than when watered in the ordinary way. As the plants grow they naturally require more room, and it may be necessary to remove some of the less tender occupants of the stove into the houses that may have been used for the forcing of Lilies, &c., or into the intermediate houses. At this season any of the plants that have overgrown their position in the stove may be removed in this way, and, if a little care is exercised in the hardening-off process, many large, fine foliage plants may be utilised for furnishing the conservatory or even the dwelling-house during the next two or three warm months, throwing them away as soon as their period of usefulness is over.

CALADIUMS.—Large plants of Caladium should have the foliage staked out a little, not sufficient to make them look stiff, but enough to let the light and air penetrate to the centre of the plants; this will allow the young leaves that may be pushing up to grow through and so form good, shapely plants.

ACHIMENES. — Whether in pots, pans or baskets, these plants also should be staked, as, no matter how carefully grown, the growths are apt to fall about somewhat. If a small Hazel twig or Bamboo tip is placed to each growth and tied, the supports will keep them in good shape, and as the plants fall out they will not be noticed. As the flowering time approaches the plants will need considerable water, also liquid manure. The foliage and flowers will show better colour if the plants are given the benefit of a very slight shading and an intermediate temperature.

FERNS. — Any Ferns that may have been potted up early in the year should now be growing freely. Adiantums growing among other plants in the stove, or even under the shade of vines, must be looked after to see they do not commence damping in the centre, this often occurring when the short fronds are allowed to become decayed. If, however, these are picked out there should be no further trouble in this way. Some of the free-growing Ferns, such as Nephrolepis, Pteris, Asplenium, Gymnogrammas, and Microlepia, may require a further shift if large plants are desired, and, like the stove plants, they must not be left till they are pot-bound. During the summer months Ferns are very pleasing for house decoration, and, if nicely hardened, they will usually stand well and give to the rooms an agreeably cool appearance.

THE ORCHID HOUSES.

By J. COLLIER, Gardener to Sir JEREMIAH COLMAN, Bart., Gatton Park, Surrey.

WATERING AND VENTILATING.—Practically all kinds of Orchids are growing freely, and it is important that the plants receive sufficient water at the roots, also that the atmospheric conditions are regulated in accordance with the weather.

EAST INDIA HOUSE. — Although the nights may be warmer, fire-heat should not be dispensed with altogether. The hot-water pipes should be kept sufficiently warm to maintain a temperature of 75° up to midnight, regulating the fires so that the thermometer records 70° in the early morning. The ventilators should be closed early in the afternoon and the blinds drawn up directly it is safe to do so without exposing the plants to injury by scorching. The temperature of the house may, with advantage, rise to 85° or 90° with sun heat, and the floors and stages should be damped frequently, soaking thoroughly the spaces beneath the hot-water pipes. Most of the plants should be sprayed lightly overhead on warm, sunny afternoons. Dendrobiums should be well syringed overhead and on the undersides of the leaves in order to keep down red spider and other insect pests. A damp, stagnant atmosphere should be avoided at all times, as this has the effect of causing the tender foliage of such plants as Phalænopsis, Calanthe, and Dendrobium to become spotted. On warm, damp nights the top ventilators should be opened slightly the last thing at night: this will cause the atmosphere to circulate and thus dry up excessive moisture that may have accumulated after sunset.

CATTLEYA AND INTERMEDIATE HOUSES. — These houses should be ventilated freely. If the outside temperature is higher than 50° the bottom ventilators may be opened widely. The plants should be lightly sprayed overhead both mornings and afternoons during fine weather. A warm, moist atmosphere should be maintained by well damping the floors and stages twice daily, allowing the atmosphere to become dry for about two hours in the middle of the day. During hot weather the top ventilators may be opened, closing them again about 4 p.m., but leaving the bottom ventilators partially open on warm nights. Sufficient fire-heat should be employed to maintain a temperature of 65° at night.

THE COOL HOUSE. — Everything possible should be done to keep the temperature of this house a few degrees lower than that of the external air. The house should be well ventilated through the bottom apertures. The blinds should be lowered in the early mornings when the sun causes the temperature of the house to rise above 60°. If lath blinds are employed and the glass is strippled with a mixture of flour and water, frequent damping between the pots and the immediate surroundings will create a cool atmosphere. During the hottest part of the day the plants should be sprayed lightly overhead several times with clean, soft water. Established plants should be allowed to become fairly dry at the roots before water is afforded, when they should receive a thorough soaking. Newly-potted plants should be watered with great care, and moisture should never be applied unless the compost is dry.

INSECT PESTS.—A diligent search should be made periodically for thrips and scale insects, the former being often found in the new growths of Cypripediums, Lycastes, Odontoglossums, and other species. Directly any are detected the house should be fumigated on two nights in succession. In the case of Cypripediums it is a good plan to lightly spray the plants an hour or so before the vaporising, to drive out the thrips from the young growths. Scale and red spider should be destroyed by sponging the leaves and rhizomes with a liquid insecticide.

THE KITCHEN GARDEN.

By EDWIN BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

EARLY POTATOS—Immediately the tubers of a particular batch are large enough for digging the crop should be lifted and stored. It does not matter if the skins rub a little, but no good would result from leaving them in the ground, which will thus be immediately available for some other crop. Mould up the late plantings as the plants come to the proper stage of development, and where Cauliflowers or other greens have been placed between the rows of mid-season Potatos, the haulm may be lifted up and a few stout sticks placed at intervals to secure a string. This will allow more light to reach the plants.

RUNNER BEANS.—The earliest plants are now running freely up the stakes. A good mulching of decayed manure placed on either side of the row will prove beneficial, and should be applied at once whilst the ground is still moist. If the weather be dry when the early flowers are setting, the plants should be sprayed night and morning with clean water. Those sown out-of-doors should be staked immediately the plants require support, and in showery weather the young growths and surrounding soil may be given dustings of soot.

CAULIFLOWERS.—Continue to plant out Cauliflowers for late supplies, making each plant thoroughly firm in the soil. Cauliflowers already planted should be examined and any failure made good. The hoe must be used frequently between the plants, and plenty of water must be supplied to the roots directly they are in need of moisture. If rabbits or hares are troublesome, dust the foliage well with soot. Plants that are maturing the curds should have the leaves drawn up and tied over the flowers, to exclude light. When large enough, if not required for immediate consumption, pull the plants out of the ground and suspend them head downwards in a cool place, such as a Mushroom house or cellar. Where Cauliflowers of extra-good quality are required for exhibition, give liberal supplies of liquid manure, and keep the soil well mulched.

MUSTARD AND CRESS. — Sow seeds of Mustard and Cress every week or ten days in the shadiest place to be found, keeping the seeds as dark as possible with double thickness of mats until they have germinated. Frequent dampings and keeping the bed of soil and surroundings thoroughly moist are essential.

ENDIVE. — Another sowing of Endive should be made, and two further sowings may be made at, say, intervals of about a month. If the ground is dry, give the drills a good soaking of water before sowing the seed, and keep the ground damped afterwards.

TOMATOS.—Plants that were placed out-of-doors are growing freely. Rub the side-shoots whilst quite young, keeping each plant to one stem only, which should be secured by nailing or tying. Given a warm site and a suitable season, they crop well planted out in the open ground, but generally do better for the protection of a wall or fence with a S. or S.W. aspect. Water the plants as often as they require it, though not to excess. A mulch of well-decayed manure will prove valuable, but give no further stimulant until the plants are cropping freely.

LETTUCE.—Tie up the varieties of Cos Lettuce as they become fit. This will greatly improve the hearts. Continue to plant out at intervals for succession.

THE APIARY.

By CHLORIS.

ISLE OF WIGHT DISEASE. — The latest report by the Board of Agriculture on this disease should call for the close study of every earnest beekeeper. The report itself consists of 13 sections, and covers 143 pages. In 1860, beekeeping in frame hives began to be practised, and their adoption has been a great help in enabling experts to closely observe the progress of bees in health and disease. Generally, there has been little attention given to any but brood disease, so that disease among adult bees has been neglected. The diseases attacking adults, such as dwindling, dysentery, May pest, and paralysis, have been attributed to various and contradictory causes, such as severe and mild winters, extreme cold and damp, while some have thought that they were caused by an excess of honey, others a lack of it, and others again attributed it to a lack of pollen. The Isle of Wight disease was first noted in that island in 1904, in the south-east corner, and spread gradually to the centre and north. In 1909, the first report of the disease on the mainland was noted. When reports from beekeepers in all parts of the kingdom are carefully tabulated, it is found that bees on the mainland were suffering as far back as 1903 from the disease. This was the case in Yorkshire, and in 1904 a similar report came from Cornwall. Investigators of the disease state that, "The reports we have received during the course of these investigations clearly show that no one symptom is characteristic of the Isle of Wight disease, the only essential feature being the death of a large number of bees within or without the hive. . . . . We further think that the disease has been endemic in parts of the country for many years." In other countries, the Nosema apis has been found to be present.

SYMPTOMS.—When first the disease was discovered in 1906, "bees were found crawling in the autumn after they were packed for the winter." It was next thought that a distended abdomen was an invariable symptom, but Cooper says this is not always found, though the wings are often twisted back, having the appearance of being dislocated. From a careful study of descriptions given by correspondents, the specialists have found themselves unable to name any one symptom as invariably present. "In some districts dwindling is fairly common in the spring, and we think that it should be looked upon as a disease, under cover of which Nosema may spread through the apiary." "The most commonly-recorded symptom is the presence of a large number of crawling bees with distended stomachs in front of the affected hive." In some cases very young bees have been discovered dragging their legs in the same manner as the adults, and a number of them were found on the ground dead. Some of the bees are found dead singly on the ground, in others they are found in heaps. The abdominal distention seems to arise from the bee's inability to fly, because it usually voids its excrement on the wing. It seems to lose control, too, over the sphincter muscles of the bowel, so it soils combs, &c., with its excrement. Always look on dysentery with grave suspicion, remembering that the shade of the excreta voided at these times varies from cream to dark brown. An unsuspected form of the disease is when bees with a plentiful supply of sealed stores die in the winter. Sometimes bees lose the power of flight suddenly; at other times gradually. They are, in the former case, able to take short flights, but, in the latter, they creep up blades of grass to rise the better on the wing, but only jump and again find themselves on the ground. In some instances, drones are first attacked, and workers, finding themselves fewer in number, kill off the drones unusually early, and this may be a first sign. It has been repeatedly stated that the outstanding wing is the first sign, but reliable investigators declare it valueless. Diseased stocks, they conclude, may live only a week, or the disease may drag on for years. The disease, they are confident, can only be diagnosed with certainty with the aid of the microscope, so where there is the least uncertainty the bees should be sulphured and the hives disinfected.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, *as well as specimens of plants for naming, should be addressed to the* **EDITORS, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

APPOINTMENTS FOR JULY.

TUESDAY, JULY 2—
Royal Hort. Soc. Summer Sh. at Holland House (3 days). Gloucestershire Rose and Sweet Pea Sh. Scottish Hort. Assoc. meet. Royal Agric. Soc. Sh. at Doncaster (5 days).

WEDNESDAY, JULY 3—
Croydon Hort. Soc. Fl. Sh. Hort. Exh. at Doncaster (4 days). Penarth Rose Soc. Sh. Weybridge and District Hort. Soc. Sh. Dover Hort. Soc. Sh. Ealing Hort. Soc. Sh. Southampton Royal Hort. Soc. Jubilee Garden Fête. Hanley Floral Fête (2 days). Colchester Rose Sh.

THURSDAY, JULY 4—
Ipswich & E. of England Summer Sh. Norwich Rose Sh.

FRIDAY, JULY 5—Gloucester Rose and Sweet Pea Soc. Ex.

SATURDAY, JULY 6—
Soc. Française d'Hort. de Londres meet.

MONDAY, JULY 8—
United Hort. Benefit & and Prov. Soc. Com. meet.

TUESDAY, JULY 9—
Nat. Rose Soc. Sh. at Regent's Park. Nat. Sweet Pea Soc. Sh. at R.H.S. Hall, Westminster (2 days). Wolverhampton Floral Fête (3 days). Royal Scottish Arboricultural Soc. Ex. at Cupar (4 days).

WEDNESDAY, JULY 10—
Torquay Sweet Pea Sh. Hereford Rose Sh. Elstree Fl. Sh. Bath Rose Sh. (2 days). Woodbridge Fl. Sh. West Surrey Hort. Soc. Fl. Sh.

THURSDAY, JULY 11—
Rose Show at Helensburgh. Streatham and District Sweet Pea and Rose Soc. Sh. Ousecliffe Rose and Sweet Pea Sh. Newmarket Fl. Sh.

FRIDAY, JULY 12—
Manchester Botanical and Hort. Soc. Sh. (2 days).

SATURDAY, JULY 13—
Nat. Sweet Pea Soc. of America (2 days). Edgware and Little Stanmore Hort. Soc. Sh.

TUESDAY, JULY 16—
Royal Hort. Soc. Coms. meet. (Lecture at 3 p.m. by M. E. A. Bunyard on "The Flowers of Apples and Their Aid in Identifying Varieties.") Southampton Royal Hort. Soc. Jubilee Sh. (2 days). Brighton and Sussex Hort. Soc. Rose and Violet Pea Sh. (2 days).

WEDNESDAY, JULY 17—
Bishop's Stortford Fl. Sh. Cardiff and County Hort. Soc. Sh. (2 days). Caterham Hort. Sh. Tooting, Balham, Merton and Mitcham Hort. Soc. Sh. Sussex County Agric. Sh. (2 days). Saltaire, Shipley, and Dist. Rose Sh.

THURSDAY, JULY 18—
Horticultural Club, annual summer outing. Dunfermline Fl. Sh. (2 days). Deal, Walmer, and Dist. Hort. Soc. Ann. Sh.

FRIDAY, JULY 19—
Nat. Rose Soc. Sh. at Belfast. Birmingham Hort. Sh. 2 days).

SATURDAY, JULY 20—
Royal Bucks Sweet Pea and Hort. Soc. Sh.

TUESDAY JULY 23—
Nat. Carnation and Picotee Sh. at R.H.S. Hall. Brighton, Hove and Sussex Hort. Soc. Sh.

WEDNESDAY, JULY 24—
Leamington Fl. Sh. (2 days). Normanby Fl. Sh. (2 days). Bishop's Waltham Fl. Sh. Royal Botanic Soc. meet. Haywards Heath Fl. Sh. Tunbridge Wells and South Eastern Counties Agric. Soc. Sh. Eastbourne Sweet Pea and Rose Sh. (2 days),

THURSDAY, JULY 25—
St Ives (Hunt.) Fl. Sh.

FRIDAY, JULY 26—
Huddersfield Hort. Sh. (2 days). Cheadle Fl. Sh. (2 days).

SATURDAY, JULY 27—
Fife and Kinross Fl. Sh. Western Rose Soc. Sh.

TUESDAY, JULY 30—
Royal Hort. Soc. (Lecture by Mr. Hooper on "The Pollination of Fruit Blossoms.")

WEDNESDAY, JULY 31—
Dinas Powis Fl. Sh. Llanelly Fl. Sh. Chesterfield Fl. Sh. Bishop's Waltham Fl. Sh.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—61·7°.

ACTUAL TEMPERATURES:—

LONDON.—*Wednesday, June 26* (6 P.M.): Max. 70°; Min. 54°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—*Thursday, June 27* (10 A.M.): Bar. 29·8°; Temp. 66°; *Weather*—Overcast.

PROVINCES.—*Wednesday, June 26:* Max. 66° Ely; Min. 55° Ireland, W.

SALES FOR THE ENSUING WEEK.

WEDNESDAY—
250 Orchids, by order of Messrs. Sander & Sons, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 1.

THURSDAY—
Orchids, at 1; Rare and Old Dwarf Japanese Trees, at 2; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

The Horticultural Branch of the Board of Agriculture.

The announcement made by Mr. Runciman, and reported in our last issue, with respect to the new Horticultural Branch of the Board of Agriculture has produced a painful impression on horticulturists.

When Mr. Runciman stated that it was proposed to create a Horticultural Branch of the Board, it was, of course, assumed that not only would the Branch be put under the charge of someone of authority in the world of horticulture, but that a definite sum would be set aside, out of the funds of the Department, for the work of the new Branch.

It is true that the President did not promise any such allocation; but it is also true that without a fixed grant the work of the Branch must be hampered at every turn; and indeed, unless a grant be made, there is no guarantee that the sub-department will stand for anything more than a system of book-keeping, convenient perhaps for the Board itself but useless for the advancement of horticulture.

It is quite true, as Mr. Runciman points out, that agriculture and horticulture overlap; but it is equally true that there are many branches of horticulture which are sufficiently distinct from agriculture for all practical purposes. Of such independent branches we may mention fruit growing, market work and horticultural education. What chance can attend the horticultural Cinderella of the Board if it is at the sole mercy of the proud sister Agriculture?

It is evident that the proper course to take is to analyse the overlapping and to ascribe the several common grounds of agriculture and horticulture to the Department or to the Branch. By so doing it will be possible for the new chief of the Horticultural Branch to obtain a clear view of the problems which he is called upon to solve. When he has done this he can form an idea of the expenditure which is involved in effecting the solutions of these problems, and then with his programme and estimates he can approach the head of the Agricultural Department, who in turn can tell him how far the finances will allow of the putting in operation of the programme.

On the subject of the staffing of the new Branch we wish to speak in a perfectly impersonal manner. We are convinced that the difficult work of organising the several departments of horticulture—industry, art, science, economics, and pedagogics—can only be carried out by a man who has had long experience of horticulture from the inside. In other words the head of the Branch should be a horticulturist.

Horticulture is an applied art and science; but it is also what the philosopher would call "a thing in itself." Horticulture impinges on many sciences; but a master in one or all of those sciences is not a horticulturist.

The fundamental mistake of the Board of Agriculture in the past has arisen from a failure to recognise this fact.

To give an example or two. Entomology has rendered useful service to horticulture, but entomology is not horticulture, nor is a specialist in this branch of science a suitable man to direct a sub-department of horticulture. Similarly, the study of fungi has led to useful advance in the cultivation of the higher plants, but a fungologist, who is an expert in the cultivation of the lower plants, is not for that reason a horticulturist.

Only if it can be proved that practical horticulturists are ill-educated and capable merely of manual work should they be passed over in the selection of a head of a sub-department. Above that head—who, we maintain, should be an expert—there is the Permanent Secretary, and above the Permanent Secretary there is the President, both of whom can chasten the expert's over-eagerness and remedy his narrowness of view by reason of their immunity from the complaint of expertness. Thanks to the funds of the Development Commission, the Board need no longer confuse horticulture with the study of plant-pests. The latter work is provided for in the endowed institutes to be financed by the Development Grant, and one such institute is to deal with insect pests and another with fungous diseases. To the former of these institutes the Board might transfer its expert entomologists, and to the latter it should relegate the task of collecting statistics about Gooseberry-mildew and enumerating scabby Potatos. It would then be in a position to turn its attention to horticulture; to tackle the problem of horticultural education; to study the question of small holdings in its horticultural bearings; to aid the producer in his export and home trade; in short, to develop an active horticultural policy. We believe, as we have said on more than one occasion, that the present is a moment of splendid opportunity for horticultural advance. We are convinced that that advance can only be made if it is led by men who know the needs of horticulture and who have the confidence of horticulturists. We appeal, therefore, to the President, who is known to be anxious for the welfare of horticulture, to see that the prospects of this advance are not thwarted by lack of sympathy and co-operation between the Horticultural Branch and the horticultural community. That sympathy and co-operation can only be secured by the appointment of a practical horticulturist to a responsible position in the new Branch.

SUPPLEMENTARY ILLUSTRATION. — Ranunculus Lyallii is not new to British gardens, for specimens were exhibited by Messrs. JAMES VEITCH & SONS at a meeting of the Royal Horticultural Society in 1880. The inflorescence and foliage were illustrated in *Gard. Chron.*, June 4, 1881, fig. 131, and in the *Botanical Magazine*, tab. 6888. The plant is known as the Mountain Lily in New Zealand, and was first collected by Dr. LYALL when on a surveying voyage in H.M.S. "Acheron" (1847-9). In a wild state it is confined to the mountains of the Middle Island,

being found chiefly in Canterbury and Otago at elevations ranging from 1,000 to 4,000 feet. Some find a considerable difficulty in growing the plant, and apparently it is best suited for the moraine, as Mr. ARMSTRONG, writing in *Gard. Chron.*, March 21, 1885, p. 370, states "that it grows on mountain slopes below the snow fields, where the ground is usually moist during summer from the trickling downwards of the melting snow." This writer also states that "the drainage of the slopes is rendered perfect by the large masses of rock débris which have been worn away by the frosts of ages, and these are generally nearly or quite covered up with peat, formed by the decay of the countless plants which have grown upon them." It is on this natural rockery that the Mountain Lily flourishes best, though it is sometimes found in sand or even in shingle, with scarcely any peat. It is also usually found in situations shaded from the mid-day sun—such, for instance as the southern face of a defile or gorge. On mountains facing the south in New Zealand, the plant covers the ground for hundreds of acres with one huge sheet of white, but more usually it grows in patches of a score or thirty plants, nestling amongst straggling plants of Olearias, Veronicas, or other shrubs. A peaty soil, with a fair proportion of sand, is best as a rooting medium; a constant supply of moisture, both in the soil and atmosphere, and perfect drainage are also necessary. The flowers are usually white, but they are sometimes tinged with pink.

NATIONAL CHRYSANTHEMUM SOCIETY.—The annual outing of the members of the National Chrysanthemum Society will take place on Monday, July 15, when a visit will be paid to Berry Hill Gardens, Taplow, the residence of Mr. F. G. GLEDSTANES. The programme also includes a six-hours journey on the River Thames between Staines and Marlow. Particulars and tickets may be obtained from the secretary, Mr. RICHARD A. WITTY, 72, Savernake Road, Gospel Oak, London.

WORCESTER AUXILIARY OF THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—By the kindness of C. W. DYSON PERRINS, Esq., the gardens of Davenham, Malvern, were opened to the public on June 20, the proceeds being given to the Worcester Auxiliary of the Gardeners' Royal Benevolent Institution, of which Mr. PERRINS is a vice-president. It is pleasant to note that many visitors took the opportunity of inspecting these beautiful gardens.

COLCHESTER ROSE SHOW.—The date of this exhibition has been altered from June 26 to July 3. It will be held in the Castle Park, Colchester.

FLOWERS IN SEASON.—Messrs. JAMES VEITCH & SONS have sent us, from their Coombe Wood Nursery, sprays of a few hardy trees and shrubs which are now in flower. The new varieties of Philadelphus, such as P. Lemoinei Pavillon Blanc, P. Lemoinei Bouquet Blanc, P. L. Avalanche, and P. Satsumi, have flowers much whiter than those of the better-known species, but they are not quite so fragrant. Ptelea trifoliata, which is so ornamental when laden with its fruits in the late summer and autumn, is now bearing masses of greenish-yellow flowers. Of Magnolias sent, we much admired the flowers of M. parviflora, which, by the way, are of good size, those of M. Watsonii and of the smooth-leaved M. glauca.

PRESENTATION.—At a recent meeting of the Ely and District Horticultural Society an illuminated address was presented to Mr. RICHARD WILLIAMS, who has been president of the society since its inception two years ago.

ALEXANDRA DAY.—On Wednesday last, to celebrate the fiftieth anniversary of the landing of Queen ALEXANDRA in England, 10,000 ladies, were engaged in selling artificial Roses in the London streets. The proceeds of the sales will be given to the London hospitals. It is satisfactory to note that the manufacture of these artificial Roses gives employment to the crippled inmates of the John Groom Flower Sellers Mission, but such flowers are certainly inappropriate emblems of the people's love for Queen ALEXANDRA, and it may be hoped that on another occasion natural Roses will be employed for the purpose.

ROYAL METEOROLOGICAL SOCIETY.—The last meeting of the session was held on the 19th inst., Dr. H. N. DICKSON, president, in the chair. Dr. G. C. SIMPSON, Meteorologist to the British Antarctic Expedition, 1910, read a paper on "Coronæ and Iridescent Clouds." During September, 1911, he was one of a party led by Captain SCOTT to survey McMurdo Sound, and on the 24th, while enveloped in fog, he observed a fine fog-bow. It was opposite the sun, and a measurement of the radius with a theodolite gave 38°. The bow was practically white, but a reddish tinge could be seen on the outer side. As the fog dissipated, the upper sky became clearer, and the sun shone over the top of a heavy bank of fog. For some minutes the sun had a brilliant corona, with bright colours, and the diameter of this corona seemed unusually large, but there was no opportunity to make a measurement. As the fog still further cleared away, glimpses of the corona appeared again, and the fog under the sun became fairly brilliantly illuminated with iridescent colours, which did not appear to be part of the corona, but in places blended into it. During the whole period the temperature was between − 15° and − 21° F. The fur of the sleeping bags and the wool of sweaters became covered with hoar frost. These observations show that water can exist in the atmosphere at much lower temperatures than has generally been supposed by meteorologists. It is now generally admitted that white halos are caused by the refraction and reflection of ice crystals; coronæ are due to diffraction effects of either small drops of water or thin ice needles. From certain observations made in the Antarctic, Dr. SIMPSON was led to doubt the possibility of ice crystals ever forming diffraction effects. This is an important question for meteorology, for, if it is true, we have a powerful instrument for determining the constitution of a cloud: if there is a corona, the cloud must be composed of water; while if there is a halo, it must be composed of ice. Mr. W. BRYANT read a paper on "The Adoption of a Climatological Day." When observations are made only once a day, namely, at 9 a.m., it is the practice to enter the reading of the maximum thermometer to the previous day, and the reading of the minimum thermometer to the current day. Mr. BRYANT does not consider that these give correct results, but that they are higher than if the readings were taken at 9 p.m., or midnight.

HERBACEOUS CLASSES AT YORK.—Very many years ago rock-garden exhibits made their first appearance at York, and how popular they are to-day was amply demonstrated at the recent International Show. Last year a new class was instituted at York. It met with instant success and appreciation, and we shall be surprised if such a class does not before long become as popular throughout the country as rock-work classes. We can best describe this new class by quoting the schedule:—"Collection of hardy herbaceous perennials, plants or cut flowers, or both, arranged in a natural manner on ground space not exceeding 300 square feet. Receptacles may be bedded in sand or natural green, but no vase must exceed 18 inches above ground level. The prizes will be awarded to the best representation of a border of hardy flowers that may be in flower at the time of the show. N.B.—Overcrowding in this class is most undesirable, the idea being to leave space between individual groups of plants so that the same may be seen to the best advantage, and the owner may be able to walk in or through the border. 1st prize, £15; 2nd, £10; 3rd, £5. The authorities at all the big shows are ever anxious for suggestions for new classes or novelties, and we are often applied to for such. We commend this new method of arranging herbaceous flowers with great pleasure. The effect is most beautiful because most natural. There was, we heard (as there is apt to be in connection with new classes), a slightly different interpretation of the schedule by the different exhibitors. The conditions ask for "a border," and in the postscript it is stated that the owner "may be able to walk in or through the border." Messrs. BACKHOUSE'S arrangement, which won 1st prize, was much broken up with paths, and approached nearer a model garden than the 2nd prize lot of Messrs. ARTINDALE'S, which had only one path sweeping through the centre in a semi-circular line. Messrs. GIBSON'S group, which was 3rd, was a border pure and simple and had no path to break it up. We think we might suggest to the York authorities the deletion of three words: "of a border," and leave the schedule to read: "The prizes will be awarded to the best representation of hardy flowers that may be in flower at the time of the show." We have drawn attention to this subject at considerable length, because we are most anxious to do all we can to make our British flower shows more attractive and useful, and this can best be done by showing all classes of flowers and plants under the conditions nearest approaching natural ones. Mr. T. G. HODGSON, the chairman of the Floral Committee, and Mr. FRED AREY, the secretary of the York Gala, have interested themselves personally very much in these new classes. Many expert horticulturists who were present remarked—How much better exhibits of herbaceous flowers are when staged in this way than when built up into huge mounds or tables!

BOTANICAL APPOINTMENT.—Mr. JAMES EWING has been appointed lecturer in botany at Carleton College, Northfield, Minnesota, U.S.A. Mr. EWING is at present assistant to the lecturer in botany at the Aberdeen Training Centre for Teachers.

CONIFERS EXCLUDED FROM AMERICA.—The State Nursery Inspector of the United States has prohibited, in a proclamation, the importation from all parts of Europe of Pines of all kinds having their leaves in groups of five. The notice states that this action is taken because of the prevalence upon these trees of the dangerous disease known as the White Pine blister rust, not now established in that country, but which, if it should obtain a foothold there, may be confidently expected to kill all young pines of the group named, and kill or render worthless the larger pines of the forest. Numerous shipments into Massachusetts during the past year have been infected with this disease, and all pines received from abroad since 1908 should be carefully watched for its symptoms, which frequently do not appear for two or three years after the trees have been set out.

PUBLICATIONS RECEIVED.—***Bulletin of Miscellaneous Information.*** Royal Botanic Gardens, Kew. New Garden Plants of the year 1911. Price 2d.—***Monthly Leaflet of the Women's Agricultural and Horticultural International Union.*** June. (London: 45, Queen Anne's Chambers, Westminster.) Price 2d.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

A NATIONAL INSTITUTE OF GARDENERS AND HORTICULTURAL EDUCATION.—Every gardener interested in the advancement and welfare of his profession must have read with satisfaction the leading article on the subject of "Horticultural Education," in your issue of June 8. It points to what may be a great awakening on a subject that has been all too long neglected by those engaged in earning a livelihood by horticulture. Unlike the members of other professions, gardeners have willingly placed their knowledge and achievements at the disposal of all and sundry with little thought of remuneration. The gardener has, in fact, made himself so cheap in the eyes of those who know but little of the life he leads, that familiarity has bred a certain amount of contempt for him and his calling. Being a "gardener" is, in the eyes of a vast multitude, equivalent to something lower than a road-sweeper, and the wages he is usually offered bear out this statement, as they are generally much lower than any public authority would offer to their scavengers. To secure any improvement on the present state of affairs, it is obvious that all those engaged in horticulture must, as the writer states, themselves play a large part in the movement. Indeed, it is difficult to see how any forward steps for the benefit of the gardening community can even be initiated unless those immediately concerned enter into the spirit of the movement, and show that they are willing to do something more than merely criticise the efforts of those who are willing to devise some scheme by means of which the gardener proper can be distinguished from the imposter. At present anyone calling himself a gardener is taken at his own valuation by the innocent employer, and the latter is often quite willing to be deceived if the so-called gardener is prepared to work for a wage that would not suffice to keep the modern chauffeur in cigarettes. What is wanted is a standard by means of which the gardener—that is the man who has been trained to grow one or more especial classes of plants (flowers, fruits or vegetables) in a healthy and scientific manner, and who understands their nature so well that he can modify his cultural operations in accordance with the varying conditions of soil and climate, and yet secure excellent results. Perhaps one of the finest testimonials to the skill of the gardener was the recent International Horticultural Exhibition. In the grounds of the Royal Hospital, Chelsea, were to be seen magnificent examples of cultural skill in almost every department of horticulture (except that very important section, market gardening, which was practically unrepresented). Who but skilled gardeners could have produced such Orchids, stove and greenhouse plants, Ferns, Palms, hardy herbaceous perennials, fruit and vegetables? And who but men with many years experience and knowledge of Alpine and rock plants could have created in a few days such rock gardens in the very heart of London, rock gardens that were the wonder and delight of all who saw them? And yet these are the men whom it is proposed to "educate in horticulture"! It would be interesting to see the members of the "Horticultural Education Committee" trying to teach Sir G. Holford's gardeners to grow better Orchids and Hippeastrums than were shown. And the same might be said in regard to the growers of any other class of plants exhibited. Even the Right Hon. A. H. Dyke Acland, who presided at the Conference on Horticultural Education, seemed to recognize the absurdity of teaching "Horticulture" to those who had produced such a "magnificent and wonderful exhibition." While it may be taken for granted that the gardeners who can produce such marvels of cultural skill require but little teaching from the scientists, it is nevertheless true that they require education in other directions. Any scheme that would bring all the efficient gardeners in the Kingdom into one fold is to be welcomed from whatever source. And the only way apparently in which this is likely to be accomplished is by the formation of a National Institute of Gardeners. The only serious attempt made in recent years to weld the gardeners of the Kingdom together is that of the British Gardeners' Association. But for some extraordinary reason or another, this does not seem to have met with the approval of many excellent gardeners, or with that of many employers, whether private or professional. If a National Institute of Gardeners can be founded that will command the confidence of the gardeners and the esteem of employers, a step of the utmost importance will have been made for the general advancement of horticulture and those connected with it. To bring about this desirable result, I would suggest that a meeting of gardeners be held at an early date in London, either at the Royal Horticultural Society's Hall or some other convenient place, so that the question could be discussed in all its bearings. At such a meeting it would no doubt be an advantage if private people and nurserymen who employ gardeners were also present, so that all shades of opinion might have an opportunity of being expressed. *J. Weathers, Isleworth.*

FIG. 201.—PAULOWNIA IMPERIALIS IN CAMBRIDGE BOTANIC GARDENS.

GARDENERS AND THE INSURANCE ACT.—The note by *Legal Correspondent*, p. 415, appears at a most opportune time. Many young gardeners will be joining benefit societies during the next three months, and it is important that they should join a society where none but gardeners are eligible. A large number do not know that we have a gardeners' society which fulfils the conditions laid down by your correspondent. The United Horticultural Benefit and Provident Society has now taken the requisite steps in order to become an "approved society" under the Act. As the society is confined to gardeners, and will remain so, it is by far the best that gardeners can join. Having watched its manner of working very closely for many years, I can testify to the excellent way in which the business has been managed, and strongly advise all gardeners to join it, as they are now bound to join something of the kind. Full particulars may be had from the secretary, Mr. W. Collins, 9, Martindale Road, Balham, London, and if I can give any gardener further information I shall be very pleased to do so. *W. H. Divers, Belvoir Castle Gardens, Grantham.*

RECORD STRAWBERRIES.—I am sending you 12 fruits of three varieties of Strawberries, of a total weight of 24 ounces. The heaviest fruit weighs 3 ounces, and is of the variety Mme. Moulet, the others being The Bedford and Laxton's Latest. Plants of all three varieties are bearing very fine fruits, plenty of the berries weighing as much as 2 ounces each. The plants were layered in pots last July and planted out toward the end of August. All are doing well, and carrying heavy crops. *Gilbert Hatch, Cavenham Park Gardens, Mildenhall.*

———I was interested in the remarks on Strawberry Auguste Nicaise, and, for the benefit of your readers, I would bring to their notice Bedford Champion as a late pot variety. I have only grown this sort for two seasons, but the plants have done splendidly, the dark, leathery foliage being almost proof against mildew and red spider. I weighed about half-a-dozen fruits of this variety on May 24; the largest was slightly under 2½ ounces, two were 2¼ ounces and two over 2 ounces in weight. The flavour of berries grown from pot plants is very good, and more refreshing than some varieties with a greater degree of aroma. I do not, however, think the berries would travel well. *John Wilkes, The Gardens, Creswell Hall, Stafford.*

BIRDS IN FRUIT NETS.—Will you allow me to suggest to the bird lovers among your readers that, during the summer season, they should make a point of periodically visiting their fruit nets, and so prevent such of our little songsters as may have been caught there dying a slow death by hunger and thirst. It is quite a common thing to find the dead body of a bird entangled among the meshes of a Strawberry net, and one does not like to think of the lingering death by which the little thief has atoned for his very natural greediness. *Z.*

MARKET PRICES.—I note in the markets report of your estimable journal of June 15 that the average prices for English Peaches are given as follows:—Selected, 12s. to 18s.; best, 6s. to 10s.; seconds, 1s. 6d. to 10s. During the last week I have sent several consignments of Peaches to Covent Garden, representing all the three qualities you mention, but chiefly of the selected and best type. The average price obtained for these has been almost 50 per cent. lower than your estimates. I am fully aware and quite appreciate the fact that you take no responsibility whatever for these prices, but I consider the actual difference between practice and theory, as it were, in this case very remarkable. It has been said that the unusually warm spring has produced a glut of this fruit in the market, but,

to the best of my knowledge, there is not much difference in this year from last, up to the beginning of June. Personally, I have sent to the market, up to date, this season practically the same number of Peaches as last year, from precisely the same trees, the crop being about the same. Again, it is stated that the glut of Strawberries has spoilt the Peach and Nectarine market; yet in the papers one reads that Strawberries of good quality are scarce. I have before me a weekly market report made out by one of the best-known firms in Covent Garden, and dated June 14. This states that the supplies of soft fruits are smaller, and that, owing to rain and want of sunshine, *Strawberries are in particular suffering*. This same list gives the prices of Peaches as being from 4s. to 10s., a price which I have not obtained by quite 40 per cent., although a large proportion of my fruit was of excellent quality. It would be interesting to hear the views of other growers of Peaches and Nectarines as to the atrocious prices these fruits are fetching, which is, I believe, the worst for many years, and all the more difficult to understand seeing the various market reports published, and also taking into account the exceptionally brilliant and busy London season, to say nothing of the high retail prices of the fruits in question maintained everywhere. *Grower*. [In the report quoted by our correspondent, the price for selected Peaches was given as 12s. to 18s.; but we have evidence that, at the time dealt with in the report, certain "selected" Peaches were sold in Covent Garden Market for as much as 21s. per dozen.—Eds.]

A Curious Nesting-place (p. 415).—Mr. Frank A. Edwards speaks of a "tomtit" and it would be interesting to know whether he means a great tit or a blue tit, as both are called "tomtits" in different parts of the country. I believe, however, that the blue tit rarely, if ever, nests under flower-pots, whilst the great tit often does, so the latter is probably the one referred to. It would also be interesting to know the exact diameter of the drainage hole through which the birds had access to the nest. As to the young flying out there is little difficulty, since those of blue and great tits can fly without any instruction as soon as they are fully fledged and ready to leave the nest, and doubtless they get through the hole exactly as their parents. Since it is impossible for them to *climb* to the hole, they must fly straight to it from the nest, closing their wings tightly at the actual instant of passing through. *C. Nicholson, Hale End, Chingford.*

Rhaphiolepis japonica and Polygonum Baldschuanicum.—There is a very fine plant of Polygonum Baldschuanicum climbing up a Poplar in the Roath Park, Cardiff, to a height of about 20 feet. In common with many other plants, it is flowering very profusely this season, which may be attributed to the exceptionally hot summer of last year. Heucheras, which figured so finely at the International Show, are further examples, though, in this case, there can be no doubt that the additions in recent years of new varieties are partly responsible for the improved display; the hybrids of H. sanguinea bloom much more freely than the parent species. Another excellent shrub in full bloom in the park is Rhaphiolepis japonica. This is a low shrub, with rather leathery leaves and numerous white or pinkish flowers. It thrives well in a peaty soil. The specimen at Roath has attained its maximum height, and further development will be in a lateral direction. This beautiful shrub can be readily increased by layers, or by cuttings inserted under a handlight. *Caltha.*

A Giant Tomato.—The *Agricultural Gazette* for June 17, 1912, states that a New Zealand grower has raised a seedling Tomato which grows to great size and produces fruit of perfect flavour which weighs 1½ lbs., and that plants of this variety are to be placed on the market this year. We are accustomed to read of marvellously fine varieties of various kinds which have been raised by Transatlantic hybridists, and it is refreshing to know that the Antipodes is producing competitors, but we are afraid this latest novelty will not be a commercial success. A few years ago there was a limited demand at the leading fruiterers for large Tomatos, but lately the demand has been for Tomatos of a size which scale four or five to the pound.

PAULOWNIA IMPERIALIS.

One of the finest specimen trees in the Cambridge Botanic Garden is a large example of Paulownia imperialis. This season it has been the most-admired subject in the garden. The tree, which is 23 feet high, with a head 27 feet in diameter, has been covered with fine spikes of bloom 1 foot in length, and of a beautiful lavender-blue colour.

The individual flowers are tubular, about 2½ inches long, and are covered with short, stiff hairs on the outside of the corolla: the inside is marked by rows of dark brown dots. As the flower-buds are produced in the previous year, the thick and felty calyx is very necessary for the protection of the flowers during winter.

The name Paulownia was given to the tree in honour of Anna Paulowna, Princess of the Netherlands, daughter of Paul I, Emperor of Russia. It was introduced into cultivation from Japan in 1840, and the original plant is now a fine tree in the Jardin des Plantes, Paris. The tree does not flower so freely in this country as on the Continent. Our English summers are not usually sufficiently hot, but last summer being exceptional, there is a fine show of bloom this year.

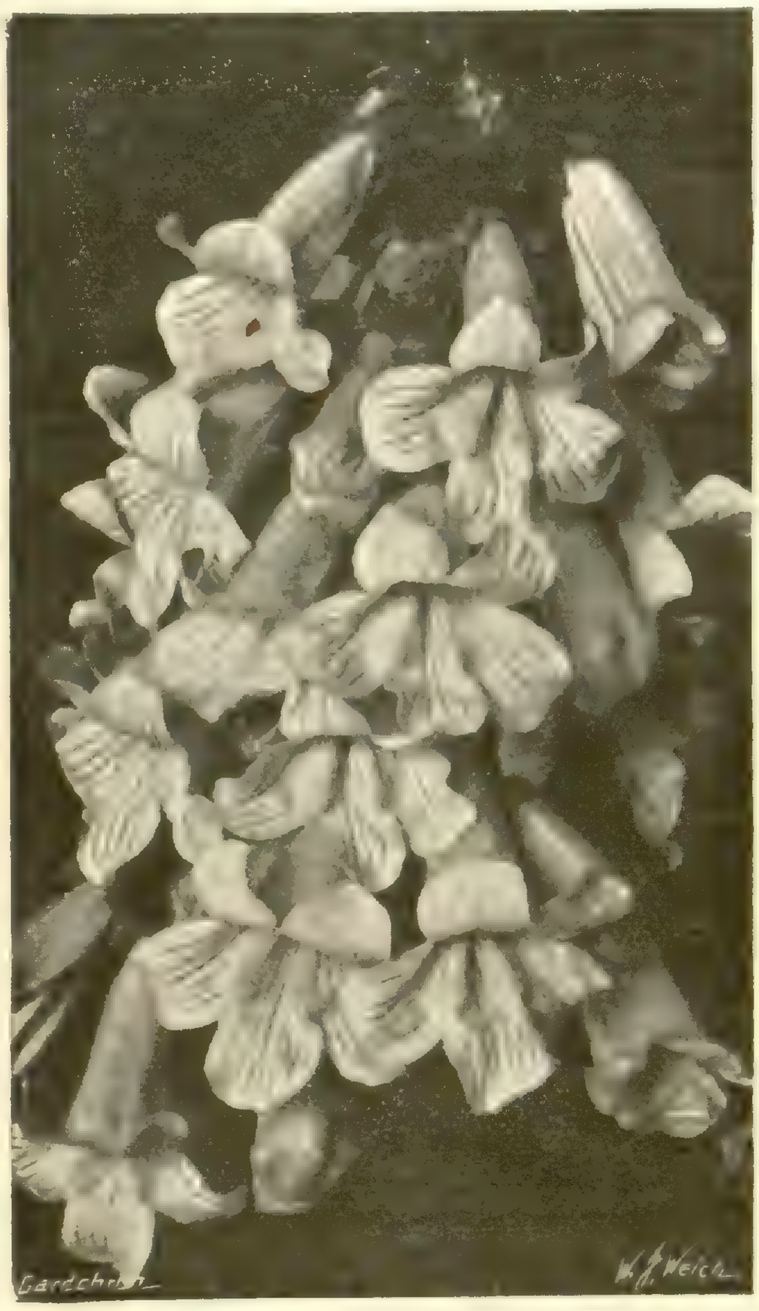


Fig. 202.—Inflorescence of Paulownia imperialis: colour of flowers, lavender-blue.

There are some very fine trees to be seen in Paris, especially in the Trocadero Gardens, where there are specimens 30 feet or more in height. The Avenue Carnot is planted with Paulownias, which, when in bloom, look very beautiful.

A fine foliage effect may be obtained by planting a bed with young Paulownias, and cutting them back hard every year, with the result that they produce handsome leaves of large size, and make tall growths every year.

Propagation may be effected by imported seeds, which should be sown in a cold frame, or by cuttings. The tree belongs to the natural order Scrophulariaceæ. The illustrations in figs. 201 and 202 give some idea of the fine spikes which have been produced here. *R. Irwin Lynch.*

THE R.H.S. AND THE ROYAL INTERNATIONAL HORTICULTURAL EXHIBITION.

The following correspondence has taken place between Sir Trevor Lawrence, President of the Royal Horticultural Society, and Mr. J. Gurney Fowler, Chairman of the Board of Directors of the International Exhibition:—

Royal Horticultural Society,
Vincent Square,
Westminster, S.W.,
June 5, 1912.

Dear Mr. Gurney Fowler,—The Council of this Society, at their meeting yesterday, requested me to convey to you and your colleagues on the direction of the Royal International Horticultural Exhibition their hearty congratulations on the signal success with which the exhibition has been carried out. The Council's own experience makes them fully aware of the long-continued and unremitting labours attending exhibitions on even a much smaller scale; and the success which has crowned your efforts cannot fail to be most gratifying to all concerned, and to reflect great credit on them. It is the universal opinion that a more complete and comprehensive, a better-arranged, and more beautiful and instructive exhibition has never been seen in any country. No wonder, then, that it has received the fullest and most unstinted praise and admiration from their Majesties the King and Queen downwards.

The Council, moreover, are glad to understand that the financial results will probably show a satisfactory surplus and relieve the guarantors from all liability.

I am, yours very truly,
Trevor Lawrence, President.

J. Gurney Fowler, Esq.

Glebelands,
S. Woodford, Essex,
June 7, 1912.

Royal International Horticultural Exhibition.

Dear Sir Trevor Lawrence,—Your letter of the 5th inst. has been received by me with the very greatest pleasure, and this pleasure will also, I am sure, be felt by all my colleagues on the Board when I communicate its contents to them.

For some two years now we have been, as you know, preparing for this exhibition, and it has caused to many of us much work, trouble, and, above all, anxiety. Now that it is a thing of the past, a great load of responsibility, both financial and otherwise, has been lifted from us, and we are able to return to our ordinary work with the satisfactory feeling that our efforts have met with your Society's appreciation, also with that of their Majesties the King and Queen and of the general public, and have resulted also, as you say, in a signal success.

This fact is an all-sufficient recompense for our many labours, and I hope most sincerely that the exhibition will result in the advancement of horticulture in all its branches. This has been, and is, my constant endeavour.

It is early yet to talk about the financial results, but, so far as we can see, there is little likelihood of any call upon the guarantors, by whose generous support we were so greatly encouraged and assisted. We look forward to having eventually a considerable sum in hand to distribute to gardening charities or otherwise as we may be advised.

Thanking you for your letter, believe me to remain,

Yours most sincerely,
J. Gurney Fowler, Chairman.

Sir Trevor Lawrence, Bart.

SOCIETIES.

HORTICULTURAL CLUB.

PICTURES FROM A LONDON GARDEN.

MAY 18.—On this date, after the usual monthly dinner of this club at the Hotel Windsor, Mr. G. Bunyard, V.M.H., in the Chair, an interesting lecture on "Pictures from a London Garden" was delivered by Mr. Horace J. Wright, illustrated by a number of lantern slides in natural colours.

The lecture derived much of its interest from the fact that a very small suburban garden, about 40 feet long by 30 feet wide and surrounded by the most commonplace conditions had been made to yield very beautiful effects. The slides themselves were from photographs taken and coloured by the owner of the garden, Mr. Morton, of Harringay. The lecturer discoursed on the best modes of selection, arrangement, and cultivation, and upon the various plants illustrated in the slides.

It was shown how the scope of a small area could be enlarged by means of arches, suspended baskets, and even by commonplace butter tubs, which, when painted, raised on supports and filled with bulbs, trailing and other plants, became things of beauty and interest.

Monotony was avoided by the shifting from time to time of the materials employed and careful selection of suitable plants. A corner, for instance, which, backed by the high wall of a neighbour's house and limited by an ordinary wooden fence, must at the outset have appeared to present a hopeless case, formed the basis of one of the most beautiful slides, being over-arched by a splendid specimen of "Dorothy Perkins" Rose, beneath which were tall plants of Lilium candidum. The lecturer pointed out that even a paved and cemented backyard could be made a source of interest.

After the lecture a discussion took place, in which Messrs. C. E. Pearson, W. A. Bilney, A. Worsley, C. T. Druery, W. Hales and G. Bunyard participated. The close planting of bulbs for better effect was advocated by several speakers. Mr. Druery suggested the publication of a black list of unsuitable plants, instancing the Harpaliums, Michaelmas Daisies, and others, which, owing to their monopolising tendencies, were apt to become pests in gardens of very limited area. Another point insisted upon was the terribly absorptive power of bricks, which so robbed the soil of its water that plants trained against walls were frequently killed or injured by drought, despite the usual rains.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.

FESTIVAL DINNER.

JUNE 25.—The seventy-third anniversary festival dinner of the friends and supporters of the Gardeners' Royal Benevolent Institution was held on this date in the Hall of the Grocers' Company, Prince's Street, London. Sir Jeremiah Colman, Bart., presided, and the company, which included ladies, numbered close on 250. Supporting Sir Jeremiah Colman were Lady Colman, Lord and Lady Devonport, Lord Southwark, Lord Blyth and the Hon. Millicent Blyth, Lady Roxburgh, Colonel Lockwood, M.P., Sir Walter Smythe, Sir H. Waechter, Sir H. and Lady Brooks-Marshall, Sir E. Coates, M.P., and Miss Coates, Sir Harry Veitch (treasurer) and Lady Veitch, Mr. F. A. Bevan, Mr. Arthur Sutton, Mr. N. N. Sherwood, Mr. W. W. Grantham, Mr. George Paul, Miss Paul, Mr. Gurney Fowler, Mr. and Mrs. R. Hooper Pearson, Mr. A. R. Shaw, Mr. and Mrs. E. White, Mr. H. B. May and Miss May, Mr. and Mrs. McLeod, Mr. George Bunyard, Mr. James Hudson, Mr. and Mrs. G. H. Barr, Mr. Owen Thomas, Mr. D. Ingamells, and many other well-known horticulturists. This is the second time that the Grocers' Company have placed their fine hall at the disposal of the charity; it is a magnificent room, and the flower-bedecked tables and brilliant company provided a charming scene. As is usual at these festival dinners, the floral decorations were a delightful feature. The flowers were contributed by Messrs. Barr & Sons, B. Cant & Co., Charlesworth & Co., A. F. Dutton, C. Engelmann, W. Iceton, Kelway & Sons, Stuart Low & Sons, G. Mount & Sons, G. Paul & Son, W. Paul & Son, T. Rochford & Sons, Leopold de Rothschild, Sander & Sons, A. Turner, and Jas. Veitch & Sons, Ltd. They were arranged by Mr. Leopold de Rothschild's gardeners, Mr. James Hudson, V.M.H., and Mr. Bedford.

It is gratifying to know that the large amount of £3,250 was raised at and in consequence of the dinner, this being, with the single exception of the Diamond Jubilee year, the largest sum ever raised for this charity. After the usual loyal toasts had been observed, the president proposed "Continued Prosperity to the Gardeners' Royal Benevolent Institution." He said that he remembered as a boy his love of flowers prompted him to devote a considerable portion of his modest income to the purchase of 3d. packets of seeds. Like his little seeds horticulture had flourished, and recently at Chelsea was held the finest horticultural exhibition that the world had ever known. In this connection he referred to the great services rendered on that occasion by Mr. Gurney Fowler, chairman of the Board of Directors. On that occasion, said Sir Jeremiah, the President of the Board of Agriculture announced that it had become necessary to create a special branch of his department for horticulture. The recent honours list gave a still further indication of the importance of gardening, and when the King visited Ireland last year one of the first honours His Majesty bestowed was conferred on Sir Frederick Moore. The Director of Kew Gardens and Sir Harry Veitch had since been similarly honoured. At the mention of Sir Harry Veitch's name there was an outburst of applause, and it was some time before Sir Jeremiah could proceed. He referred to the great pleasure that gardening afforded to all, and the economic importance of horticulture; whilst, as a recreation, it was the most elevating and refining of all pursuits. In conclusion, he referred to the excellent administration of the charity, which was in the hands of practical business men. The Institution provided for the needs of 253 gardeners or gardeners' widows in indigent circumstances. The Victorian Era Fund afforded temporary assistance to 49 others awaiting election who were subscribers, whilst the Good Samaritan Fund was also doing useful work. The Institution had distributed a sum of no less than £140,000. It had to be remembered that £5,000 was annually required to meet the liabilities of the Institution, but of this sum only £1,000 was assured from invested funds. In that stately hall, for the loan of which he heartily thanked Sir Joseph Dimsdale and the other members of his court, and amidst such a scene of beauty, he begged his hearers to contrast the scene that evening with the unfortunate conditions of those on whose behalf he made his appeal, the disabled breadwinner and the widow.

In response, Sir Harry J. Veitch thanked Sir Jeremiah Colman for his kindness in presiding, and also the Grocers' Company for the loan of their historic hall. He said that there were more than 250 pensioners on the funds, of whom 145 were men and 110 widows. Their oldest pensioner was a widow aged 98, and she had received no less a sum than £412 from the Institution. The pensioner for the longest period was aged 85 years, and she had received £456. Seven of their beneficiaries were over 92 years, 62 were between 80 and 90, and 125 between 70 and 80. Notwithstanding the generous support they received, it was inadequate, and last year, though the nominations numbered 71, they were only able to elect 23 pensioners. In conclusion, he thanked those present for the very cordial reception with which his name had been received.

Other toasts included "The Ladies and Visitors," proposed by Colonel the Rt. Hon. Mark Lockwood, M.P., and responded to by the Rt. Hon. Lord Southwark; and "The Chairman," proposed by Mr. N. N. Sherwood.

In responding to the last toast, Sir Jeremiah Colman paid a well-deserved compliment to the popular secretary of the Institution, Mr. George J. Ingram.

The list of donations included:—

	£	s.	d.
Sir Jeremiah Colman	500	0	0
N. N. Sherwood, Esq. (in commemoration of the 50th year of his connection with the firm of Messrs. Hurst & Sons)	500	0	0
Sir Harry and Lady Veitch (in acknowledgment of the honour recently conferred upon horticulture)	315	0	0
Messrs. J. Veitch & Sons	26	5	0
Messrs. Rothschild & Sons	105	0	0
Messrs. Sutton & Sons	105	0	0
Mr. J. Gurney Fowler	52	10	0
Sir Harry Waechter	50	0	0
Mr. Bailey Wadds	38	0	0
Messrs. W. Wood & Son	35	0	0
Mr. Leopold Salamans	31	10	0
Mrs. Leopold Salamans	5	5	0
Mr. H. G. Alexander	30	10	0
Mr. Geo. Harrow	27	0	0
Sir Horace Brooks-Marshall	26	5	0
Mr. Anthony Waterer	25	0	0
Mr. R. G. Cuthbert	24	0	0
Mr. Percival Etheridge	21	0	0
Mr. Thos. Smith	21	0	0
Mr. Edward White	21	0	0
Mrs. Edward White	5	5	0
Worshipful Company of Skinners	21	0	0
Worshipful Company of Gardeners	5	5	0
Mr. Arthur W. Sutton (Good Samaritan Fund)	20	0	0
Mr. W. Crump	20	0	0
Mr. A. Mackellar	17	0	0
Mr. E. Goodyear	15	0	0
Mr. H. W. Nutting	15	0	0
Mr. David W. Thompson	13	6	0
Mr. Thomas Lamb	12	12	0
Mr. E. F. Hazelton	12	0	0

Messrs. Barr & Sons, £10 10s.; Mr. C. A. Bayford, £10 10s.; Mr. F. A. Bevan, £10 10s.; Lord Blythe, £10 10s.; Messrs. Jas. Carter & Co., £10 10s.; Sir T. Glen Coats, £10 10s.; Major Sir Edward F. Coates, Bart., M.P., £10 10s.; Lord Cowdray, £10 10s.; Messrs. W. Cutbush & Son, £10 10s.; Lord Devonport, £10 10s.; Mr. J. C. Eno, £10 10s.; Mr. G. Randall Higgins, £10 10s.; Mr. R. Jones, £10 10s.; Sir E. Sterne, £10 10s.; Mr. Robert Sydenham, £10 10s.; Mr. W. Thompson, £10 10s.; Mr. J. Heal, £10.

The following each gave 5 guineas:—

The Lord Southwark, Messrs. Anderson, J. W. Barr, E. Beckett, J. Charlesworth, Walter Cobb, Jeremiah Colman, Junr., Russell J. Colman, Thomas N. Cox, Herbert Hicks, Donald Macdonald, J. F. McLeod, Martin H. F. Sutton, Thames Bank Iron Co., Charles Turner, R. W. Wallace, and the proprietors of the *Gardeners' Chronicle*, Ltd.

The Covent Garden tables were presided over one by Mr. Joseph Rochford (in the regrettable absence of Mr. Geo. Monro) and the other by Mr. David Ingamells. The sum of £188 10s. 6d. was collected, including the following donations:—

Mr. Geo. Monro, Junr., £26 5s.; Mr. Joseph Rochford, £26 5s.; Mr. James Sweet, £25; Mr. John Rochford, £15 15s.; Mr. Edmund Rochford, £10 10s.; Messrs. Geo. Bunyard & Co., £10 10s.; Messrs. Geo. Monro, Ltd., £10 10s.; Mr. Geo. Monro, £10 10s.; Messrs. Butler Bros., £5 5s.; Mr. C. Engelmann, £5 5s.; Mr. Otto Hiehle, £5 5s.; Mr. David Ingamells, £5 5s.; Mr. H. O. Larsen, £5 5s.; Mr. Geo. Messer, £5 5s.; Mrs. Geo. Monro, £5 5s.; Mr. J. P. Rochford, £5 5s.; Mr. H. E. Tillman, £5 5s.; and Mr. Alfred Watkins, £5 5s.

RICHMOND HORTICULTURAL.

JUNE 26.—The 38th annual show of the Richmond Horticultural Society, which was held at the Old Deer Park on Wednesday last, will be remembered for the excellence of the Roses and Sweet Peas. For a short time the fortunes of the Richmond society were on the down grade, but lately the old glories of the Richmond show have been revived, and this year's exhibition will rank amongst the best held by the society. Although rain fell during the early hours of the morning the weather was fine without being uncomfortably hot, and there was a good attendance. The entries numbered over 500. As we have already indicated, Roses were magnificently shown, and in the open classes Messrs. D. PRIOR & SONS "swept the board."

OPEN CLASSES.

The 1st prize exhibit in the class for a group of plants (Mr. H. E. FORDHAM, Twickenham Nurseries), albeit a trifle formal in its conception, was exceedingly attractive. The many Gloxinias, interspersed with delicate fronds of Adiantum cuneatum, made a bright groundwork for the Hippeastrums and Liliums. 2nd, C. M. BARTLETT, Esq., Uplands, East Sheen (gr. Mr. H. Hicks).

The only competitor (Dr. M. LACROZE, Bryndir, Roehampton—gr. Mr. F. Cresswell) in the class for a smaller group received the 1st prize for a neat arrangement.

Mr. H. A. TRACY, Amyand Park Road, Richmond, included very good plants of Cypripedium Curtisii and an Odontioda hybrid in his 1st prize collection of Orchids. 2nd, H. S. CHANDLER, Esq., Parkland Grove, Ashford.

The 1st prize for six exotic Ferns was awarded to A. R. KING-FARLOW, Esq., Teddington Hall, Middlesex.

The six foliage plants which won the 1st prize for Mrs. ARBUCKLE were very good specimens; 2nd, E. R. W. BENNETT, Esq., Darby Lodge, Sunbury-on-Thames (gr. Mr. W. Chant).

The 1st and 2nd prize collections of Caladiums contained some large, well-grown plants, and the judges rightly gave the premier award to the

smaller but choicer plants. 1st, L. WARDE, Esq., Petersham House, Petersham (gr. Mr. A. Allum).

The class for six pyramid-shaped Coleus was well contested and brought together some very fine specimens. 1st, C. M. BARTLETT, Esq.; 2nd, H. SPENCER, Esq.

The 1st prize for six tuberous Begonias was awarded to G. ATKINS, Esq., East Sheen (gr. Mr. W. J. Hill); 2nd, A. R. KING-FARLOW, Esq.

The nine Streptocarpus which won the 1st prize for G. ATKINS, Esq., were very fine plants, but the flowers were practically all of the same shade of colour. There was a great variety and more value in the smaller plants from C. M. BARTLETT, Esq.

The Gloxinias (1st prize) shown by E. R. W. BENNETT, Esq., were crowded with good, fresh blooms; 2nd, G. ATKINS, Esq., with smaller but meritorious plants.

There were five very attractive baskets of plants exhibited in Class 72, and the 1st prize arrangement by L. WARDE, Esq., Petersham (gr. Mr. A. Allum), was exceedingly bright and pleasing.

ROSES.

Messrs. D. PRIOR & SONS, Colchester, had a magnificent collection of Roses in their exhibit in the premier class, which requires nearly 150 blooms (48 varieties, three blooms of each). The brightly-coloured varieties were represented by Comte de Raimbaud, J. B. Clark, G. C. Waud, &c., whilst amongst the pinks Lohengrin, Mrs. W. J. Grant, Lady Moyra Beauclerc, and Juliet were prominent. The paler varieties included Mélanie Soupert Souvenir de Pierre Notting, and Yvonne Vaucherot. The 2nd prize collection, of Messrs. R. HARKNESS & Co., Hitchin, was unfortunate in having to meet such exceptionally strong competition. This fine exhibit included white Maman Cochet, Horace Vernet, Lohengrin, and Mildred Grant. 3rd, Messrs. FRANK CANT & Co., Braiswick, Colchester, whose blooms of Juliet were well-nigh perfect.

Messrs. D. PRIOR & SONS were also the most successful exhibitors in the class for 24 Roses in three blooms of each variety. Here again their exhibit was of very high quality. The finest of this firm's varieties were Mme. Constance Soupert, Ulrich Brunner, J. B. Clark, and Mrs. W. J. Grant. As in the premier class, Messrs. HARKNESS had to be content with the 2nd place. 3rd, Messrs. W. & J. BROWN, Peterborough.

Messrs. D. PRIOR also excelled in the class which requires 12 varieties, three blooms of each, Lady Moyra Beauclerc and J. B. Clark were the outstanding varieties. 2nd, Mr. JOHN PIGG, Royston, Herts.

The best 12 Roses of one variety (H.P. or H.T.) were those of the variety William Sheen, shown by Mr. JOHN PIGG. 2nd, Messrs. B. R. CANT & SONS.

The finest 12 Tea Roses of one variety were those of Mme. Jules Gravereaux, shown by Messrs. D. PRIOR & SONS; 2nd, Messrs. B. R. CANT & SONS, Colchester.

The finest Roses in the classes for amateurs only were shown by A. TATE, Esq., Downside, Leatherhead (gr. Mr. W. Mease), who exhibited Souvenir de Pierre Notting, Mildred Grant, and Jeanne Buatois in good form. 2nd, Rev. J. A. FELLOWES, Bunwell Rectory, Attleborough (gr. Mr. J. O. Hinckley).

In the smaller class, L. S. PANTE, Esq., Beaconsfield, was 1st, and A. TATE, Esq., 2nd.

There was only one exhibitor in the class requiring 24 bunches of hardy herbaceous flowers; the exhibit from L. WARDE, Esq., Petersham House, Petersham (gr. Mr. A. Allum), was exceedingly fine, and deservedly received the 1st prize.

The hand bouquet arranged by Messrs. W. & J. BROWN was the best of the three shown.

FRUIT AND VEGETABLES.

The open classes in this section were not well contested. There was only one entry for the "Waechter" Challenge Cup. The black Grapes were good, but would have been better if left uncut for another fortnight. Strawberries were well coloured, but in this season of large fruits may be considered to be a trifle small. There was no "open" class for vegetables, but the exhibits of the cottagers and allotment holders were especially praiseworthy.

The Waechter Challenge Cup for six dishes of fruit was awarded to Sir WALPOLE GREENWELL, Marden Park, Surrey, whose collection included a good dish of Brown Turkey Fig, large bunches of Grapes, and a dozen home-grown Bananas.

The best Grapes were shown by T. J. MESSOM, Esq., Twickenham.

FLORAL DECORATIONS.

The various classes in this section were keenly contested, and it was interesting to notice that the most successful dinner-table decoration was that composed of that beautiful Rose Irish Elegance with a few graceful sprays of Selaginella. The vases of Roses were very beautiful, but the sprays and buttonholes were stiff and formal.

In class 26 Mrs. ALEX. ROBINSON, Norhyrst, Carshalton, was awarded the 1st prize; 2nd, Mrs. A. R. BIDE, Farnham.

In the special prize class the exhibits were of higher merit, and here Mrs. F. PETERS WOOD, Broom Lodge, Weybridge, who showed Irish Elegance Rose with its own foliage and a few graceful trails of Selaginella, was decidedly 1st; 2nd, Mrs. JORDAN, Walton Lodge, Addlestone.

SWEET PEAS.

There were 14 exhibitors for the special prize offered by Messrs. Webb & Sons for eight bunches of Sweet Peas. The exhibit shown by E. G. MOCATTA, Esq., Woburn Place, Addlestone (gr. Mr. Thos. Stevenson), was exceedingly fine. The outstanding varieties were Countess Spencer, Tennant Spencer and Clara Curtis; 2nd, A. W. PERKINS, Esq., J.P., Harrow (gr. Mr. G. Baldwin). Mr. MOCATTA was also the most successful exhibitor in the class for nine varieties.

Messrs. DOBBIE & Co., Edinburgh, arranged a magnificent collection of Sweet Peas. The size and colour of the flowers were all that could be desired.

Messrs. S. BIDE & SONS, Farnham, Surrey, contributed many vases of very good blooms in the leading varieties. Three vases of Stirling Stent were exceedingly bright.

Messrs. E. W. KING & Co., Coggeshall, Essex, made a very imposing display with a great number of fine blooms.

Mr. W. J. UNWIN, Histon, Cambridge, set up an exceedingly fine exhibit of Sweet Peas on long, stout stalks. The varieties Gladys Burt, Nettie Jenkins and Edna Unwin were splendid.

Mr. W. E. ALSEN, Denmead, Hants., also arranged a large number of Sweet Peas.

NON-COMPETITIVE EXHIBITS.

Messrs. JAMES VEITCH & SONS, Chelsea, London, made a display with pure-white Liliums, dwarf pot Roses and Hydrangeas, with just sufficient standard Roses to give relief.

Mr. J. BRUCKHAUS, Orleans Nursery, Twickenham, exhibited Palms and such flowering plants as Liliums, Hydrangeas, Kalanchoes, with brightly-foliaged Caladiums.

Mr. L. R. RUSSELL, Richmond Nurseries, arranged a long group, with pleasant, undulating margin, in the large tent. The row of Salvia Pride of Zurich inside an outer line of Pteris cretica cristata was very effective. There were groups of zonal and Ivy-leaved Pelargoniums, Hydrangeas with large trusses of bloom, and a floriferous variety of Campanula persicifolia called Patula. In another tent, Mr. RUSSELL displayed a splendid collection of hardy border flowers.

Messrs. E. WEBB & SONS, Stourbridge, arranged an attractive stand of Sweet Peas, Liliums and other flowers, with Melons, Tomatos, Cucumbers, Peas, &c., along the front. The Tomatos were of medium size and very smooth.

Messrs. GEO. MASSEY & SONS, Spalding, contributed good Pæonies, Delphiniums and Ornithogalum pyramidale.

Mr. H. A. TRACY, Lily and Orchid Nursery, Twickenham, had a very good bank of Orchids in bloom, which included Odontioda Cooksonii, Cattleya Mossiæ Queen Mary and Schofield's variety of Cypripedium Goweri.

Mr. WILLIAM THOMPSON, Sheen Nurseries, arranged an attractive elliptical group of Palms, standard Polyantha Roses, Hydrangeas, &c., bordered with Ophiopogon spicatum variegatum and other dwarf plants with variegated foliage.

Messrs. T. S. WARE, LTD., Feltham, Middlesex, displayed a large collection of excellent hardy border flowers.

Messrs. W. & J. BROWN, Stamford, Peterborough, exhibited a large stand of very fine Roses.

The KING'S ACRE NURSERY CO., LTD., Hereford, Mr. E. J. HICKS, Hurst, Berkshire, Messrs. GEO. JACKMAN & SON., Woking, and Messrs. B. R. CANT & Co., Colchester, also showed excellent Roses.

W. FROMOW & SONS, Chiswick, flanked the entrance to the principal tent with interesting collections of Japanese Maples.

STIRLING AND DISTRICT HORTICULTURAL.

JUNE 8.—The first of three excursions arranged by this Society for the present season took place on the above date, when 60 of the members visited Harviestown Castle, Dollar. Mr. J. Ernest Kerr welcomed the visitors, who were conducted through the grounds by the gardener, Mr. Charles Fraser. Rhododendrons were in the pink of condition, being little affected by the prolonged drought. The fruit-range, plant-houses, kitchen and American gardens were inspected. Hardy fruits and vegetables were in a forward condition.

LAW NOTE.

PROSECUTION UNDER THE SHOP HOURS ACT.

BEFORE the Aberdeen Sheriff Court on June 20, an Aberdeen firm of fruiterers was charged with a contravention of the Shop Hours Act by having employed two female assistants in the first week in June without giving them the half-holiday provided by the statute. It was stated that the director of the business was under the impression that Aberdeen would be declared a holiday resort, and that he had instructed the assistants to keep the shop open as usual, and had gone to the Continent. As this was the first case in Scotland under the Act, the Sheriff imposed no penalty, except the expenses, which amounted to £1 0s. 6d.

Obituary.

ELIJAH A. WOOD.—The *American Florist* records the sudden death of this gentleman at his home in Chicago, on June 1 last. Mr. Wood was born at Newton in 1859, and was educated at the public schools, and after graduation soon became a prominent figure in American floriculture. His father, Mr. E. W. Wood, added a floricultural branch to his dry goods business, and this venture was very successful. Deceased was one of the founders of the Chrysanthemum Society of America, and his services as a judge were in demand at the early Chrysanthemum shows. Mr. Wood raised many excellent Chrysanthemums, including Edward Hatch and Golden Hair. He was the first exhibitor in America to display his cut blooms in vases, and the example was speedily followed by other exhibitors. After the death of his parents, the family estate was dispersed, and Mr. Elijah Wood joined the staff of the *American Florist*. He was present at the office on the Monday of the week he died.

W. H. HILLIER.—We regret to record the death of Mr. W. H. Hillier, for more than 20 years in charge of the landscape department of Messrs. W. Cutbush & Son, and formerly engaged with the King's Acre Nurseries and Messrs. Standish, of Ascot. He attended the International Exhibition at Chelsea, but the day following he contracted a chill, and, erysipelas intervening, he passed away on the 24th inst. Deceased, who was about 57 years of age, leaves a widow and grown-up family.

JOHN HAYCRAFT.—Mr. John Haycraft, for 40 years in the gardens at Hampton Court Palace, died suddenly on the 20th inst.

WILLIAM FYFE.—The many friends of this well-known and skilful gardener will hear with deep regret of his death, which took place at Lockinge Gardens, Berkshire, on the 24th inst., from appendicitis. Mr. Fyfe was a frequent and valued contributor to these pages. His contributions extended over a very long period, but amongst his later work were weekly articles on the management of the kitchen garden (in 1905) and the flower garden (in 1908). The excellence of the gardens at Lockinge, where Mr. Fyfe had served Lord and Lady Wantage for a period of 19 years, testifies to his great abilities (see *Gard. Chron*, February 3, 1906). Mr. Fyfe was a member of the Fruit and Vegetable Committee of the Royal Horticultural Society, and so was probably best known to the gardening public as a successful grower of fruits, but he also excelled in the other departments of gardening. The flower gardening at Lockinge, for instance, was equal to anything of the kind we have seen at a private establishment. Mr. Fyfe was possessed of a most genial personality, and was highly respected by all who knew him. He leaves a widow and one daughter, the wife of Mr. Edward Harriss, fruit foreman at the Royal Gardens, Windsor. Mr. Harriss contributes the articles on "Fruits Under Glass" now appearing in these pages.

Answers to Correspondents

*** *The Editors will be glad to receive, for consideration, large photographs of horticultural subjects, suitable for reproduction in this Journal.*

ADDRESS: *Cloris.* The John Groom's Flower Girls' Mission, Sekforde Street, Clerkenwell.

APPLE TREES: *G. B. (Catford).* From your description, we suspect that the Apple trees are affected with American blight. The best summer treatment is to spray the parts with a weak solution of Calvert's carbolic soap, not exceeding 1 ounce of soap to a gallon of water. at a temperature of 90°. During the winter, you should spray the trees with the following: 1 lb. caustic soda, ¾ lb. carbonate of potash, 10 ounces of soft soap, and 10 galls. of water, adding the soft soap last. The operator should wear leather gloves. If only a few trees are affected, it is a good plan to apply a strong solution of Calvert's carbolic soap with a stiff brush, well working it into the crevices of the bark.

ARALIA LEAVES: *T. B.* There is no disease present; the leaves have been injured by some external influence such as a too low temperature.

CHRYSANTHEMUMS DISEASED: *S. & Co.* The damage is caused by the Chrysanthemum leaf-miner; see reply to *S. G. R.* in the issue for April 27, p. 290.

CORRECTION. In the list of awards on p. 417 of the last issue, the name of the exhibitor of the Rose Pink Pearl should, as reference to the previous page will show, read as Messrs. Hobbies, Ltd. Messrs. V. Lemoine & Sons, Nancy, inform us that the two varieties of Philadelphus (P. Bouquet Blanc and P. Voie Lactée), which received Awards of Merit at the last R.H.S. meeting (see p. 417) are hybrids raised by them. P. Bouquet Blanc is a cross between P. coronarius and P. microphyllus, whilst P. Voie Lactée, which was also shown by Messrs. Paul & Sons, Cheshunt, who participated in the award, is the result of crossing P. nepalensis with P. microphyllus.

CUCUMBER MILDEW: *L. O. J.* Dust the affected leaves with flowers of sulphur, maintain a drier atmosphere, and prevent cold draughts.

FAILURE OF POT PLANTS: *A. H. B.* We can find no trace of disease on any of the plants, and the trouble must be looked for in some wrong cultural treatment.

FIG SPLITTING: *J. M., Ireland.* The cause of the splitting in the Fig fruits is most probably caused by too much atmospheric moisture. Maintain drier conditions in the house, and always free circulation of air. The name of the variety is Reculver.

FIGS DISEASED: *A. C.* The black spots are the spores of a minute fungus that grows on manure; the spores are shot into the air. Your best plan is to cover the mulching with a thin layer of soil.

FRUITS DISEASED: *T. M.* The fruits are injured by mildew. It is too late to adopt remedial measures, but next season spray the trees with the Bordeaux mixture at half the usual strength when the blossom has just fallen.

GRAPES: *E. W.* and *G. B.* The berries on the bunch of Lady Downe's Grape are affected with the spot disease (Gloeosporium ampelophagum). The bunches should be sprayed with liver of sulphur, at the strength of ½ ounce in 2 gallons of water. As the sulphur will cause white paint to turn black care should be taken to prevent the specific wetting the woodwork of the vinery.

GRAPES UNHEALTHY: *Foliage.* There is no disease present; the trouble is due to some wrong condition at the roots.

INSECTS IN POND: *A. J. (Totnes).* The insects to which you refer are probably the larvæ of the caddis-worm. Probably the best and safest way to get rid of them would be to introduce some water-fowl.

IVY-LEAVED PELARGONIUM: *H. P.* The seedling shows no improvement on varieties already in cultivation.

NAME OF TREE: *C. E. W.* The branch you send is of Catalpa bignonioides, a North American

THE LATE WILLIAM FYFE.

tree fairly common in gardens. In favourable seasons it develops its interesting flowers, which are followed by hanging fruits.

NAMES OF PLANTS: *W. P.* Erinus alpinus.—*Foliage.* Medicago maculata.—*A. B. H.* Geranium striatum.—*J. E.* 1, Rosa polyantha var.; 2, Habenaria bifolia; 3, Orchis maculata; 4, Sanicula europœa; 5, specimen not found, 6, Iris squalens var.; 7, Erica tetralix alba; 8, Erica cinerea alba.—*H. S.* 1, 2, and 3, forms of Centranthus ruber; 4, probably Ægopodium Podagraria (it is difficult to name correctly a single leaf).—*F. A., Broughty Ferry.* Magnolia acuminata (the Cucumber tree).—*Annual.* Hyoscyamus niger, one of the poisonous Solanums allied to Atropa Belladonna (Deadly Nightshade).—*Humea, Yorkshire.* Muscari comosum monstrosum.—*G. B.* 1, Cupressus species; 2, Abies Nordmanniana; 3, Cladrastis tinctoria; 4, Polygonum Sachalinense; 5, Cupressus Lawsoniana; 6, Jasminum humile; 7, Thuya plicata; 8, probably Grevillea rosmarinifolia (send when in flower); 9, Retinospora squarrosa (of gardens); 10, Cupressus thuyoides; 11, Cotoneaster Simonsii.—*Library* Fagus sylvatica var. heterophylla.—*J. L.* Lathyrus Nissolia.—*A. B. H.* The specimen forwarded had suffered in transit. Please send a fresher portion.—*H. A.* 1, Philadelphus purpureo-maculatus; 2, P. Lemoinei.—*H. R.* 1, Olearia macrodonta; 2, Valeriana sp.—*Old Reader.* Rose too shattered and dried for recognition. The perfume resembles that of Souvenir d'un Ami. The Carnation is apparently a border variety. You should have forwarded a shoot bearing foliage.—*D. & W. C.* 1, Senecio articulatus; 2, Othonna carnosa.—*Dublin.* 1, Sedum sarmentosum variegatum; 2, Lirope spicata variegata; 3, Acalypha sp., specimen too small and poor to determine; 4, Strobilanthes Dyerianus; 5, Peperonia argentea; 6, Ruellia Portellæ.—*W. G. D.* The shrub is Philadelphus microphyllus and the border flower Asperula odorata.—*W. J.* 1, Muscari comosum; 2, Spiræa aruncus; 3, Spiræa filipendula fi. pl.; 4, Campanula glomerata; 5, Erigeron speciosum; 6, not recognised.

NITROGEN-FIXING BACTERIA: *R. A.* You will find the information you seek in the library of your institution. The best general account of nitrogen-fixing bacteria is in *Jost's Physiology.* Records of recent progress in our knowledge of the subject are to be found in the pages of this journal, particularly in the issues for January 9, 16, 23, and 30, and September 23, 1911, February 6, 20, and 27, March 13 and 20, and May 22, June 12 and 19, 1909.

PEACH LEAVES AND FRUIT: *J. C.* The leaves are attacked by the Shot-hole fungus (see reply to *A. S. R.* and *H. A. T.* in last week's issue). The fruits which show gummosis are affected with mildew, which is probably caused by dryness at the roots; dust the fruits with flowers of sulphur and copiously water the border.

STRAWBERRIES LITTERED WITH GRASS: *G. Crowther.* It is not advisable to place the mowings of grassland beneath ripe Strawberries, as during wet weather it might cause numbers of the fruits to rot. You cannot do better than employ clean straw.

SWEET PEA UNHEALTHY: *R. E. W.* There is no disease present on the plants. The injury is due to a chill, caused probably by watering the plants late in the day.

SYRINGING GRAPES: *G. D. S. C.* Vines are not generally syringed after the buds have commenced to grow freely, unless the leaves are infested with red spider, in which case rain water only must be used, and the bunches should not be wetted more than is necessary, as they are likely to become marked. The syringing should be done late in the afternoon. It is sometimes necessary to wash bunches which are infested with mealy-bug, but this should not be done till they are ripe, and then only when they are required for immediate use.

TEA AND RUBBER GROWING: *Arboretum.* Vacant situations on Tea and Rubber plantations are occasionally advertised in the *Gardeners' Chronicle* and in those journals solely devoted to the Tea and Rubber industries. You should insert an advertisement, stating your requirements.

VARIATION IN GLADIOLUS AND PINK: *F. L.* Flowers of Gladiolus nanus The Bride frequently have streaks of colour on some of their petals. The Pinks which you send as a sport from Mrs. Sinkins are quite distinct from the flowers of that variety, and are very similar to several of the old-fashioned Pinks; many of the more recent varieties are of greater merit.

VINES UNHEALTHY: *P. L.* Spray the vines twice a week with liver of sulphur, using 1 ounce in 3 gallons of water.

VIOLAS DISEASED: *H. S. E.* The plants are badly attacked by Puccinia violæ, a fungus. Burn the diseased leaves and plants, and replant the remainder of the stock in fresh soil, as that in which they are growing will be infected.

WEED IN POND: *Mrs. M. T. S., Birkenhead.* The plant is one of the Algæ, and is known as Blanket Weed. Place 2 lbs. of the copper sulphate in a coarse sack, which should be dragged quickly through the water at distances of 3 yards apart. See *Gard. Chron.*, April 13 last, p. 242.

Communications Received —Constant Reader—G. S.—Humea, Yorkshire—Greatbridge—W. E.—E. V. A.—J. G., Burton-on-Trent—Angerton—A. H. P.—W. B.—L. W.—W. W.—E. L., Nancy—C. R.—P. & Co.—M. G.—J. M., Ireland—A. F. T.—W. K.—J. H. M.—A. J., Totnes—M. M., Rothesay.—J. M. H.—J. B. W.—Y., Leicester—E. H.—C. R.—A. H.—A. P.—R. P. B.—A. P. R.—R. D.—W. K.—Visitor—G. B.—L. M. B.—Foreman—J. H. M.

MARKETS.

COVENT GARDEN, June 26.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—EDS.]

Cut Flowers, &c.: Average Wholesale Prices.

	s.d.	s.d.
Arums (Richardias)	2 0	—
Bouvardia, per dz. bunches ...	6 0	7 0
Carnations, p. doz. blooms, best American var.	1 0	1 6
— smaller, per doz. bunches	10 0	15 0
— Carola, crimson, extra large	2 6	3 0
— Malmaisons, p. doz. blooms:		
— — pink ...	3 0	6 0
— — blush ...	3 0	4 0
— — red	3 0	4 0
Coreopsis, per doz. bunches ...	1 0	1 6
Cornflower, p. doz. bunches, pink	1 0	1 6
— white	1 0	1 6
— blue	0 9	1 0
Delphinium, p. dz. bunches:		
— light and dark blue	6 0	8 0
Eucharis, per doz.	2 0	2 6
Gaillardia, per doz. bunches ...	1 0	1 6
Gardenias, per box of 15 and 18 blooms... ...	2 6	3 0
Gladiolus, per doz. bunches:		
— Blushing Bride	4 0	6 0
— Bride, white ...	3 0	4 0
— Ne Plus Ultra	6 0	8 0
— Peach Blossom	8 0	9 0
Gypsophila, p. dz. bunches:		
— white	3 0	5 0
— pink	3 0	—
Iceland Poppies, p. dz. bunches	1 0	1 6
Iris (English), per doz. bunches:		
— various colours	4 0	5 0
Lapagerias, white, per dozen ...	1 6	2 0
Lilium auratum per bunch ...	4 0	5 0
— longiflorum, per doz., long	1 0	1 6
— — short ...	1 0	—
— lancifolium alba, long ...	2 0	2 6
— — short ..	1 6	2 0
— speciosum rubrum, per doz., long	2 6	3 0
— — short ...	0 9	1 0
Lily of the Valley, pr. dz. bnchs.:		
— extra special ...	15 0	18 0
— special... ...	10 0	12 0
— ordinary ...	8 0	—
Marguerite, per doz. bunches:		
— white	3 0	4 0
— yellow	1 6	2 0
Mignonette, per doz. bunches...	4 0	5 0
Myosotis (Forget-me-not), p. dz. bunches ...	3 0	4 0
Orchids, Cattleya, per doz. ...	9 0	10 0
— Odontoglossum crispum ...	1 6	2 0
Pelargoniums, p. doz. bunches	5 0	6 0
— Double Scarlet	4 0	6 0
Pinks, white, per doz. bunches...	1 6	2 0
Pyrethrums, double, pr. dz. bunches:		
— white	2 6	3 0
— coloured ...	2 0	3 0
— single, mixed colours ...	2 0	2 6
Roses, 12 blooms,		
— Bridesmaid,	0 9	1 0
— C. Mermet ...	0 9	1 0
— Frau Karl Druschki ...	1 6	2 6
— General Jacqueminot ...	0 9	1 0
— Liberty ...	1 0	1 6
— Madame A. Chateney ...	1 0	2 6
— Niphetos ...	1 0	1 6
— Richmond ...	1 0	2 6
— Sunrise ...	1 0	1 6
— President Carnot	1 6	2 6
— Lady Roberts	1 0	1 6
— Lady Hillingdon	1 0	1 6
— Franz Deegan	1 0	1 6
— Kaiserine ...	1 0	2 0
Scabious caucasica, per doz. bnchs.	3 0	4 0
Spiræa (Astilbe) japonica, per dz. bunches ...	5 0	6 0
Statice, mauve, per doz. bunches...	3 0	4 0
Stephanotis (72 pips)	1 6	2 0
Stock, per dozen bunches:		
— white	3 0	4 0
Sweet Peas, pr. dz. bunches:		
— coloured ...	1 6	3 0
Tuberoses, p. doz. blooms:		
— long	0 4	0 6
— short	0 3	0 4
Violas, small blue, p. doz. bunches	0 9	1 0

Cut Foliage, &c.: Average Wholesale Prices.

	s.d.	s.d.
Adiantum Fern (Maidenhair), best, dz. bnchs.	4 0	5 0
Agrostis (Fairy Grass), per dz. bunches ...	2 0	4 0
Asparagus plumosus, long trails, pr. ½ doz.	1 6	2 0
— medium, doz. bunches ...	12 0	18 0
— Sprengeri ...	10 0	12 0
Carnation foliage, doz. bunches...	4 0	—
Croton foliage, various, per dozen bunches ...	12 0	15 0
Cycas leaves, artificial, per doz.	3 0	12 0
Eulalia japonica, per bunch ...	1 0	1 6
Moss, per gross ...	6 0	—
Myrtle, dz. bchs. (English), small-leaved ...	6 0	—
— French ...	1 0	—
Smilax, per bunch of 6 trails ...	0 9	1 0

Plants in Pots, &c.: Average Wholesale Prices.

	s.d.	s.d.
Aralia Sieboldii, p. dozen	6 0	7 0
Araucaria excelsa, per dozen ...	18 0	21 0
Asparagus plumosus nanus, p.dz.	10 0	12 0
— Sprengeri ...	8 0	9 0
Aspidistra, p. dz., green	21 0	30 0
— variegated ...	30 0	60 0
Cocos Weddelliana, per dozen:		
— 60's	6 0	12 0
— larger, each ...	2 6	10 6
Coleus, per doz. ...	4 0	6 0
Crassula, various (in 48 pots) per dozen	9 0	12 0
Croton, per dozen	18 0	30 0
Cyperus alternifolius, per doz.	5 0	6 0
— laxus, per doz.	4 0	5 0
Dracæna, green, per dozen ...	10 0	12 0
Ericas, per dozen:		
— Willmoreï, 48's	15 0	18 0
Ferns, in thumbs, per 100... ...	8 0	12 0
— in small and large 60's ...	12 0	20 0
— in 48's, doz. ...	6 0	—
— choicer, sorts per doz. ...	8 0	12 0
— in 32's, per dozen	10 0	18 0
Ficus elastica, per dozen	9 0	12 0
Fuchsias, per dozen	8 0	9 0
Geonoma gracilis, 60's, per dozen	6 0	8 0
— larger, each ...	2 6	7 6

Plants in Pots, &c.: Average Wholesale Prices *(Contd.)*.

	s.d.	s.d.
Heliotropes ...	6 0	8 0
Hydrangeas white, 48's, per dozen	18 0	21 0
— pink	8 0	12 0
— blue, each ...	2 0	5 0
— paniculata, per dozen	18 0	24 0
Kentia Belmoreana, per dozen	5 0	42 0
— Fosteriana, 60's, per dozen	4 0	6 0
— — larger, per dozen	18 0	63 0
Latania borbonica, per dozen ...	12 0	30 0
Lilium lancifolium rubrum in pts., per dozen ...	15 0	18 0
— lancifolium alba	15 0	18 0
— longiflorum, per dozen ...	12 0	15 0
Lily of the Valley	21 0	24 0
Marguerites, in 48's, per doz., white	8 0	10 0
— yellow ...	10 0	12 0
Mignonette, 48's, per dozen ...	6 0	8 0
Pandanus Veitchii, per dozen ...	36 0	48 0
Pelargoniums, per dozen	9 0	12 0
— Ivy-leaved ...	7 0	9 0
Phœnix rupicola, each	2 6	21 0
Rhodanthi, per dz. pots	5 0	6 0
Saxifraga (pyramidalis) 48's, per dozen	15 0	18 0
Spiræa japonica, per dozen pots	10 0	12 0
— pink	10 0	12 0
Verbenas, pink ...	6 0	8 0
— scarlet... ...	8 0	9 0
— white	8 0	9 0
— blue	8 0	9 0

Fruit: Average Wholesale Prices.

	s.d.	s.d.
Apples:		
— Tasmanian per case ...	7 0	10 0
— Australian per case	8 0	10 0
Apricots, French per box ...	2 0	3 6
— half sieves ...	9 6	10 0
Bananas, bunch:		
— Doubles ...	10 0	12 0
— No. 1	8 0	10 0
— Extra	10 0	12 0
— Giant	14 0	18 0
— Loose, p. doz.	0 6	1 0
— Red coloured...	5 6	6 6
— Jamaica Giants, per ton ...	£10	£12
— Jamaica Ordinary, per box (9 doz.) ...	4 0	5 0
Cherries, French, ½ sieve... ...	3 0	8 0
— per box ...	1 0	2 3
— English, ½ bshl.	4 0	8 0
— pecks	2 0	5 0
Currants (French), Red, p. handle	1 9	2 0
— (English), Black, pecks	4 0	5 0
— Black, ½ bushl.	8 0	9 0
— Red, pr. ½ bshl.	4 6	—
Figs (Guernsey), per dozen ...	2 0	6 0
— English ...	3 0	8 0
Gooseberries, per ½ bushel ...	2 0	3 0
— Dessert, ½ bshl.	3 6	5 0
Grape Fruit, case:		
— 96's	20 0	25 0
— 80's		
— 64's		
— 54's		
Grapes, Australian, per case ...	22 0	—
— English (new) per lb.... ...	1 3	5 6
— Canon Hall ...	1 6	5 0
— Muscats ...	1 0	5 0
Greengages, p. bx.	1 6	2 6
Lemons:		
— Messina, per case	15 6	20 0
Limes, per case ...	4 0	—
Melons (Guernsey)	0 9	1 6
— (English) ...	0 9	1 6
— Canteloupe ...	2 0	6 0
Nectarines, per dozen:		
— selected ...	6 0	10 0
— best	4 6	6 0
— seconds ...	1 6	2 0
Nuts, Almonds, per bag	52 6	—
— Spanish, per sack	40 0	42 0
— Barcelona, bag	35 6	36 6
— Chestnuts, per bag	3 6	19 0
— Cocoanuts, 100	18 0	28 0
— English Cobs per lb.... ...	0 8	—
— Walnuts (Naples), kiln dried, cwt. cases	54 0	—
Oranges:		
— Navels... ...	14 0	16 0
— Denia, case ...	30 0	40 0
— Mercia... ...	15 0	18 0
Peaches (Belgian), per dozen ...	3 0	6 0
— English, dozen:		
— selected ...	6 0	10 0
— best	4 0	6 0
— seconds ...	1 0	2 0
Pears (Australian), per case ...	15 6	20 0
Pineapples, St. Michael ...	3 6	5 6
Raspberries ...	0 8	1 0
Strawberries:		
— Southamptons, baskets ...	1 0	2 0
— punnets (outdoor), per doz.	3 0	4 0
— Kent, per peck	3 0	4 6

Vegetables : Average Wholesale Prices.

	s.d.	s.d.
Artichokes (Globe), per dozen ...	2 6	3 0
Asparagus —		
— (English) bndl.		
— Cambridge ...	0 8	2 6
— Worcester ...	1 0	5 0
— Giant	4 0	10 6
Aubergines, per dz.	2 6	3 0
Beans, Guernsey Dwarf, per lb.	0 8	1 0
— (English) p. lb.	0 8	1 0
— French, per packet, lb. ...	0 4	0 6
Beetroot, p. bshl.:		
— Long	1 6	2 0
Cabbages, Evesham, pots ...	1 6	2 0
Carrots (English), pr. doz. bun....	1 0	2 0
— (French) per dozen bunches	2 6	3 0
Cauliflowers, per dozen	2 6	—
— Dutch, dozen	2 6	—
Chicory, per lb. ..	0 4	—
Cucumbers, per dozen	1 6	2 0
Endive, per dozen	2 6	3 0
Greens (Spring), p. bag	2 0	3 0
Herbs (sweet), pkts., p. gross	7 0	—
Horseradish, 12 bundles ...	10 0	12 0
Leeks, per doz. ...	2 6	3 0
Lettuce (French), per doz. ...	1 0	1 6
Lettuce (English), Cos, per tally...	2 0	3 0
— Cabbage, per dozen	1 0	1 3
Marrows, pr. dz. ...	2 0	3 0
Mint, per dozen bunches ...	1 6	2 6
Mushrooms, cultivated, p. lb. ...	0 8	0 10
— outdoor, per peck	2 0	—
Mustard and Cress, p. doz. punnets	1 0	—
Onions (Egyptian)	6 0	6 6
— (Spanish) ...	6 0	6 6
— (Spring), per doz. bunches	1 6	2 6
Parsley, ½ sieve ...	2 0	2 6
— per doz. bun.	3 0	4 0
Peas (English), per bushel	2 0	3 0
— shelled, p. qt.	1 0	1 6
Radishes (English), per dozen ...	0 9	1 0
— (Jersey) long...	1 0	—
Rhubarb, outdoor, per doz. ...	2 6	3 0
Spinach, pr. bshl.	1 6	2 0
Tomatos, per doz. lbs.:		
— (Guernsey), ...	2 9	3 0
— (English), ...	3 0	—
— seconds ...	1 0	1 6
Turnips (English), per dz. bunches	2 0	3 0
Watercress, p. dz. bunches ...	0 4	0 6

REMARKS.—English Black Hamburgh Grapes are a good supply, and have been a slightly better trade this week. Muscat of Alexandria and Canon Hall Muscat have been more plentiful, and these also are in better demand. Peaches and Nectarines are not quite so numerous as last week, and their prices are firmer in consequence. Melons are less plentiful, but the consignments of Figs are equal to the demand. Supplies of Strawberries will now show a decrease all round. Home-grown and Continental Cherries continue a very even supply; some of the English Cherries are very fine, especially those of the Black Eagle variety. Black and Red Currants from all sources are plentiful. Raspberries are arriving in larger quantities, those packed in chips (4 to 4½ lbs.) and punnets being extra good. The last three shipments of Apples are being unloaded at the docks, the bulk consisting of the varieties Sturmer Pippin and French Crab. Vegetable Marrows from Evesham and other sources are plentiful and cheap. Asparagus is practically over. Loganberries are making their appearance in small consignments. Tomatos remain a heavy supply. Vegetables are an increasing supply, their prices being normal. *E. H. R., Covent Garden, June 26, 1912.*

Potatos.

	per cwt. s.d.	s.d.		per cwt. s.d.	s.d.
Lincolns—			**Dunbars—**		
King Edward ...	3 0	3 6	Up-to-Date ...	3 9	4 0
Maincrops ...	3 0	3 6	Maincrop ...	4 0	4 3
Northern Star ...	2 0	2 3			

New Potatos.

Bedfords	7 0	8 0	Teneriffe 6 0 7 0
Kents	8 0	9 0	St. Malos 6 0 6 6

REMARKS.—Stocks of old Potatos will probably be exhausted in a week or so: there is very little trade for them now that new Potatos are cheaper. Supplies of early Potatos from Cherbourg and Jersey are finished. There is a fair trade in new Potatos at the prices quoted. *Edward J. Newborn, Covent Garden and St. Pancras, June 26, 1912.*

THE WEATHER.

THE FOLLOWING SUMMARY RECORD of the weather throughout the British Islands, for the week ending June 22, is furnished from the Meteorological Office:—

GENERAL OBSERVATIONS.

The *weather* was extremely unsettled in all the more western and northern parts of the United Kingdom, with frequent heavy rain in Ireland and the west of Scotland. Over the south-eastern quarter of England a decided improvement took place after the 17th, and for the remainder of the week the weather was mostly fair and dry. Thunderstorms occurred in several parts of England (chiefly in the south and east) on the 16th and 19th, and on the night of the 22nd or early morning of the 23rd.

The *temperature* was above the average in most of the English districts, but slightly below it in England S.W. In Ireland it was slightly below the normal, and in the west and north of Scotland it was considerably below it. In Scotland and at several places in the east and south-east of England the highest readings were observed on the 18th or 19th, but over the country generally they occurred more commonly on the 22nd. The absolute maxima ranged from 84° at Greenwich, 83° at Hampstead and Camden Square, and 80° or a little above it in many other parts of our east, Midland, and south-east counties to 68° in Ireland S. and 67° in Scotland W. The lowest readings, which occurred very generally on the 16th or 17th, ranged from 35° in Scotland E., and 37° in Scotland W. to 46° in England E., 47° in Ireland S., and to 52° in the English Channel. At a depth of 1 foot the temperature of the soil was above the average at most of the English stations, but below it in Ireland and Scotland; at a depth of 4 feet the departure from the normal was generally very small.

The *mean temperature of the sea*.—Off our south coast the sea water was warmer than in the corresponding week of last year, and was above the average for the season. Elsewhere it was cooler and differed but little from the normal.

The *rainfall* was in excess of the normal in all the western and northern districts. In Ireland N. the total fall was considerably more than double the average, in Scotland W. nearly three times as much, and in Ireland S. more than three times as much. Amounts exceeding 1 inch were recorded in several parts of Ireland and the north-west of England on the 17th, and as much as 1·7 inch at Stonyhurst, and 1·5 inch at Lancaster and Valencia. During a thunderstorm which occurred at Lincoln on the 19th the fall of rain and hail amounted in 20 minutes to 0·9 inch.

The *bright sunshine* exceeded the average in England E. and S.E., but was deficient in all other districts. In England S.E. the mean daily duration amounted to as many as 8 hours, and in England E. to 8½ hours, but in Scotland and in the south of Ireland it was less than 3 hours and failed to reach one-sixth of the possible duration.

THE WEATHER IN WEST HERTS.

Week ending June 26.

A warm and dry week.—During the past week there occurred only one unseasonably cold day, and no cold night. On the warmest day the highest reading in the thermometer screen was 77°, and on the coldest night the exposed thermometer never fell lower than 41°. Both at 1 and 2 feet deep the ground is at the present time about 1° warmer than is seasonable. Rain has fallen on each of the last two days, but to the aggregate depth of only a quarter of an inch. Small quantities of rainwater passed through the bare soil percolation gauge on each day of the week. The gauge on which short grass is growing has, however, remained perfectly dry. The sun shone on an average for as much as 9½ hours a day, which is 3½ hours a day longer than is usual at this period in June. On four consecutive days the record of bright sunshine ranged between 10¾ hours and 13¼ hours, the latter being the brightest day recorded here as yet this year. The winds have again been at times moderately high, but in no hour did the mean velocity exceed 11 miles. The average amount of moisture in the air at 3 o'clock in the afternoon fell short of a seasonable quantity for that hour by 2 per cent. *E. M., Berkhamsted, June 26, 1912.*

SELECT LIST of BOOKS on GARDENING.

To be obtained at the "GARDENERS' CHRONICLE" OFFICE, from the Publisher.

Prices Quoted are in all cases Post Free to any part of the United Kingdom.

Greenhouse, The Book of the. By J. C. Tallack, Head Gardener at Shipley Hall. Illustrated. 2s. 9d.

Hardy Trees, Flowering Shrubs, Conifers and Evergreens. By Geo. Bunyard. A Popular Handbook of 160 pages. 50 Illustrations. Useful hints. English and Latin names. 3s. 9d.

Herbs, The Book of. By Lady Rosalind Northcote. 2s. 9d.

Herb Garden, The. By Francis A. Bardswell. With 16 Illustrations in Colour drawn from Nature. 7s. 10d.

Heredity in the Light of Recent Research. By L. Doncaster, 1s. 3d.

Holly, Yew and Box. By W. Dallimore. 280 pages. 175 Illustrations. Contains the Illustrations of Hollies published in the monograph by the late Thomas Moore, in the GARDENERS' CHRONICLE. 8s.

Horticultural Directory. Almanac and Address Book for present year. 1s. 3d.; cloth, 2s. 6d.

Horticultural Note Book. A Manual of Practical Rules, Data, and Tables. By J. C. Newsham. 4s. 9d.

Horticulture, A Primer of Practical. By J. Wright. 1s. 1½d.

Horticulturists' Rule-Book. By Prof. L. H. Bailey. 3s. 4d.

Insect and Allied Pests of Orchard, Bush and Hothouse Fruits. By F. V. Theobald, M.A., &c. 328 Illustrations. 30s. 6d.

Insects, Injurious and Useful. An Introduction to the Study of Economic Entomology. By L. C. Miall, F.R.S. 100 Illustrations. 3s. 9d.

Iris, The Book of the. Illustrated. By R. Irwin Lynch. 2s. 10d.

Irises. By W. R. Dykes, M.A. With Preface by Prof. Bayley Balfour, F.R.S. Contains 8 full-page Coloured Plates. 1s. 9d.

Jam Making and Fruit Bottling, Successful. By Miss Lucy H. Yates. Illustrated. 2s. 9d.

Johnson's Gardener's Dictionary. New Edition. 9s. 6d.

Judging, Rules for. Issued by the Royal Horticultural Society. New and Revised Edition. 1s. 6d.

Kew, The Royal Gardens. New Edition. Descriptive Notes by Herman Spooner. Beautifully Illustrated from photographs specially taken by E. J. Wallis. 1s. 3d.

Lawns. By Sutton & Sons, Reading. In paper cover. Well Illustrated. 1s. 2d.

Lawns and Greens. By T. W. Sanders, F.L.S. A Practical Guide to the Formation and Management of Lawns, Tennis Courts, etc. Illustrated. Paper, 1s. 2d. Cloth, 1s. 9d.

Lilies. By A. Grove. With Preface by H. J. Elwes, F.R.S. Contains 8 Coloured Plates. 1s 9d.

Lily, Book of the. By W. Goldring. Illustrated. 2s. 9d.

Little Gardens and How to Make the Most of Them. By H. H. Thomas. A very handy and useful work for the Amateur with a small garden. Paper, 1s. 3d. Cloth, 1s. 9d.

Mango, The. By G. Marshall Woodrow. An account of its Culture and Varieties. 1s. 1d.

Manures and the Principles of Manuring. By C. M. Aikman. 6s. 10d.

Manures for Fruit and other Trees. By A. B. Griffiths, P.L.D. A practical handbook for the Gardener, Horticulturist and Student. 7s. 10d. 7

Manures for Garden and Farm Crops. By W. Dyke. Paper, 1s. 2d. Cloth, 1s. 9d.

Manures that Pay. By W. C. Sambrook. Paper, 8d.

Manuring, The Science and Practice of. By W. Dyke, with introduction by J. Wright, V.M.H. A most practical work for the Amateur, Market and Professional Gardener. 1s. 2d.

Market Gardening, The Book of. By R. Lewis Castle. Illustrated. 2s. 9d.

Mendelism. By R. C. Punnett. New and Enlarged Edition, 5s. 4d.

Mendel's Principles of Heredity. By W. Bateson. 12s. 6d.

Mushroom Culture for Amateurs. By W. J. May. New Edition. Thoroughly revised. Illustrated. 1s. 2d.

Mushrooms, and how to Grow them. By John F. Barter. An excellent Treatise by a master of the craft. 1s. 2d.

Nursery Book, The. By Prof. L. H. Bailey. 6s. 11d.

Orchids and their Cultivation. By James O'Brien, V.M.H., Hon. Sec. of the R.H.S. Orchid Committee. Contains 8 full-page Coloured Plates from colour photography. 1s. 9d.

Orchid Cultivator's Guide-Book, The Amateur. By H. A. Burberry, late Gardener to the Rt. Hon. Joseph Chamberlain. Many Coloured Plates. 5s. 4d.

Orchid Grower's Manual, The. By the late B. S. Williams. 800 pages. Numerous Illustrations. 16s. 7d.

Orchids, Fertilisation of. By Chas. Darwin. Illustrated. 2s. 10d.

Orchids for Everyone. By C. H. Curtis. With 53 Coloured, and 43 in Black and White Illustrations. 21s. 8d.

Orchids, The Book of. By W. H. White, Orchid Grower to Sir Trevor Lawrence, Bt. Illustrated. 2s. 9d.

Orchids, The Culture of Greenhouse. By Frederick Boyle. Supervised by Joseph Godseff. Coloured Plates. 8s. 4d.

Orchids: Their Culture and Management. By W. Watson (Curator, Royal Botanic Gardens, Kew), and H. J. Chapman. Illustrated with 180 Engravings and 20 Coloured Plates. 25s. 6d.

Pansies and Violets. By D. B. Crane. Paper, 1s. 2d.; cloth, 1s. 8d.

Pansies, Violas and Violets. By W. Cuthbertson and R. Hooper Pearson. With 8 full-page Coloured Plates from colour photography. 1s. 9d.

Pansy, Viola and Violet, The Book of the. By Howard Crane. 2s. 9d.

Peach, The Book of the. By H. W. Ward. A Practical Handbook on the Cultivation of Peaches and Nectarines under Glass and Out-of-Doors. 2s. 9d.

Pears and Plums, The Book of. By the Rev. E. Bartrum, D.D. Illustrated. 2s. 9d.

Perennials, Easily Grown Hardy. By G. A. Voss, B.A. Edited by T. W. Sanders. 476 pages. 255 Illustrations. 5s. 4d.

Plant-Breeding. Being Five Lectures upon the Amelioration of Domestic Plants. By Prof. L. H. Bailey. Illustrated. 5s. 4d.

Plant Life on Land. By F. O. Bower, F.R.S. 1s. 2d.

Practical Plant Physiology. By Frederick Keeble, Sc.D. Illustrated. 3s. 9d. 8

Complete New Catalogue (Ninth Edition) sent post free on application to

The Publisher, 41, Wellington Street, Covent Garden, W.C.

GARDENING APPOINTMENTS.

[*Correspondents are requested to write the names of persons and places as legibly as possible. No charge is made for these announcements, but if a small contribution is sent, to be placed in our collecting Box for the Gardeners' Orphan Fund, it will be thankfully received, and an acknowledgment made in these columns.*]

Mr. SYDNEY F. BERRY, formerly at Castlemilk, Lockerbie, Jardine Hall, Dunkeld House, and Moy House, as Gardener to Captain DRUMMOND, Magginch Castle, Errol, Perthshire.

Mr. A. F. TURNER, for 8½ years Gardener to A. P. RICHARDSON, Esq., Hafod, Trefnant, N. Wales, as Gardener to G. L. FLETCHER TWEMLOW, Esq., Betley Court, Crewe.

SCHEDULES RECEIVED.

The Western Rose Society.—The exhibition of Roses, Sweet Peas and Pansies will be held in the Kursaal, Gourock, on Saturday, July 27. Secretary, Mr. J. E. Turner, Ardmay, Gourock.

Royal Agricultural Society of England.—In connection with the seventy-third annual show of this society at Doncaster on July 2–6, there will be held a special horticultural section. The secretary is Mr. T. McRow, 16, Bedford Square, London, W.C.

CATALOGUES RECEIVED.

FOREIGN.

A. DE SMET, Laerne, Gand, Belgium—Flowering and Foliage Plants, Flower Bulbs and Roots.

SITUATIONS VACANT.

Four Lines 3s. (Head-line counted as Two), 6d. for each succeeding line.

PRIVATE.

THE WARWICKSHIRE EDUCATION COMMITTEE invite applications for the post of ASSISTANT to their Horticultural Adviser; duties: under the supervision of the Horticultural Adviser to assist in the general Horticultural work of the county, and to carry out inspections under the Destructive Insects and Pests Acts Orders of the Board of Agriculture; salary £100 per annum with expenses on the Committee's scale. Applications must be made on forms to be obtained from me, and must be returned not later than July 6th, 1912.—BOLTON KING, Director of Education, Warwick.

WANTED, GARDENER (HEAD WORKING over four); exceptional collection of Herbaceous and Alpine Plants and rare Shrubs; good Decorative Roses; only 60 feet of glass for Plants for the hall; ordinary Kitchen Garden; man must be well recommended, active and intelligent, and married; some Nursery experience valued.—State age, former situations and wages required to MIDLANDS, Box 21, 41, Wellington Street, Covent Garden, W.C.

WANTED, good GARDENER (SECOND); experienced in Inside and Outside work; 14 kept; must be a total abstainer, clean, and hard-working; a married man preferred of between 25 and 35 years of age.—Apply, with references, to AGENT, Ponsbourne Park, near Hertford, Herts.

WANTED, GARDENER; married man and wife, without children, to occupy lodge and look after Gainsborough Gardens, Hampstead; wages 25s. per week and rent free.—Applications by letter only, with copies of two testimonials, on or before Friday, July 5th, to F. R. D. MONRO, 31, Queen Victoria Street, E.C.

WANTED, GARDENER (SECOND); thoroughly experienced; about 30 years of age; must have excellent character; married man; good wages and cottage.—Apply by letter to Mr. G. ARTHUR, Fan Court Lodge, Chertsey, Surrey.

WANTED, GARDENER (SECOND, INSIDE); good at Plants; must be well recommended; age about 25; 17s., Bothy, firing, light.—KIRTLAND, Hermitage Gardens, Walton Heath, Surrey.

WANTED, GARDENER (UNDER, INSIDE and OUT); preference given to one who can layer Carnations and Picking and Bunching Flowers; wages 18s.; live out.—Apply, MARSHALL, Dudley House, Isleworth.

WANTED, an active Man as LEADING HAND in Kitchen Gardens; good manager and knowledge of Hardy Fruits; thoroughly competent in producing successive crops of Vegetables to supply a large demand; age 30 to 40; married, with not more than two children.—Apply, ALLAN, Hillingdon Court Gardens, Uxbridge.

WANTED, married Man as LEADING HAND for large Pleasure Grounds; must be a good manager of men; well up in Herbaceous and Rock Plants, Shrubs and General work; wages 20s. per week, with good cottage.—State experience, where gained, and age, to HEAD GARDENER, King's Walden, Bury, Hitchin.

WANTED, active MAN to assist Gardener, and work generally in the grounds; good opportunity to improve; wages 10s. weekly and live in.—Apply, SECRETARY, National Sanatorium, Benenden, Kent.

WANTED, strong, active single MAN for Motor Lawn Mower; must have had previous experience.—State wages required, with references, to H. WILSON, Cole Orton Gardens, Ashby-de-la-Zouch.

WANTED at once, MAN for Pleasure Grounds; good Scythe Hand.—Apply, ALLISON, Gardener, Mastell Priory, Wakefield.

WANTED, a strong MAN for Lawns; not under 25; used to pony machine and scythe; no Bothy or lodging found; 25s. per week; duty once a fortnight.—R. WESTMORE, The Gardens, The Warren, Bushey Heath, Herts.

WANTED, FOREMAN (INSIDE); must be a good Decorator and experienced in Carnations, Plants and Fruit; £1 per week and Bothy.—J. GARDNER, Batsford Park Gardens, Moreton-in-Marsh, Gloucester.

WANTED, FOREMAN (INSIDE); must be thoroughly experienced; £1 per week; Bothy, &c.—Apply, with references, WILLIAM OWEN, Powerscourt, Enniskerry, co. Wicklow.

WANTED, JOURNEYMAN (SECOND) for Plant Houses under Foreman; age not under 23; wages 18s. per week, Bothy, &c.—Apply, J. S. CHIDLOW, Headington Hill Hall Gardens, Oxford.

WANTED, JOURNEYMAN (INSIDE); previous Inside experience essential; wages 18s.; Bothy, &c.; Sunday duty and overtime paid extra; preference may be given to good cricketer.—Apply, by letter only, giving experience, height and all particulars, to H. R. WHITELAW, Hever Castle, Hever, Kent.

WANTED, YOUNG GARDENER (UNDER); experience in Vegetables; references.—SKELTON, North Foreland Lodge, Broadstairs.

WANTED immediately, smart Young Man as SECOND (Inside); must be experienced in Fruit and Plants; wages £1; no Bothy.—Apply, H. LLOYD, Ewell Castle Gardens, Surrey.

WANTED, a strong, active YOUNG Man, not under 21, for General Work (Inside and Out); good experience; willing and obliging; alternate duty; wages 16s. weekly; Bothy and vegetables. Particulars, with height, to J. A. MULFORD, Merevale Hall Gardens, Atherstone.

WANTED, YOUNG MAN, not under 21, for Kitchen Garden and Pleasure Grounds, also assist Inside; wages 15s.; Bothy.—D. NORGATE, Caversfield Gardens, Bicester, Oxon.

WANTED, YOUNG MAN for Pleasure Grounds and to take duty; age 18-20; 15s., Bothy, &c.—H. BENBOW, The Gardens, Kingsdown House, Deal.

WANTED, YOUNG MAN as SECOND (Inside); must be good Plantsman and Decorator; wages 24s.; no Bothy.—Particulars to J. G. DAVIS, Eggington Hall Gardens, Derby.

WANTED at once, strong, active YOUNG MAN for Kitchen Gardens and Pleasure Grounds; wages 18s.; Bothy, &c.—R. BYWATER, Lennel, Coldstream, N.B.

WANTED, strong YOUTH; 18 to 20; experience had of Inside and Out; wages 15s.—SMITH, Clifton Lodge, Llandudno.

WANTED, a strong, active GARDEN BOY; age about 15; wages 8s. and Bothy.—Apply, R. STEVENS, Whitfield Gardens, Hereford.

WANTED, GROOM-GARDENER for country (Sussex); reliable married man, to take entire charge of small garden and horse; rooms provided over stable; not more than one child.—Address, with full particulars, "LAWNS," care of J. W. Vickers & Co., Ltd., 5, Nicholas Lane, E.C.

TRADE.

WANTED, near Manchester, FOREMAN (WORKING) for Market Garden; must thoroughly understand Forcing Valley and Tulips; state age, experience, and wages required, with references.—N. G., Box 8, 41, Wellington Street, Covent Garden, W.C.

WANTED, FOREMAN (WORKING) for small Retail General Nursery, near Birmingham, with good knowledge of Propagation of Roses, Fruit Trees, Ornamental, also some Herbaceous and Bedding Plants; must be a good Knifesman, and have good references.—Apply, giving age, &c., and wage asked, to J., Box 14, 41, Wellington Street, Covent Garden, W.C.

WANTED, GROWER; used to Ferns, Palms, and general stuff.—Apply, R. GIBSON & SONS, The Nurseries, Tunstall Road, Sunderland.

WANTED, GROWER for Market; must be well up in Carnations, Pot Roses, Chrysanthemums, &c.; must be energetic, and able to produce good-class stuff in quantity; progressive place to a good man.—MURCHISON, Clifton, York.

WANTED (N. London), capable GROWER to take charge Bedding; must be able to turn out stuff for Market.—A. W., Box 18, 41, Wellington Street, Covent Garden, W.C.

WANTED at once, GROWER; Ferns, Carnations and Forced Roses; good opening for good man.—Apply, COOKRADYE NURSERY CO., Woodside, Horsforth, near Leeds.

WANTED at once, two or three smart MEN for Cucumbers; wages 24s. per week and overtime; regular to smart men.—J. J. UPTON & SONS, Nurserymen, Irlam, near Manchester.

WANTED, at once, experienced ROSE BUDDER; state wages required; every encouragement to good man.—Apply, KILLERMONT NURSERY, Bearsden, Glasgow.

WANTED, intelligent MAN with knowledge of Alpine Plants (choice collection); able to lift and pack orders; and only those that know plants need apply.—State wages, &c., to REG. PRICHARD, Alpine Nursery, West Moors, Wimborne, Dorset.

WANTED, an experienced MAN to take charge of our outside department of hardy climbers and plants in pots, to execute and pack orders.—Apply, stating experience and wages required, to GEO. JACKMAN & SON, Woking Nurseries, Surrey.

WANTED for Carnation and Rose Growing, a smart, YOUNG MAN; wages 21s. to 23s. per week.—Apply, MANAGER, Ivybridge Nursery, Ivybridge, S. Devon.

WANTED, one or two YOUNG MEN, preferably with Garden and Farm experience, on the Southern Canadian Estate (Fruit Growing) of the Dominions Settlement Association; wages to commence $30 (£6) per month (board and lodging costs from £2 10s. to £3 10s. per month); must pay own fares, £8 10s.—Apply, MANAGERS, 22, St. James Street, London, S.W.

WANTED, Herbaceous Department, smart YOUNG MAN; well up in Propagation, Execution of Orders, Flower Shows, &c.—THYNE & SON, Nurserymen, Dundee.

WANTED, a few YOUNG MEN on Market Nursery, both Outside and Inside hands.—Gardeners seeking temporary employment may apply, stating particulars and wages required, to W. H. PAGE, Tangley Nurseries, Hampton, Middlesex.

WANTED, Young Man as SECOND in Fern Department.—State experience and wages required to CLIBRANS, Altrincham.

WANTED, YOUNG MAN; experienced in growing Ferns and general Market Stuff; permanent if suitable.—State wages, experience, &c., to JOHN PHILLIPS, Granton Road, Edinburgh.

WANTED, a YOUNG MAN who has had good experience in growing young Ferns, Palms, &c.—Apply, stating age and wages expected, to GROWER, Box 6, 41, Wellington Street, Covent Garden, W.C.

WANTED, YOUNG MAN for Orchid Houses in trade establishment; wages 18s.—Write ORCHID, Box 13, 41, Wellington Street, Covent Garden, W.C.

WANTED, single YOUNG MAN (British) to grow Outdoor Cut Flowers; used to Budding; willing to be useful; permanent; wages 24s.—FROOME & SON, High Road, East Finchley, N.

WANTED, IMPROVER for Outdoor Rose Department; must have experience in Budding.—Full particuars and wages required to CLIBRANS, Altrincham.

WANTED at once, IMPROVER in Herbaceous Plants.—State age, wages required and references, to BROADHEAD'S Wooldale Nurseries, Thongsbridge, Huddersfield.

WANTED, a traveller of experience in the Retail Seed and Nursery Trade, to call upon and solicit orders from gardeners; state age, wages expected, and what ground has been covered.—F. C. EDWARDS, Seedsman, Leeds.

AGENTS having a Connection amongst Land Agents, Stewards, Head Gardeners, &c., wanted to introduce good paying Proprietary Articles largely used; good opportunity for energetic men.—Write, SKUDDER & CO., 107, Tooley Street, S.E.

WANTED at once, energetic Man as SHOPMAN; Seeds, Nursery, Cut Flowers, Bookkeeping, Exhibiting occasionally; good post.—W. & J. BROWN, Peterborough.

SEED TRADE.—Wanted, September or earlier, experienced COUNTER HAND; Scotch firm; well up in Seeds, Plants, Bulbs and Sundries.—State experience and full particulars to P. W., Box 9, 41, Wellington Street, Covent Garden, W.C.

WANTED, SEEDSMEN.—One or two Young Men with a thorough counter training in Vegetable and Flower Seeds and Bulbs; must be of good address, habits, and character, and be prepared to go abroad; state age and all particulars as to experience, salary, &c.—"ATLANTIC," Box 2, 41, Wellington Street, Covent Garden, W.C.

WANTED, WAREHOUSEMAN for abroad, a Young Man with a good all-round knowledge of Garden and Farm Seeds, especially Grasses, Peas, and Beans, and how to clean them; must be strictly temperate and of good character.—Apply, stating age, salary, &c., "AGROSTIS," Box 2, 41, Wellington Street, Covent Garden, W.C.

REQUIRED, an active YOUNG MAN, with knowledge of English catalogue work and correspondence, as CLERK for a first-class German Seed Firm; German with English experience and perfect knowledge of English preferred.—Apply by letter, stating age, experience, salary required, and full particulars, to M. B., Box 10, 41, Wellington Street, Covent Garden, W.C.

WANTED, OFFICE CLERK to go abroad, a Young Man who has had good office experience in a Seed Establishment; must be reliable, competent, temperate, of good character and habits, and a good penman.—Apply, stating age, salary, experience, &c., "HORTUS," Box 2, 41, Wellington Street, Covent Garden, W.C.

WANTED, a JUNIOR CLERK, with experience in the Dispatching and Invoicing of Nursery Stocks.—Apply, stating age, wages required, and full particulars as to experience, to W. FROMOW & SONS, Windlesham Nurseries, Surrey.

WANTED, JUNIOR INVOICE CLERK, with two or three years' experience in office routine. Apply in own handwriting, stating age, experience and salary required, to WM. CUTBUSH & SON, Highgate Nurseries, London, N.

WANTED, EXTRA HANDS for a Large Decoration, Sunday and Monday next.—CLEMENT LEROY, 153, High Street, Notting Hill Gate.

WANTED, immediately, LADY FLORIST; must be first-class maker-up and with good business capacity.—Send full particulars of experience, wages, and age to ALEX. DICKSON & SONS, LTD., 61, Dawson Street, Dublin.

WANTED, LADY FLORIST; smart; good saleswoman and maker-up.—JOHN E. KNIGHT, Florist, Wolverhampton.

SITUATIONS WANTED.

Twenty-six words for 1/6, & 6d. for each succeeding Eight words or less.

PRIVATE.

Gardeners, Farm Bailiffs, Foresters, &c.

DICKSONS, Royal Nurseries, Chester, are always in a position to RECOMMEND MEN of the highest respectability and thoroughly practical at their business. All particulars on application.

CLIBRANS, Nurserymen to H.M. the King, Altrincham, can recommend thoroughly practical, well experienced Men, of high character, as GARDENERS (Head or Under), FORESTERS, &c. Correspondence invited.

GARDENER (HEAD) seeks Re-engagement with any Lady or Gentleman requiring a first-class Gardener; life experience in all branches pertaining to Horticulture and Landscape work; nine years as Head; excellent references; age 41, no family.—R. PRATT, Beachborough, Shorncliffe, Kent.

GARDENER (HEAD); good experience; Grapes, Peaches, Melons, &c., Stove and Greenhouses, Kitchen Garden, choice and other Flowers; age 39; married, no family; good reference.—DEBNAM, The Lodge, Chesfield Park, Stevenage.

GARDENER (HEAD, where more are kept) or MARRIED FOREMAN; life experience; age 31; can be well recommended to Lady or Gentleman.—H. SMITH, Moor Hall, Cookham, Berks.

THE COUNTESS of ANCASTER will be pleased to recommend HENRY LYDIATT as GARDENER (Head) to any Nobleman, Lady or Gentleman requiring the services of a thoroughly efficient and trustworthy man; first-class references; 12 years as Head.—Apply, H. LYDIATT, Grimsthorpe Castle Gardens, Bourne.

GARDENER (HEAD of three or more); life experience; good recommendations from present and previous employers; age 28; married when suited; First-class Certificate from the R.H.S.—BOWLES, 10, Devonshire Road, Mottingham, Eltham, Kent.

GENTLEMAN highly recommends GARDENER (Head); experienced in all branches under glass and outside; laying out, land and stock; no family.—HEATON, South Lodge, Cressingham Park, Reading.

GARDENER, age 27, seeks Situation as HEAD, where about two more are kept; experienced in Vines, Peaches, Melons, Cucumbers, Tomatos, Stove and Greenhouse Plants, Kitchen Garden, Flower Garden, and Pleasure Grounds; 10 years' experience.—FERGUS ATKINSON, Montreal Gardens, Riverhead, Sevenoaks, Kent.

GARDENER (HEAD); thoroughly experienced in Plant and Fruit Cultivation; Roses, Carnations, Violets, Alpines, rare Shrubs and Trees a speciality; Landscape and Garden alterations; good manager of men. T. BENNETT, 6, The Villas, Oadby, Leicester.

GARDENER (HEAD, where two are kept); thorough good all-round, practical experience both Inside and Out, also with Herbaceous Plants; excellent character.—H. GARDENER, 124, Hampstead Road, London, N.W.

GARDENER (HEAD) seeks Situation where four or five are kept; practical experience in Vines, Peaches, Stove and Greenhouse Plants, Cucumbers, Melons, Chrysanthemums, Lawns, Kitchen Garden and Herbaceous; 10 years Head; good references; married.—NEWELL, Ashlyns Hall Gardens, Great Berkhampsted, Herts.

GARDENER (HEAD or good SINGLE-HANDED); life experience Inside and Out; Fruit, Flowers, Vines, Cucumbers, Melons, Vegetables, &c.; married.—Mr. ERNEST, 10, Alexandra Road, Landport, Portsmouth. (No circulars.)

GARDENER (HEAD or thorough SINGLE-HANDED); life experience in good establishments; six years last situation; good references; age 29; disengaged.—W. WAITE, 121, Taunton Road, Lee, S.E.

GARDENER (HEAD or good SINGLE-HANDED); life experience in good places, 12 and 9 years; steady and trustworthy; age 38; married.—ANDREWS, 38, Southwood Lane, Highgate.

GARDENER (HEAD WORKING); thoroughly experienced in all branches; good references; disengaged July 20th; age 35; married, no family.—F. CHURCHMAN, The Lodge, Roche Court, Fareham, Hants.

GARDENER (HEAD WORKING); 17 years' practical experience in good establishments; excellent references; age 32.—EMMERSON, The Gardens, Falkland Park, South Norwood Hill, S.E.

GARDENER (HEAD WORKING, where three or more are kept); age 49; married, no family; experienced in Vines, Peaches, Melons, Cucumbers, Tomatos, Stove and Greenhouse Plants; Flower and Kitchen Garden and Pleasure Grounds; five years in present place; good reference.—W. SCOTT, Six Mile Bottom, Newmarket.

GARDENER (HEAD WORKING); by thorough good, practical, competent, trustworthy, all-round Gardener; 28 years' experience in all branches of gardening; age 45; total abstainer; married, no family; Land and Stock; wife thorough good Dairy and Poultry woman; highest references.—GARDENER, Trevercle, Maidenhead, Berks.

GARDENER (HEAD WORKING, where more are kept); 25 years' practical experience in all branches Inside and Out; Orchids, Vines, Peaches, Cucumbers, Melons, Stove and Greenhouse Plants, and Herbaceous Borders; highly recommended; age 36; married, no family; abstainer. F. BUSH, 56, Buxton Villa, Rusthall, Tunbridge Wells.

GARDENER (HEAD WORKING); life experience; age 38; well recommended as good all-round man; 12½ years Head in present place; leaving through death; well experienced Orchids, Herbaceous, and Alpines.—WARREN, Highfield Gardens, Gainsborough.

GARDENER (HEAD WORKING).—Mr. COLLETT, Kirtlington Park, highly recommends H. STEDMAN where three or more are kept; life experience Inside and Out; Vines, Fruit, Flowers, Kitchen Garden; age 35; married, two children; life abstainer; good references.—STEDMAN, Bicester Lodge, Kirtlington Park, Oxon.

GARDENER (HEAD WORKING, where several are kept); life experience in all branches; Land and Stock if required; disengaged; 12 years' good character; age 42.—F. COLES, 108, Third Cross Road, Twickenham.

GARDENER (HEAD WORKING); smart practical man; life experience; four years' present place as Foreman; excellent references; age 31.—S., care of SELSBY, Western Road, Haywards Heath.

GARDENER (HEAD WORKING, with one or two under; age 38; life experience Inside and Out; good references.—Address, GARDENER, Hareby House, Spilsby, Lincs.

GARDENER (HEAD WORKING).—Mr. H. G. BULL, Breakspears, highly recommends C. HARBERT as above; well versed in cultivation of Flowers, Fruit, and Vegetables; practical experience; age 30.—Breakspears Gardens, Uxbridge, Middlesex.

GARDENER (HEAD WORKING, where more are kept); thorough practical first-class man; experienced in all branches; excellent testimonials.—G. BARTLE, 43, Wigston Lane, Aylestone, Leicester.

GARDENER (HEAD WORKING, with one or two under), seeks engagement where good all-round man is required; life experience Inside and Out; employer highly recommends; age 33; one child (eight).—T. B., Box 12, 41, Wellington Street, Covent Garden, W.C.

GARDENER, with one under.—Mr. FAIRFAX RHODES can highly recommend J. SIMPSON, who has been in his service, where a staff of eight is kept, for four years; married when suited.—Address, Brockhampton Park, Andoversford, S.O., Glos.

GARDENER or GARDENER and ESTATE MANAGEMENT if required; 25 years' practical experience in all branches Inside and Out; early and late Forcing; thoroughly reliable; highly recommended; married, without encumbrance—F. WOODHOUSE, Blackboys, Uckfield, Sussex.

GENTLEMAN wishes to recommend his GARDENER to any Lady or Gentleman requiring a thoroughly hard-working, good all-round man; married; no encumbrance; wife domesticated; 6½ years' good character.—WOOD, Wildecroft, Betchworth.

GARDENER, age 30, desires Situation; life experience Inside and Out; seven years in present situation.—E. COX, Bilton Hill, Rugby.

GARDENER (INSIDE and OUTSIDE); age 22; five years' experience.—E. H., Box 15, 41, Wellington Street, Covent Garden, W.C.

FRENCH GARDENER, experienced in all branches, seeks appointment in private garden or Nursery; highest references.—B. J. N., Box 26, 41, Wellington Street, Covent Garden, W.C.

J. STEPHENS, Culham Court Gardens, Henley-on-Thames, can with confidence recommend LOUIS HART for Kitchen Garden or Pleasure Ground; age 29; married, one child; three years here.

GARDENER (good SINGLE-HANDED); used to poultry and stable work; good reference; age 32; married, one child, four years; 4½ years at present place.—MEAD, 185, Queens Road, Watford, Herts.

GARDENER (SINGLE-HANDED or good SECOND) seeks situation; experienced in Flowers, Vegetables, and Glass; good reference; age 29; married when suited. E. VINCE, School Street, Stoke-by-Mayland, Colchester.

GARDENER (SINGLE-HANDED or with help); middle aged; life experience; 10 years present situation; no children.—SPURGEON, 31, St. Marys, Merton Park, Surrey.

GARDENER (SINGLE-HANDED or SECOND); age 29; single; life experience in all branches; good references.—SMITH, Gardener's Cottage, Goldsmiths, Langdon Hills, Essex.

GARDENER (SINGLE-HANDED or with help); 14 years' practical experience Inside and Out; age 33; married when suited; good references.—CHATTERTON, 3, Ferndale Road, Banstead, Surrey.

GARDENER (SINGLE-HANDED or with help); experienced in all branches; age 39; married, no family; good references; disengaged.—GARDENER, 2, Wharf Road, Brentwood, Essex.

GARDENER, strong, seeks Situation (SINGLE-HANDED or with help); age 32; life abstainer; good references.—W. C. SYMES, 1, Alma Road, Bassett, Southampton.

GARDENER (SINGLE-HANDED or with help); life experience; five years' good reference; married, no family; age 39.—F. POVEY, 68, Seaford Road, Wokingham. (No circulars.)

GARDENER (SINGLE-HANDED or otherwise); well up in all branches; 5½ years' good reference; married.—H. WAITE, 18, Seymour Gardens, Twickenham.

GARDENER (SINGLE-HANDED, or where help is given); experienced all round; good references; abstainer; married when suited; age 26.—J. HOLLAND, Kiln House, Southend, Henley-on-Thames.

REV. F. E. BIGNOLD, Medstead Rectory, wishes to recommend his Gardener, J. WARWICK, age 22 (single), as SECOND, with general knowledge Inside and Out; life experience.—8, Byfleet Road, Weybridge, Surrey.

GARDENER or good SECOND; has had good all-round experience under Glass and Outside; age 30; single; good references.—H., 18 Caroline Place, Bayswater, W.

GARDENER (SECOND, where three or four are kept); 10 years' experience Inside and Out; well recommended.—H. WATKINS, Thedden, Alton, Hants.

GARDENER (SECOND, INSIDE or OUT) seeks situation; eight years' experience; age 23; good references; disengaged. F. WHITING, Aldwych Cottages, Donnington, Berks.

GARDENER (SECOND, where three or four are kept, or SINGLE-HANDED); Inside and Out; good references; age 28.—W. FENNELL, Northerwood, Lyndhurst, Hants.

GARDENER (SECOND or SINGLE-HANDED) seeks situation; nine years' experience; good reference; age 23.—J. SAMPSON, 6, Coulsdon Cottages, Buxton Lane, Caterham, Surrey.

GARDENER (SECOND, INSIDE or INSIDE and OUT); 14 years' experience; age 27; married when suited.—A. ROBINSON, Queen's Road, Royston, Herts.

GARDENER (SECOND, INSIDE and OUT) seeks Situation; 13 years' experience; age 28; single; good references.—E. SLOSS, Kingsbury, The Hyde, N.W.

MR. KEMP, Hazell Hall Gardens, Peaslake, Guildford, wishes to highly recommend R. BEESLEY as SECOND (Inside and Out); age 26; two years here as Second.

GARDENER (UNDER); age 26; life experience; excellent references; distance no object; single.—C. WHITE, West Lodge Gardens, Hadley Wood, near Barnet.

GARDENER (UNDER).—Young Man, age 18, seeks Situation in Gentleman's garden; two years' good character.—Apply, FRANCIS, Holmwood Park Cottage, Holmwood, near Dorking.

GARDENER (UNDER) seeks Situation in Kitchen Garden and Pleasure Grounds; excellent references.—W. CORBETT, 8, Heather Cottages, Esher, Surrey. (No circulars.)

GARDENER (UNDER); age 20; willing and not afraid of work; good references.—A. SPINK, Needham, Harleston, Norfolk.

GARDENER (UNDER), 24, seeks Situation Inside and Out in good garden; nine years' experience; good references; abstainer.—Apply, S. SPRING, Hazel Shrub, Bentley, near Ipswich.

MR. CARTER, Sunnyfield Gardens, West Heath, Hampstead, also Mr. JOHNS, Milton House Gardens, Alsager, Stoke-on-Trent, highly recommend L. MOON as FOREMAN or SECOND; age 27; married. (No circulars.)

MR. G. H. JOHNSTONE, Trewithen, Grampound Road, Cornwall, will be pleased to recommend C. ROBINSON as FOREMAN (Inside); 11 years' experience with Fruit, Plants, House and Table Decoration in large establishments; previously two years at Woburn Abbey Gardens; age 25.

FOREMAN (INSIDE) or good GARDENER (SECOND); 12 years' good experience; all Fruit, Plants, Carnations, Chrysanthemums, and Decorating; well recommended; married when suited.—M., Box 5, 41, Wellington Street, Covent Garden, W.C.

FOREMAN (INSIDE); age 28; good experience in Vines, Peaches, Plants, House and Table Decoration; disengaged.—S. WHITMORE, Llanberis, Honey Lane, Waltham Abbey, Essex.

FOREMAN (INSIDE).—Mr. QUAINTON, Gardener to Viscount Midleton, Peper Harow, Godalming, can highly recommend H. DINNAGE; three years here as above; life experience; age 28; single.—H. DINNAGE, Taylor's Gate, Capel, near Dorking, Surrey.

FOREMAN (INSIDE or GENERAL); age 25; experienced Fruit, Flowers, House and Table Decorations; highly recommended.—Apply, G. KEMP, Woolhampton Park Gardens, Woolhampton, Berks.

FOREMAN (GENERAL or INSIDE), seeks Situation; life experience in all branches, including House and Table Decoration; three years as Foreman; age 28.—H. M., Box 12, 41, Wellington Street, Covent Garden, W.C.

JOURNEYMAN (FIRST) in Plant Houses; eight years' experience in Orchids, Stove Plants, Tree Carnations, and Chrysanthemums; age 21; good references.—F. HARVEY, Nordley Common, near Bridgnorth, Shropshire.

JOURNEYMAN (SECOND), age 21, seeks situation; Kitchen Garden or Pleasure Grounds; six years' experience in good establishments; good references; Bothy preferred.—WICKHAM, Lovetts, Croxley Green, Herts.

JOURNEYMAN (INSIDE); age 23; good references; height 5 feet 10 inches; Bothy preferred.—F. HUXFORD, Andover Cottage, New Road, Ascot, Berks.

A. MATTHEWS, Everley House, Marlborough, will be pleased to recommend T. CARTER as JOURNEYMAN (Inside, under Foreman); five years' experience; age 20.—T. CARTER, Collingbourne, Marlborough.

JOURNEYMAN (INSIDE and OUT); three years last situation; able to take duty; age 19; Bothy preferred.—B. JOY, Kingston, Ringwood, Hants.

W. DOIDGE, Barley Thorpe Gardens, Oakham, highly recommends A. STUDD, aged 25, strong and willing, for Inside and Out; eight years' experience; two years here.

MR. G. H. CLACK, Wexham Park Gardens, Slough, Bucks, wishes to recommend Young Man as LEAD on Pleasure Grounds or Kitchen Garden; age 27; good references.

YOUNG MAN (23) seeks Situation; Kitchen Garden or Pleasure Grounds; willing and obliging; can be well recommended; abstainer; Bothy preferred.—H. GUNNELL, Gt. Missenden, Bucks.

YOUNG MAN, age 20, requires Situation Inside under Foreman to improve himself; six years' experience.—G. REVENS, Junr., 36, Elliott Road, Bromley, Kent.

YOUNG MAN (26) seeks Situation; Gardener (Single-handed) or would take good place as Groom; gardener over two years last place; willing and obliging.—R. K., Box 8, 41, Wellington Street, Covent Garden, W.C.

YOUNG MAN seeks Situation; Pleasure Ground and Kitchen Garden; horse and hand machine; tall and strong; age 20; able take duty.—R. GARDINER, Longshaw Lodge, Chipstead, Surrey.

YOUNG MAN seeks Situation; Pleasure Ground or Kitchen Garden; 8½ years' experience; good references; age 26.—Apply, H. SMITH, Exning House Gardens, Newmarket.

YOUNG MAN seeks Situation as UNDER in Gentleman's Garden; age 20; good references; abstainer; willing and obliging.—Apply, H. HAWKINS, Elm Cottages, Saunders Lane, Mayford.

YOUNG MAN, age 27, single, seeks situation in Kitchen Garden and Pleasure Grounds; good experience and references.—E. HORTON, 69, Curzon Street, Calne, Wilts.

YOUNG MAN, age 21, seeks Situation as JOURNEYMAN (Inside or Inside and Out) in good establishment; six years' experience; well recommended.—P. DE PEARE, The Gardens, Hatchlands Park, East Clandon, Guildford.

IMPROVER (INSIDE); age 18½; four years' experience, wants a Situation in a good garden.—A. ETTERLEY, Woolsthorpe-by-Belvoir, Grantham.

MR. KING, Gardener to the Lord Ampthill, can thoroughly recommend THOMAS SMART as IMPROVER (Inside and Out); two years' experience; age 17.—KING, Milton Ernest Hall, Bedford.

ARTHUR P. FORD can highly recommend E. HOWLEY as IMPROVER; three years' experience.—Apply, E. HOWLEY, Hodsock Priory Gardens, Worksop, Notts.

LAD, age 18, seeks Situation in Garden; Bothy; Surrey preferred; two years' experience; recommended by Gardener.—WM. MARTIN, 53, Addington Road, West Croydon, Surrey.

GROOM - GARDENER, Pleasure Ground or Garden Labour, seeks Situation; age 33; one in family, age 8; good Scythe hand.—G. RICKSON, Upper Lodge, Feldemore, near Dorking.

ELECTRICIAN seeks Situation to take charge of electric plant, gas, oil, or steam engine; good knowledge of dairy and other machinery; good carpenter.—H. G., Box 11, 41, Wellington Street, Covent Garden, W.C.

HEAD GARDENER recommends HANDY MAN for Painting, Glazing and general repairs; age 26; good references.—Apply, FRANK PRATT, care of J. B. Clarke, Newnham-on-Severn, Glos.

HANDY MAN for Gentleman's Estate; do Painting, Glazing, rough Carpentry, French Polishing, Soldering, and very useful.—H. W., 44, Blackheath Hill, Lewisham.

PAINTER and PAPERHANGER and all-round Hand on estate; knowledge of rough carpentring; good references.—J. SPACKMAN, Queen's Road, Lyndhurst, Hants.

TRADE.

MANAGER (WORKING); English (43); well up in Fruit, Roses, Forest and Ornamental Trees, Plants, Fruit, Cut Bloom, Bulb and Valley Forcing, &c.; Propagator all Trees and Plants; highest references.—ROGERS, Beaumont, Ballintemple, Cork.

MANAGER or FOREMAN; 25 years' practical experience in London and Provincial Nurseries; good manager of men; good references.—D. LAWRENCE, 27, Formosa Street, Paddington.

FOREMAN (WORKING); life experience Cucumbers, Tomatos, Chrysanthemums, Bedding Plants, Bulb Forcing, Fern Growing, Budding, Grafting and general Nursery work; good testimonials from present and past employer.—C. B., 2, Park Place, Petersham, Surrey.

FOREMAN (WORKING); London-Provincial experience; Grower all Pot Plants, Bedding and Soft-wooded Stuff, Ferns, Palms, Cut Bloom, Chrysanthemums, Bulbs, Fruit; Routine, Forcing, Propagating; good references.—Ivy Cottage, Leighs, Chelmsford.

FOREMAN seeks Re-engagement; 20 years' Market experience; raising, propagating, and growing general market plants, cut flowers, and foliage.—WRAIGHT, Weald Villas, Willoughby Road, Langley, Bucks.

LANDSCAPE FOREMAN (WORKING); experienced in all kinds of Laying Out, Rock Garden and Rustic Building; good control over men.—GRAHAM, 217, Liverpool Road, Cadishead, Lancashire.

FOREMAN or GROWER; Cucumbers, Tomatos, Ferns, Bedding Stuffs; good references; N.S. experience; can take charge small market nursery.—PRESTON, 18, Knowleshill Crescent, Hither Green, S.E.

PROPAGATOR-GROWER; practical; long experience; Market Gardening, Cucumbers, Tomatos, Vines, Peaches, general Cut Bloom, Forcing, also outdoor Fruits, Vegetables; abstainer; highest references.—GARDENER, 8. Trinity Road, Ventnor.

GROWER (28); on General Nursery; Wholesale and Retail experience; Tomatos, Chrysanthemums, Pot Stuffs, Bulbs, &c.—A. C. SELLEY, 42, Brandenburgh Road, Gunnersbury, W.

GROWER seeks Situation; good experience in Fern Raising and general Market Stuff, also Cucumbers and Tomatos.—F. C., Box 16, 41, Wellington Street, Covent Garden, W.C.

ADVERTISER (26) requires Situation as GROWER; Cucumbers, Tomatos, Chrysanthemums, Bedding Stuff, and general Nursery work; good references.—A. BARNARD, 5, West's Place, Norwood Green, Southall, Middlesex.

CARNATION GROWER (34); life experience in leading Nurseries; good Propagator; first-class references.—"F.," Box 19, 41, Wellington Street, Covent Garden, W.C.

FRUIT and ROSE GROWER seeks permanent Situation; good and successful Budder and Grafter, Pruning, Executing Orders, and general routine.—GROWER, Box 18, 41, Wellington Street, Covent Garden, W.C.

ADVERTISER, married (28), seeks situation as GROWER, or could take charge of small place; well up in Grapes, Tomatos, Cucumbers, Chrysanthemums, &c.; excellent references from last and previous employers.—ALFRED TANDY, Ashton-under-Hill, Tewkesbury, Glos.

HERBACEOUS and Alpines; Propagating, Hybridising, Rock building, &c.; many years practical experience; also Cataloguing.—B. R., Box 14, 41, Wellington Street, Covent Garden, W.C.

GARDENER (25) seeks Situation in general Nursery work (Inside); nine years' Nursery training.—CARNATION, Box 7, 41, Wellington Street, Covent Garden, W.C.

GARDENER (25) seeks constant situation; well up in Tomatos, Cucumbers, Ferns; all-round Nursery Stuff; excellent references.—W. THORN, 15, Reginald Road, Northwood, Middlesex. (No circulars.)

MAN wants Situation in Nursery work (Inside); experienced at Tomatos, Bedding Stuff, Ferns, &c.—F., Chapel House, Pensarn, Llandudno Junction.

YOUNG MAN seeks Situation in general Market Nursery; 14 years' experience; well up in Carnations; good references.—E. FRENCH, 2, Jubilee Cottages, Broadwater, Worthing.

YOUNG MAN, age 24, seeks permanent place; well up in Budding, Grafting, Training, and reliable Rose Budder; excellent references.—G. W., Box 4, 41, Wellington Street, Covent Garden, W.C.

YOUNG MAN, age 24, seeks Situation in Nursery or Private Garden in Palms, Carnations, Chrysanthemums, Tomatos, and general Nursery work; 10 years' reference; disengaged.—C. N., Brown's Farm, Stubbington, Fareham, Hants.

NURSERYMAN and FLORIST (33); single; life experience Growing, Salesman, and Floral work; high-class; seeks Re-engagement; excellent references.—J. R. R., 12, North Street, Farncombe, Surrey.

FLORIST and SEEDSMAN seeks Engagement; thoroughly experienced all branches; smart Salesman; capable of taking charge; age 25; energetic.—FLORIST, 98, Percy Road, Hampton, Middlesex.

TO SEEDSMEN.—Advertiser seeks Re-engagement, Wholesale or Retail; long experience in all branches, Nursery included.—Address, "SEEDS," 106, Oxford Avenue, St. Mary's Road, Southampton.

In consequence of the increase in the circulation, and also of the earlier despatch of the morning trains from London, the hour of going to press has been again advanced, and in future Advertisements received after 5 p.m. on WEDNESDAY will be held over till the following week. On no consideration whatever will any exception be made to this rule.

J. WEEKS & Co. (CHELSEA),

Telegrams: "Hortulanus, London."
Telephone: 5947 Victoria.

The First Established Horticultural Building Firm in 1808. Foremost in 1912.

UNDER THE DISTINGUISHED PATRONAGE OF

HIS ROYAL HIGHNESS THE LATE PRINCE CONSORT.
HIS MAJESTY'S BOARD OF WORKS.
THE ADMIRALTY.
HER MOST GRACIOUS MAJESTY THE LATE QUEEN VICTORIA,
THE ROYAL HORTICULTURAL SOCIETY.
THE WAR OFFICE.

ORDERS FOR HORTICULTURAL BUILDINGS & HEATING INCLUDE THE FOLLOWING:—

The Rt. Hon. THE COUNTESS OF CAVAN, Wheathampstead House, Wheathampstead, Herts.
The Rt. Hon. THE COUNTESS OF WINCHILSEA, Sleaford, Lincs.
The Most Hon. THE MARQUESS OF AILESBURY, Savernake Forest, near Marlborough.
The Most Hon. THE MARQUESS OF BATH, Longleat, Warminster, Wilts.
The Rt. Hon. THE EARL OF DENBIGH, Newnham Paddox, Butterworth.
The Rt. Hon. VISCOUNT BOYNE, Brancepeth Castle, Co. Durham.
The Rt. Hon. LORD CALTHORPE, Woodlands Vale, Ryde, I.O.W.
The Rt. Hon. FREDERICK HUTH JACKSON, Possingworth Manor, Heathfield, [Sussex.
Lieut.-Col. Sir G. L. HOLFORD, Westonbirt, Tetbury, Glos.
Sir SAMUEL BOULTON, Bart., Copped Hall, Totteridge Hall, Totteridge, Notts.
Sir CHARLES JESSELL, Bart., Ladham, Goudhurst, Kent.
J. B. JOEL, Esq., Childwick Bury, near St. Albans.
Mrs. HARFIELD, Sunbury Court, Sunbury, Middlesex.
W. L. CHRISTIE, Esq., Glyndebourne, near Lewes.
J. C. HICKMAN, Esq., Micklefield Green, Rickmansworth.
ALLAN SCOTT, Esq., Holbrooke, Horsham.
Mrs. ANGUS, Fulmer Hall, Gerrard's Cross, Bucks.
J. W. STEPHENS, Esq., Cuckoo Hill, Pinner.
Miss HUBBARD, Holmfield, Ealing, W.
J. F. LOGAN, Esq., East Langton Grange, Leicestershire.
A. TREWBY, Esq., Fentham House, The Grove, Hampstead, N.
Mrs. LEE, Hartwell House, Aylesbury, Bucks.
Mrs. WARTON, Deacon's Hill, Elstree, Herts.
GEO. INGRAM, Esq., Gorse Hill, Woking.
R. MORTON, Esq., Woodside Park, London, N.
Capt. THYNNE, Penstowe, near Bude, Cornwall.
J. C. LOMAX, Esq., Sutton Hoo, Woodbridge, Suffolk.
W. MORTLOCK, Esq., Upper Richmond Road, Putney, S.W.
W. A. BOURNE, Esq., Garston Manor, Watford.
F. CRAWLEY, Esq., Stockwood, Luton.
Mrs. HANSARD, Stanbridge Earls, Romsey.
MALCOLM SCOTT, Esq., Moray Lodge, Newmarket.
Mrs. COLBORNE, Nonsuch Park, Cheam, Surrey.
R. M. KINDERSLEY, Esq., Langley House, Abbots Langley, Herts.
McKAY EDGAR, Esq., Chalfont, Gerrard's Cross, Bucks.
Mrs. PHILLIPS, Abbey Cwmhir, Penybont, Radnorshire.
DAVID YULE, Esq., Hanstead House, Bricket Wood, Herts.
Mrs. SPRAGUE, The Firs, Bickley, Kent.
E. H. DAVIDSON, Esq., Borlasses, Waltham St. Lawrence, nr. Twyford.
F. T. JEFFERSON, Esq., Lapworth, Warwickshire.
Mrs. CARSON, 111, Harley Street, W.
R. M. HORNE PAYNE, Esq., Merrymead, Brentwood, Essex.
Col. HICKSON, Delmonden Grange, Hawkhurst.
Major MAXWELL, Great St. Davids, Kingswood Common, Peppard, Oxon.
Mrs. LEWIS, 113, Park Street, W.
COUNTRY GENTLEMEN'S ASSOCIATION, Letchworth.
FINDON CHURCH, Findon, near Worthing.
St. MARTIN'S CONVENT, Muswell Hill, N.W.

PATENTEES OF WEEKS' PATENT "DUPLEX" UPRIGHT TUBULAR BOILERS.
(A number of each size of boiler and parts always kept in stock for replacements.)

We spare no effort to uphold our reputation for first-class work only, at lowest prices.

Please Address all Letters to HEAD OFFICE } **72, VICTORIA ST., WESTMINSTER, S.W.**

By Special Appointment *To His Majesty The King.*

LAWN MOWERS. GREEN'S AND ROLLERS.

Highest Awards, Royal Botanic Society, Royal Horticultural Society, and numerous others.

GREEN'S "SILENS MESSOR" LAWN MOWERS

STAND PRE-EMINENT.
Hundreds of Thousands in use.

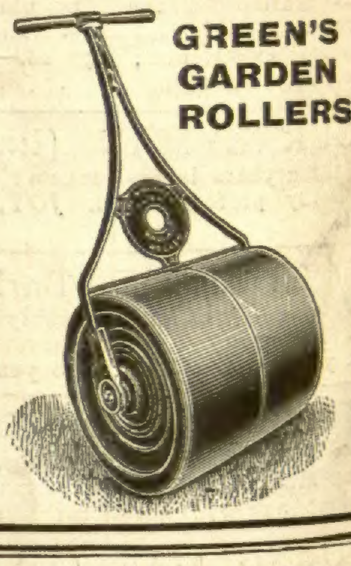
PONY AND HORSE MOWER.
"Silens Messor"
or Wheel-geared Pattern.

Motor Lawn Mowers and Rollers made in various sizes.

May be had from any Ironmonger or Seedsman in the United Kingdom.

PLEASE WRITE FOR ILLUSTRATED PRICE LIST No. 4 FREE.

GREEN'S GARDEN ROLLERS



THOMAS GREEN & SON, Ltd., Smithfield Ironworks, Leeds, and New Surrey Works, Southwark St., London, S.E

WM. THOMSON & SONS LIMITED 1868 1912

THOMSON'S Celebrated MANURES

FIRST, alike for quality and results.

SAFE, SURE & LASTING.

The result of many years' **practical** experience.

VINE, PLANT AND VEGETABLE MANURE.—1 cwt., **20/-**; ½ cwt., **10/-** ¼ cwt., **6/-**; 14 lbs., **3/6**; 7 lbs., **2/6**; Tins, **2/6, 1/-** & **6d.** Car. paid on 1 cwt. anywhere.

SPECIAL TOP-DRESSING MANURE.—½ cwt., **20/-**; ¼ cwt., **11/-**; 14 lbs., **6/-** 7 lbs., **3/6**; Tins, **1/-** Carriage paid on ½ cwt. anywhere.

Also Thomson's Book on the Vine. **Thomson's Styptic.**

SOLD BY NURSERYMEN & SEEDSMEN EVERYWHERE.

Write for Pamphlets, Price Lists, etc., to

Sole Makers: WM. THOMSON & SONS, Ltd., Clovenfords, Scotland.

REDNALL'S INSECTICIDE.

An ideal spraying fluid for the Garden and Greenhouse. Instant death to all Aphides, Red Spiders, Scale Insects, Thrips, Mealy Bugs, Ants, Caterpillars, etc., but absolutely non-injurious to plant life. Non-poisonous, pleasant odour, no trouble to prepare, mixes readily with cold water. Trial bottles, 9d., post free; quarts, 2/6; 1 gallon, 7/6 (car. paid), REDNALL, Chemist, WOKINGHAM. Agents wanted.

GARDEN & TENNIS NETS

(Best Tanned only, Small Mesh).

50×8 yds., **17/-**; 25×8 yds., 50×4 yds., 100×2 yds., **8/-** each; 100×1 yd., 50×2 yds., 25×4 yds., **4/-** each. Any size to order.

TENNIS NETTING (Corded), 25 × 2 yds., **6/6**; 25×3 yds., **7/6**; 25×4 yds., **8/6** each.

Prompt Delivery. Write for Price List and Testimonials.

L. WREN & SON,
Net Merchants, 139, High Street, Lowestoft.

Printed for the Gardeners' Chronicle, Limited, by TEMPLE PRESS LTD., 7-15, Rosebery Avenue, London, E.C., and Published Weekly by "The Gardeners' Chronicle, Ltd." 41, Wellington Street, Covent Garden, City of Westminster, SATURDAY, June 29, 1912. Agent for Manchester: JOHN HEYWOOD.